ΕΥΣΤΡΑΤΙΟΣ Ι. ΓΕΩΡΓΑΚΑΡΑΚΟΣ

Αναπληρωτής Καθηγητής Αγγειοχειρουργικής

Ιατρική Σχολή Αλεξανδρούπολης

«Δημοκρίτειο» Πανεπιστήμιο Θράκης

ΒΙΟΓΡΑΦΙΚΟ ΣΗΜΕΙΩΜΑ

ΣΠΟΥΔΕΣ

ΕΠΙΣΤΗΜΟΝΙΚΗ ΔΡΑΣΤΗΡΙΟΤΗΤΑ

ΕΡΕΥΝΗΤΙΚΟ ΕΡΓΟ

ΔΙΔΑΚΤΙΚΟ ΕΡΓΟ

ΚΛΙΝΙΚΟ ΕΡΓΟ

ΑΛΕΞΑΝΔΡΟΥΠΟΛΗ 2025

ΠΕΡΙΕΧΟΜΕΝΑ

Ι. ΓΕΝΙΚΕΣ ΠΛΗΡΟΦΟΡΙΕΣ

Ι. ΠΡΟΣΩΠΙΚΑ ΣΤΟΙΧΕΙΑ

Όνομα:	Ευστράτιος
Επώνυμο:	Γεωργακαράκος
Όνομα Πατρός:	Ιωάννης
Όνομα Μητρός:	Ανθούλα
Αριθμός Αστυνομικής Ταυτότητας:	ΑΗ 964855
Ημερομηνία Γέννησης:	22 Σεπτέμβρη 1973
Τόπος Γεννήσεως:	Αθήνα
Υπηκοότητα:	Ελληνική
Οικογενειακή κατάσταση:	Παντρεμένος, πατέρας ενός ανήλικου τέκνου
Διεύθυνση κατοικίας:	Κομνηνών 36-38
	68100 Αλεξανδρούπολη
Τηλέφωνα επικοινωνίας:	2551-111565, 6945891236
Ηλεκτρονικό ταχυδρομείο:	efstratiosgeorg@gmail.com

ΙΙ. ΣΤΡΑΤΙΩΤΙΚΗ ΘΗΤΕΙΑ

Μάιος 2000 – Ιανουάριος 2002: Στρατεύσιμος Σμηνίας (ΥΓΙΑ) – Ιατρός, Πολεμική Αεροπορία.

ΙΙΙ. ΥΠΗΡΕΣΙΑ ΥΠΑΙΘΡΟΥ

13/01/99 – 13/04/99: Τρίμηνη Κλινική Άσκηση στο «Βενιζέλειο – Πανάνειο» Νοσοκομείο , στο πλαίσιο προπαρασκευής για την άσκηση υπηρεσίας υπαίθρου.

13/04/99 – 13/04/00: Περιφερειακό Ιατρείο Μοχού, Καστέλλι Πεδιάδος, Ηράκλειο.

ΙV. ΠΑΡΟΥΣΑ ΘΕΣΗ

Αναπληρωτής Καθηγητής του Τμήματος Ιατρικής του Δημοκρίτειου Πανεπιστημίου Θράκης στο Γνωστικό Αντικείμενο της Αγγειοχειρουργικής (2017/21.12.2010 ΦΕΚ τ.Γ'), θέση την οποία κατέχω έως σήμερα.

ΙΙ. ΣΠΟΥΔΕΣ – ΕΚΠΑΙΔΕΥΣΗ

Ι. ΒΑΣΙΚΕΣ ΣΠΟΥΔΕΣ

1985 – 1988: Γυμνάσιο Σχολής Καργάκου – Κηφισιά

1988 – 1991: 8ο Λύκειο Αθηνών.

ΙΙ. ΠΑΝΕΠΙΣΤΗΜΙΑΚΕΣ ΣΠΟΥΔΕΣ

1992 – 1998: Σχολή Επιστημών Υγείας- Τμήμα Ιατρικής - Πανεπιστήμιο Κρήτης. Αποφοίτησα με Βαθμό «Λίαν Καλώς»

ΙΙΙ. ΑΠΟΚΤΗΣΗ ΤΗΣ ΕΙΔΙΚΟΤΗΤΑΣ ΤΗΣ ΑΓΓΕΙΟΧΕΙΡΟΥΡΓΙΚΗΣ

17/09/01 – 08/01/02: Άσκηση στη Β' Χειρουργική Κλινική του 251 Γενικού Νοσοκομείου Αεροπορίας – Αναγνώριση του χρόνου άσκησης από το ΚΕ.Σ.Υ (αριθμ. Αποφ. 8384/16/09/04).

27/03/02 – 30/09/04: Ειδικευόμενος Ιατρός της Κρατικής Χειρουργικής Κλινικής του «Ιπποκρατείου» Νοσοκομείου Αθηνών (Υ10δ.Γ.Π. 24540/12-3-02 του Υ.Υ.Π) και συμπλήρωση 3 χρόνων άσκησης Γενικής Χειρουργικής, με το συμψηφισμό του 3μήνου κατά την υπηρεσία Υπαίθρου και της υπηρεσίας στο 251 Γενικό Νοσοκομείο Αεροπορίας.

23/11/04 – 25/11/08: Ειδικευόμενος Ιατρός της Αγγειοχειρουργικής Κλινικής του Πανεπιστημιακού Νοσοκομείου Ηρακλείου (Υ10δ.Γ.Π. 103092/ 04-11-2004 του Υ.Υ.Π).

Φεβρουάριος 2009: Απόκτηση του τίτλου του Αγγειοχειρουργού μετά από επιτυχείς εξετάσεις (Απόφαση 11924/31-03-2009, Δ/νση Υγιεινής Ηρακλείου).

IV. ΜΕΤΑΠΤΥΧΙΑΚΗ ΕΚΠΑΙΔΕΥΣΗ

Α. Μεταπτυχιακή Εκπαίδευση στην Επείγουσα Ιατρική

2003 – 2004: Παρακολούθησα ανελλιπώς το 9ο μετεκπαιδευτικό πρόγραμμα επείγουσας προνοσοκομειακής ιατρικής του ΕΚΑΒ στην Αθήνα, διάρκειας 1 έτους. Αποφοίτησα μετά από επιτυχείς προφορικές και γραπτές εξετάσεις (Αριθμός Πιστοποιητικού: 611).

22-23/04/2023: Επιτυχής εξέταση στο πρόγραμμα **ATLS** (Advanced Trauma Life Support), Πανεπιστημιακό Νοσοκομείο Ηρακλείου.

2024-2025: Εκπαιδευτής στο πρόγραμμα ATLS της Α' Χειρουργικής Κλινικής του Πανεπιστημιακού Νοσοκομείου Αλεξανρούπολης.

Β. Μεταπτυχιακή Εκπαίδευση στην Αγγειοχειρουργική

2004 – 2005: Μετεκπαιδευτικά Μαθήματα Αγγειοχειρουργικής – Αγγειοχειρουργική Κλινική Πανεπιστημιακού Νοσοκομείου Ηρακλείου (Καθ. Α.Ν. Κατσαμούρης) .

2005 – 2006:	Μετεκπαιδευτικά Μαθήματα Αγγειοχειρουργικής – Αγγειοχειρουργική Κλινική Πανεπιστημιακού Νοσοκομείου Ηρακλείου (Καθ. Α.Ν. Κατσαμούρης).
2006 – 2007:	Μετεκπαιδευτικά Μαθήματα Αγγειοχειρουργικής – Αγγειοχειρουργική Κλινική Πανεπιστημιακού Νοσοκομείου Ηρακλείου (Καθ. Α.Ν. Κατσαμούρης).
06/12/2007:	Εκπαιδευτικό σεμινάριο (Workshop) με θέμα “Open Surgery Hands-on: Improve your Skills”, στο πλαίσιο του Ετήσιου Συνεδρίου Cardiovascular Education- ICE 2007, της Αγγειοχειρουργικής Κλινικής του Πανεπιστημιακού Νοσοκομείου Ιωαννίνων, 6-8 Δεκέμβρη 2007.
2007 – 2008:	Μετεκπαιδευτικά Μαθήματα Αγγειοχειρουργικής – Αγγειοχειρουργική Κλινική Πανεπιστημιακού Νοσοκομείου Ηρακλείου (Καθ. Α.Ν. Κατσαμούρης).
05/09/2008:	Εκπαιδευτικό σεμινάριο (Workshop) με θέμα “Open Carotid Surgery”, στο πλαίσιο του XXII Ετήσιου Συνεδρίου της European Society for Vascular Surgery, 4-7 Σεπτέμβρη 2008.
06/09/2008:	Εκπαιδευτικό σεμινάριο (Workshop) με θέμα “Introduction to Endovascular Techniques”, στο πλαίσιο του XXII Ετήσιου Συνεδρίου της European Society for Vascular Surgery, 4-7 Σεπτέμβρη 2008.
2008 – 2009:	Μετεκπαιδευτικά Μαθήματα Αγγειοχειρουργικής – Αγγειοχειρουργική Κλινική Πανεπιστημιακού Νοσοκομείου Ηρακλείου (Καθ. Α.Ν. Κατσαμούρης).
24/07/2009 – 25/07/2009:	Εκπαιδευτικό σεμινάριο με θέμα “Basic Vascular Course”, στο πλαίσιο του European School of Interventional Radiology (CIRSE), Μονάδα Επεμβατικής Ακτινολογίας, Πανεπιστημιακό Νοσοκομείο Ηρακλείου.
08/06/2009 – 12/06/2009:	Εκπαιδευτική επίσκεψη στην Κλινική Χειρουργικής Καρδιάς-Θώρακος – Αγγείων Πανεπιστημίου Johannes Gutenberg, Mainz Γερμανίας.
01/09/2009 – 30/12/2009:	Θητεία σε έμμισθη θέση (Assistenzarzt) στην Κλινική Χειρουργικής Καρδιάς-Θώρακος – Αγγείων Πανεπιστημίου Johannes Gutenberg, Mainz Γερμανίας - εκπαίδευση στην Κλασσική Αγγειοχειρουργική.
01/01/2010 – 30/06/2010:	Θητεία σε έμμισθη θέση (Assistenzarzt) στην κλινική St. Bonifatius Hospital στην πόλη Lingen της Κάτω Σαξονίας (Niedersachsen) της Γερμανίας, υπό την διεύθυνση των Hartmut Görtz & Jorg Tessarek –εκπαίδευση στην Ενδοαγγειακή Χειρουργική.
25/05/2012:	Εκπαιδευτικό Σεμινάριο στη Μέτρηση και Σχεδιασμό της Ενδοαγγειακής Αντιμετώπισης των Υπονεφρικών Ανευρυσμάτων της Κοιλιακής Αορτής, στο συνέδριο LIVE, Αλεξανδρούπολη 2012.
15/04/2013 – 19/04/2013:	Εκπαιδευτική επίσκεψη στο Αναγνωρισμένο Αγγειοχειρουργικό Κέντρο του St. Bonifatius Hospital στο Lingen της Κάτω Σαξονίας (Niedersachsen) της Γερμανίας.

14/04/2025 – Οκτ 2025	Εκπαιδευτικές επισκέψεις στην Β' Αγγειοχειρουργική Κλινική του ΕΚΠΑ (Λαϊκό Νοσοκομείο) για μετεκπαίδευση στη Φλεβολογία (Υπεύθυνος: Αναπλ. Καθηγητής Ε. Αυγερινός, Διευθυντής: Καθ. Χ. Κλωνάρης)

ΙΙΙ. ΠΤΥΧΙΑ – ΤΙΤΛΟΙ

1996	Πτυχίο "Certificate in Advanced English" (Cambridge University)
1998	Πτυχίο Ιατρικού Τμήματος Σχολής Επιστημών Υγείας, Πανεπιστημίου Κρήτης, με βαθμό «Λίαν Καλώς».
2004	Πιστοποιητικό Επάρκειας στην Επείγουσα Προνοσοκομειακή Ιατρική.
2009	Τίτλος Ειδικότητας Αγγειοχειρουργικής
2009	Διδακτορικό Δίπλωμα από το Ιατρικό Τμήμα της Σχολής Επιστημών Υγείας, Πανεπιστημίου Κρήτης (Βαθμός: Άριστα).
2009	Πτυχίο Γερμανικής Γλώσσας Zertifikat B2 από Goethe Institut.
2009	Άδεια Ασκήσεως Ιατρικού Επαγγέλματος (Approbation als Arzt) στη Γερμανία.
2012	Μεταπτυχιακό Δίπλωμα (MSc) στις «Ενδαγγειακές Τεχνικές» από την Αγγειοχειρουργική Κλινική της Ιατρικής Σχολής του Εθνικού και Καποδιστριακού Πανεπιστημίου Αθηνών (Βαθμός: Άριστα).

ΙV. ΠΙΣΤΟΠΟΙΗΤΙΚΑ – ΣΥΣΤΑΣΕΙΣ

- Κων/νος Συκιώτης, Διευθυντής Κρατικής Χειρουργικής Κλινικής, «Ιπποκράτειο» Νοσοκομείο Αθηνών.
- Α.Ν. Κατσαμούρης, Καθηγητής Αγγειοχειρουργικής Πανεπιστημίου Κρήτης
- Christian F. Vahl, Καθηγητής Καρδιοχειρουργικής Πανεπιστημίου Johannes Gutenberg, Mainz Γερμανίας
- Hartmut Görtz & Jorg Tessarek, Διεθυντές Αγγειοχειρουργικής Κλινικής Νοσοκομείου St. Bonifatius Hospital της πόλης Lingen της Κάτω Σαξονίας (Niedersachsen) της Γερμανίας.
- Καθ. Μίλτος Λαζαρίδης, Καθηγητής Αγγειοχ/κης «Δημοκρίτειο» Πανεπιστήμιο Θράκης.
- Καθ. Γεώργιος Σ. Γεωργιάδης, Καθηγητής Αγγειοχ/κης «Δημοκρίτειο» Πανεπιστήμιο Θράκης.

V. ΠΑΡΑΚΟΛΟΥΘΗΣΗ ΣΥΝΕΔΡΙΩΝ – ΣΕΜΙΝΑΡΙΩΝ - ΦΡΟΝΤΗΣΤΗΡΙΩΝ

i. Διεθνή συνέδρια – Συμμετοχή με Ανακοίνωση

1. 6th Meeting of the European Venous Forum, 24-26 June 2005, Crete , Greece.
2. 23rd World Congress of the International Union of Angiology, 21-25 June 2008, Athens, Greece
3. 2nd European Congress of the International Congress for Vascular Surgery, 9-11 October 2008, Milan, Italy.
4. 21st Annual Meeting of the American Venous Forum, 11-14 February 2009, Phoenix-AZ, USA.
5. 58th International Congress of the European Society for Cardiovascular Surgery, 30 April– 02 May 2009 Warsaw, Poland.
6. 19th Conference of the European Wound Management Association (EWMA 2009) 20-22 May 2009, Helsinki, Finland.
7. 18th European Chapter Congress of the International Union of Angiology, Palermo, Italy, 24-27 October 2009.
8. 23rd World Congress of the International Union of Angiology, Prague, Check Republic, 1-5 July 2012.
9. 21st European Stroke Conference, Lisbon, Portugal, 22-25 May 2012.
10. European Society for Vascular Surgery - Spring Meeting, Frankfurt, 24 May 2013.
11. Leading Innovative Vascular Education (LIVE), Thessaloniki, 23-25 May, 2013.
12. ESVS Spring Meeting, London, UK, 17 May 2014.
13. 4th Munich Aortic and Carotid Conference, Munich, Germany, 5 December 2014.
14. ESVS Spring Meeting, Frankfurt, Germany, 30 May 2015.
15. 5th Munich Vascular Conference, Munich, Germany, 27 November 2015.
16. 65th International Congress of the European Society for Cardiovascular and Endovascular Surgery (ESCVS), Belgrade, Serbia, 21-24 April 2016.
17. Charing Cross International Symposium London, UK, 26-29 April 2016.
18. Leading Innovative Vascular Education (LIVE), Ioannina, Greece, 26-28 May 2016.
19. SITE, Barcelona, Spain, 29-31 March 2017.
20. Charing Cross (CX), 24-27 April 2018.
21. ESVS 32nd Annual Meeting, Valencia, 25-28 September 2018.
22. Leading Innovative Vascular Education (LIVE), Patras, Greece, 24-26 May 2018.
23. SITE, Barcelona, Spain, 27-29 March 2019.
24. 17th Balkan Congress of Radiology, 17-19 October, 2019), Heraklion, Crete, Greece.

25. SITEupdate 2020 On-Air, Barcelona, Spain, 17 & 18 September 2020.
26. Leading Innovative Vascular Education (LIVE), Thessaloniki, Greece, 10-12 June 2021.

ii. Διεθνή συνέδρια – Συμμετοχή χωρίς Ανακοίνωση

1. 8th European Venous Forum, 29 June-1 July 2007, Instanbul, Turkey.
2. 30th Charing Cross International Symposium "Vascular and Endovascular Consensus Update", 12-15 April 2008, Imperial College, London, UK.
3. XXII Annual Congress of the European Society for Vascular Surgery, 4-7 September 2008, Nice-France.

iii. Ελληνικά συνέδρια – Συμμετοχή με Ανακοίνωση

1. 7ο Πανελλήνιο Συνέδριο Αγγειολογίας - Αγγειοχειρουργικής, 20-23 Ιανουαρίου 2000, Θεσσαλονίκη.
2. 13ο Παγκρήτιο Συνέδριο, 09-12 Νοεμβρίου 2006, Ηράκλειο, Κρήτη.
3. 6ο Πανελλήνιο Συνέδριο Θώρακος Καρδιάς & Αγγείων, 9-11 Νοεμβρίου 2006, Θεσσαλονίκη.
4. 10ο Πανελλήνιο Συνέδριο Αγγειολογίας - Αγγειοχειρουργικής, 20-22 Ιανουαρίου 2006, Αθήνα.
5. Ετήσιο Συμπόσιο Καρδιαγγειακής Εκπαίδευσης (ICE), 6-8 Δεκεμβρίου 2007, Ιωάννινα.
6. 11ο Πανελλήνιο Συνέδριο Αγγειολογίας - Αγγειοχειρουργικής, 18-20 Ιανουαρίου 2008, Θεσσαλονίκη.
7. 14ο Παγκρήτιο Ιατρικό Συνέδριο, 29 Οκτώβρη - 1 Νοεμβρίου 2008, Ρέθυμνο, Κρήτη.
8. 3ο Πανελλήνιο Συνέδριο Παθήσεων Διαβητικού Ποδιού, Αθήνα, 9-11 Φεβρουαρίου 2012.
9. 15ο Πανελλήνιο Συνέδριο Αγγειακής και Ενδαγγειακής Χειρουργικής-Αγγειολογίας, Αθήνα 31 Μαρτίου-2 Απριλίου 2016.
10. 23ο Επιστημονικού Συνεδρίου Φοιτητών Ιατρικής Ελλάδος, 12-14 Μαίου 2017, Λάρισσα.
11. 17ο Πανελληνίο Συνεδρίο Αγγειακής & Ενδαγγειακής Χειρουργικής – Αγγειολογίας, Θεσσαλονίκη, 15-18 Μαρτίου 2018.
12. ΠΑΡΟΥΣΙΑΣΗ ΠΕΡΙΠΤΩΣΕΩΝ & ΛΗΨΗ ΚΛΙΝΙΚΩΝ ΑΠΟΦΑΣΕΩΝ, 19-20 Ιανουαρίου 2018, Αθήνα.
13. 24ο Διαπανεπιστημιακό Συνέδριο Ακτινολογίας, 14-16 Νοεμβρίου 2019, Πάτρα.
14. 9ο Πανελλήνιο Συνέδριο Ελληνικής Εταιρίας Αθηρωσκλήρωσης, 3-5 Δεκεμβρίου 2020, Αθήνα.

iv. Εκπαιδευτικά σεμινάρια – κλινικά φροντιστήρια

1. Εισαγωγή στις ενδαγγειακές τεχνικές, XXII Annual Congress of the European Society for Vascular Surgery, 4-7 September 2008, Nice-France.
2. Ανοικτή χειρουργική καρωτίδας, XXII Annual Congress of the European Society for Vascular Surgery, 4-7 September 2008, Nice-France.

3. Μέτρηση & σχεδιασμός ενδοαυλικής αντιμετώπισης ανευρυσμάτων κοιλιακής αορτής, Leading Innovative Vascular Education (LIVE), Alexandroupolis, Greece, 24-27 May 2012.
4. Treatment of Chronic Venous Disorders from C1 to C6 and Aesthetic Phlebology, 32nd Annual Congress of the European Society for Vascular Surgery, 25-28 September 2018, Valencia, Spain.
5. Εκπαίδευση στο λογισμικό ANSA META για CFD (computational fluid dynamics), BETA CAE Systems, Thessaloniki, Greece, 2-4 May, 2018.
6. Lombard Live case Altura Masterclass, Pauls Stradins Clinical University Hospital, Riga, 21 November 2018.

VI. ΚΛΙΝΙΚΟ ΕΡΓΟ

Η βάση του κλινικού μου έργου τίθεται κατά την περίοδο της υποχρεωτικής υπηρεσίας υπαίθρου, αμέσως μετά την αποφοίτησή μου, το 1998. Η φιλοσοφία της Αγγειοχειρουργικής πράξης και έρευνας, όπως εκφραζόταν από τον Διευθυντή της Αγγειοχειρουργικής Κλινικής του Πανεπιστημιακού Νοσοκομείου Ηρακλείου Καθ. Α.Ν. Κατσαμούρη, κέντρισαν το ενδιαφέρον μου, ώστε καθημερινά μετά το πέρας της εργασίας μου στο Περιφερειακό Ιατρείο όπου υπηρετούσα, να μεταβαίνω στην Αγγειοχειρουργική κλινική και να συμμετέχω ενεργά - υπό την εποπτεία των ειδικευόμενων και των ειδικευμένων στελεχών της κλινικής- στα έκτακτα χειρουργεία, τις εφημερίες καθώς και στα ερευνητικά πρωτόκολλα της κλινικής, για το χρονικό διάστημα του ενός έτους της υπηρεσίας υπαίθρου. Η εμπειρία της εφαρμογής των αρχών της αιμοδυναμικής παθοφυσιολογίας στην καθημερινή Αγγειοχειρουργική διαγνωστική πράξη και στο σχεδιασμό των επεμβάσεων, καθόρισαν την επιλογή της ειδικότητας αυτής για τη συνέχεια της σταδιοδρομίας μου.

Μετά την τριετή βασική εκπαίδευση στη Κρατική Γενική Χειρουργική του «Ιπποκράτειου» Νοσοκομείου Αθηνών όπου εκτέθηκα σε όλο το φάσμα των χειρουργείων της Γενικής Χειρουργικής, είχα την ευκαιρία να συμμετέχω σε όλο το φάσμα των αγγειοχειρουργικών επεμβάσεων. Όπως σημειώνεται από το πιστοποιητικό του Καθηγητή κ. Κατσαμούρη συμμετείχα ως βοηθός ή χειρουργός υπό καθοδήγηση, στις ακόλουθες επεμβάσεις: Ενδαρτηρεκτομή καρωτίδας αρτηρίας: 54, Ανευρύσματα κοιλιακής αορτής: 70, Αορτολαγόνια νόσος: 29, Παρακάμψεις περιφερικών αγγείων: 54, Θρομβοεμβολεκτομές: 50, Αγγειακό τραύμα: 26, Επεμβάσεις φλεβικών παθήσεων: 148, Προσπελάσεις σε νεφροπαθείς: 83 και Ακρωτηριασμοί: 64. Το καθεστώς καθημερινής Γενικής Εφημερίας της Αγγειοχειρουργικής Κλινικής του Πανεπιστημιακού Νοσοκομείου Ηρακλείου, μου έδωσε σημαντική εμπειρία στην αντιμετώπιση και εκτίμηση των αγγειοχειρουργικών και αγγειολογικών ασθενών.

Από το Σεπτέμβριο του 2009 έως και το Δεκέμβριο του 2009 εργάστηκα ως Βοηθός Ιατρός (Assistenzarzt) σε έμμισθη θέση στην Κλινική Χειρουργικής Καρδιάς-Θώρακος – Αγγείων Πανεπιστημίου Johannes Gutenberg, Mainz Γερμανίας. Η εμπειρία αυτή μου έδωσε τη δυνατότητα να γνωρίσω και να ενσωματωθώ στο Γερμανικό Σύστημα, να εκτεθώ περαιτέρω σε μια διαφορετική φιλοσοφία της κλασσικής Αγγειοχειρουργικής και να δημιουργηθούν οι προϋποθέσεις ώστε από τον Ιανουάριο του 2010 μέχρι και τον Ιούνιο του 2010 να συνεχίσω τη σταδιοδρομία μου (Assistenzarzt) επίσης έμμισθα στην κλινική St. Bonifatius

Hospital στην πόλη Lingen της Κάτω Σαξονίας (Niedersachsen) της Γερμανίας, υπό την διεύθυνση των Hartmut Görtz & Jorg Tessarek και να εκπαιδευτώ στο πλήρες φάσμα της Ενδοαγγειακής Αγγειοχειρουργικής.

Από τον Ιούλιο του 2010 μέχρι και το Δεκέμβριο του 2011 εργάστηκα ως Επικουρικός Επιμελητής Αγγειοχειρουργικής στην Πανεπιστημιακή Αγγειοχειρουργική Κλινική του Πανεπιστημιακού Νοσοκομείου Αλεξανδρούπολης, υπό τη Διεύθυνση του Καθηγητού Μίλτου Κ. Λαζαρίδη.

Διορισμός στη βαθμίδα Λέκτορα του Τμήματος Ιατρικής του Δημοκρίτειου Πανεπιστημίου Θράκης στο Γνωστικό Αντικείμενο της Αγγειοχειρουργικής (1065/12.12.2011 ΦΕΚ τ.Γ').

Διορισμός στη βαθμίδα Επίκουρου Καθηγητή του Τμήματος Ιατρικής του Δημοκρίτειου Πανεπιστημίου Θράκης στο Γνωστικό Αντικείμενο της Αγγειοχειρουργικής (1545/31.12.2013 ΦΕΚ τ.Γ'), στην οποία μονιμοποίηθηκα το 2017(ΦΕΚ 1210/28.11.2017 τ.Γ').

Διορισμός στη βαθμίδα του Αναπληρωτή Καθηγητή του Τμήματος Ιατρικής του Δημοκρίτειου Πανεπιστημίου Θράκης στο Γνωστικό Αντικείμενο της Αγγειοχειρουργικής (2017/21.12.2010 ΦΕΚ τ.Γ') στις 23/12/2020, θέση την οποία κατέχω έως σήμερα.

Η Πανεπιστημιακή Αγγειοχειρουργική Κλινική του Πανεπιστημιακού Νοσοκομείου Αλεξανδρούπολης εφημερεύει σε καθημερινή βάση για ολόκληρη την Υγειονομική Περιφέρεια του 4ου ΠΕΣΥ και διενεργεί όλο το φάσμα της Κλασσικής και Ενδοαγγειακής Χειρουργικής. Ως εκ τούτοις, διενέργησα ως α' χειρουργός αλλά και ως επιβλέπων εκπαιδευτής ειδικευόμενων ιατρών σημαντικό αριθμό προγραμματισμένων και επειγόντων επεμβάσεων (ανοικτών και ενδοαυλικών), όπως παρατίθεται στον ακόλουθο συνοπτικό πίνακα.

Σημαντικό μέρος της προαναφερόμενης δραστηριότητας εστιαζόταν στη μελέτη νέων αορτικών ενδομοσχευμάτων (όπως ενδεικτικά αποτυπώνεται στις δημοσιευμένες κλινικές εργασίες #81, 87, 102, 118, 187, 192 &197 και στις δημοσιευμένες ανασκοπήσεις #97, 124, 146, 154, 178 &194), σύνθετων αορτικών περιστατικών που αντιμετωπίστηκαν υβριδικά (βλ. ενδεικτικά δημοσίευση #136) ή με εξελιγμένες ενδοαγγειακές μεθόδους (βλ. ενδεικτικά δημοσίευση #143), ενώ περιγράψαμε και πρωτότυπες τεχνικές αντιμετώπισης διεγχειρητικών προβλημάτων, όπως αποτυπώνεται στις δημοσιεύσεις #132,147,160,192. Η εφαρμογή δε υβριδικής τεχνικής -ενδοαυλικής και ανοικτής παρέμβασης- στην αντιμετώπιση της *οξείας ισχαιμίας* του κάτω άκρου περιγράφτηκε στη δημοσίευση #58, που αποτελεί μια από τις πρώτες του είδους. Η εμπειρία μας στην αντιμετώπιση του Αγγειακού Τραύματος περιγράφεται σχετικά στη δημοσίευση #165.

VII. ΣΥΝΟΠΤΙΚΟΣ ΠΙΝΑΚΑΣ ΧΕΙΡΟΥΡΓΕΙΩΝ

Συνοπτικός Πίνακας Επεμβάσεων από Αύγουστο 2010 – 29 ΟΚΤΩΒΡΙΟΥ 2025		
ΕΙΔΟΣ ΧΕΙΡΟΥΡΓΕΙΟΥ	**ΑΡΙΘΜΟΣ**	
	Α' Χειρουργός	**Εκπαιδευτής**
ΑΝΕΥΡΥΣΜΑ ΚΟΙΛΙΑΚΗΣ ΑΟΡΤΗΣ	2010-25	2010-25
ΕΝΔΑΓΓΕΙΑΚΟ	165	11
ΑΝΟΙΚΤΟ	37	
ΡΑΓΕΝ	47	
ΕΝΔΟΑΓΓΕΙΑΚΗ ΑΝΤΙΜΕΤΩΠΙΣΗ ΕΝΔΟΔΙΑΦΥΓΗΣ Ia ή Ib	2	
ΕΝΔΟΑΓΓΕΙΑΚΗ ΑΝΤΙΜΕΤΩΠΙΣΗ ΕΝΔΟΔΙΑΦΥΓΗΣ III	2	
ΕΝΔΟΑΓΓΕΙΑΚΟ ΑΝΕΥΡΥΣΜΑ ΘΩΡΑΚΙΚΗΣ ΑΟΡΤΗΣ	14	
ΕΝΔΟΑΓΓΕΙΑΚΟ ΑΝΕΥΡΥΣΜΑ ΘΩΡΑΚΙΚΗΣ ΑΟΡΤΗΣ με chimney ΑΡ καρωτίδας και καρωτιδο-υποκλείδια παράκαμψη	3	
ΕΝΔΟΑΓΓΕΙΑΚΟ ΑΝΕΥΡΥΣΜΑ ΘΩΡΑΚΙΚΗΣ ΑΟΡΤΗΣ με καρωτιδο-υποκλείδια παράκαμψη	1	
ΑΟΡΤΟΔΙΜΗΡΙΑΙΑ ΠΑΡΑΚΑΜΨΗ	23	
ΑΟΡΤΟΜΗΡΙΑΙΑ ΠΑΡΑΚΑΜΨΗ	1	
ΑΝΟΙΚΤΗ ΜΕΤΑΤΡΟΠΗ ΜΕ ΕΞΑΙΡΕΣΗ ΕΝΔΟΜΟΣΧΕΥΜΑΤΟΣ ΓΙΑ ΑΝΕΥΡΥΣΜΑ ΚΟΙΛΙΑΚΗΣ ΑΟΡΤΗΣ	4	
ΑΝΟΙΚΤΗ ΑΠΟΚΑΤΑΣΤΑΣΗ ΑΟΡΤΟΕΝΤΕΡΙΚΟΥ ΣΥΡΙΓΓΙΟΥ (μασχαλομηριαία & μηρομηριαία παράκαμψη & αφαίρεση ενδοαυλικού μοσχεύματος)	3	
ΑΝΟΙΚΤΗ ΑΠΟΚΑΤΑΣΤΑΣΗ ΑΟΡΤΟΕΝΤΕΡΙΚΟΥ ΣΥΡΙΓΓΙΟΥ (τμηματική αφαίρεση συνθετικού μοσχεύματος & αποκατάσταση με μηριαία φλέβα	2	
ΑΟΡΤΟΜΕΣΕΝΤΕΡΙΑ ΠΑΡΑΚΑΜΨΗ	1	
ΕΝΔΑΡΤΗΡΕΚΤΟΜΗ ΚΑΡΩΤΙΔΑΣ	132	9
ΟΓΚΟΣ ΚΑΡΩΤΙΔΙΚΟΥ ΣΩΜΑΤΙΟΥ	1	
ΕΝΔΑΓΓΕΙΑΚΗ ΑΠΟΚΑΤΑΣΤΑΣΗ ΚΑΡΩΤΙΔΑΣ	56	6
ΑΓΓΕΙΟΠΛΑΣΤΙΚΗ ΑΟΡΤΗΣ (ΜΕ ΕΝΔΟΝΑΡΘΗΚΑ)	8	
ΑΓΓΕΙΟΠΛΑΣΤΙΚΗ ΛΑΓΟΝΙΩΝ (ΜΕ Η ΧΩΡΙΣ ΕΝΔΟΝΑΡΘΗΚΑ)	123	25
ΑΓΓΕΙΟΠΛΑΣΤΙΚΗ ΣΕ ΜΗΡΟΙΓΝΥΑΚΟ ΑΞΟΝΑ (ΜΕ Η ΧΩΡΙΣ ΕΝΔΟΝΑΡΘΗΚΑ)	261	69
ΑΓΓΕΙΟΠΛΑΣΤΙΚΗ ΚΝΗΜΙΑΙΩΝ ΑΓΓΕΙΩΝ	17	2
ΑΓΓΕΙΟΠΛΑΣΤΙΚΗ (ΜΕ Η ΧΩΡΙΣ ΕΝΔΟΝΑΡΘΗΚΑ)ΥΠΟΚΛΕΙΔΙΟΥ ΑΡΤΗΡΙΑΣ	11	
ΕΝΔΑΡΤΗΡΕΚΤΟΜΗ-ΠΛΑΣΤΙΚΗ ΜΗΡΙΑΙΟΥ ΔΙΧΑΣΜΟΥ	37	2
ΜΗΡΟΙΓΝΥΑΚΗ ΠΑΡΑΚΑΜΨΗ		
Άνωθεν του γόνατος	52	4
Κάτωθεν του γόνατος	32	1

ΑΝΕΥΡΥΣΜΑ ΚΟΙΝΗΣ ΜΗΡΙΑΙΑΣ ΑΡΤΗΡΙΑΣ	4	
ΑΝΕΥΡΥΣΜΑ ΙΓΝΥΑΚΗΣ Α.- ΙΓΝΥΟ-ΙΓΝΥΑΚΗ ΠΑΡΑΚΑΜΨΗ	14	
ΥΒΡΙΔΙΚΕΣ ΕΠΕΜΒΑΣΕΙΣ (ταυτόχρονος συνδυασμός ανοικτής αποκατάστασης με μόσχευμα και ενδοαυλικής αποκατάστασης)	48	2
ΜΗΡΟΠΕΡΙΦΕΡΙΚΗ ΠΑΡΑΚΑΜΨΗ	7	
ΕΠΑΝΕΠΕΜΒΑΣΕΙΣ / ΕΠΙΠΛΕΓΜΕΝΑ ΧΕΙΡΟΥΡΓΕΙΑ	44	
ΜΑΣΧΑΛΟΜΗΡΙΑΙΑ ΠΑΡΑΚΑΜΨΗ	11	
ΑΝΟΙΚΤΗ ΑΠΟΚΑΤΑΣΤΑΣΗ ΜΑΣΧΑΛΙΑΙΟΥ ΑΝΕΥΡΥΣΜΑΤΟΣ	1	
ΜΗΡΟ-ΜΗΡΙΑΙΑ ΠΑΡΑΚΑΜΨΗ	35	5
ΑΡΤΗΡΙΟΦΛΕΒΙΚΕΣ ΕΠΙΚΟΙΝΩΝΙΕΣ (ΣΕ ΝΕΦΡΟΠΑΘΕΙΣ) – ΠΡΩΤΟΓΕΝΕΙΣ Η' ΜΕ ΜΟΣΧΕΥΜΑ & ΔΙΟΡΘΩΣΕΙΣ	285	50
ΕΠΙΔΙΟΡΘΩΣΕΙΣ ΑΡΤΗΡΙΟΦΛΕΒΙΚΩΝ ΕΠΙΚΟΙΝΩΝΙΩΝ ΜΕ ΕΝΔΟΑΥΛΙΚΗ ΤΕΧΝΙΚΗ	11	2
ΘΡΟΜΒΟΕΜΒΟΛΕΚΤΟΜΕΣ ΑΝΩ ΑΚΡΟΥ	35	16
ΘΡΟΜΒΟΕΜΒΟΛΕΚΤΟΜΕΣ ΚΑΤΩ ΑΚΡΟΥ	108	37
ΘΡΟΜΒΟΕΜΒΟΛΕΚΤΟΜΕΣ ΜΕΣΕΝΤΕΡΙΩΝ ΑΓΓΕΙΩΝ	1	
ΔΙΕΓΧΕΙΡΗΤΙΚΗ ΘΡΟΜΒΟΛΥΣΗ ΚΑΤΩ ΑΚΡΟΥ	3	
ΧΕΙΡΟΥΡΓΙΚΗ ΦΛΕΒΙΚΩΝ ΠΑΘΗΣΕΩΝ	132	32
ΤΡΑΥΜΑ ΑΝΩ ΑΚΡΟΥ ΜΕ ΑΠΟΚΑΤΑΣΤΑΣΗ ΑΡΤΗΡΙΑΣ	40	2
ΤΡΑΥΜΑ ΚΑΤΩ ΑΚΡΟΥ ΜΕ ΑΠΟΚΑΤΑΣΤΑΣΗ ΑΡΤΗΡΙΑΣ	15	
ΤΡΑΥΜΑ ΤΡΑΧΗΛΟΥ ΜΕ ΑΙΜΟΡΡΑΓΙΑ	6	
ΣΥΝΔΡΟΜΟ ΠΑΓΙΔΕΥΣΗΣ ΙΓΝΥΑΚΗΣ ΑΡΤ.	2	
ΣΚΑΛΗΝΕΚΤΟΜΗ ΕΠΙ ΣΥΝΔΡΟΜΟΥ ΘΩΡΑΚΙΚΗΣ ΕΞΟΔΟΥ	1	
ΚΑΡΩΤΙΔΟΥΠΟΚΛΕΙΔΙΑ ΠΑΡΑΚΑΜΨΗ ΓΙΑ ΑΠΟΦΡΑΞΗ ΥΠΟΚΛΕΙΔ.	2	
ΕΜΒΟΛΙΣΜΟΣ ΑΝΕΥΡΥΣΜΑΤΟΣ ΕΣΩ ΛΑΓΟΝΙΟΥ ΑΡΤΗΡΊΑΣ	6	
ΑΝΟΙΚΤΗ ΑΠΟΚΑΤΆΣΤΑΣΗ ΑΝΕΥΡΥΣΜΑΤΟΣ ΜΕΣΗΣ ΚΟΛΙΚΗΣ ΑΡΤ	1	
ΜΕΙΖΟΝΕΣ ΑΚΡΩΤΗΡΙΑΣΜΟΙ	59	17
	1910	278
ΣΥΝΟΛΟ	2188	

VIII. ΕΚΠΑΙΔΕΥΤΙΚΟ ΕΡΓΟ

Α. Ως ειδικευόμενος Αγγειοχειρουργός

1. Συμμετοχή ως ομιλητής με θέμα: «**Διαλείπουσα χωλότητα των κάτω μελών: Εντόπιση της νόσου, αρχική-συντηρητική αντιμετώπιση, ενδείξεις επεμβατικής θεραπείας, προεγχειρητική εκτίμηση**», στο πλαίσιο των *ΜΕΤΕΚΠΑΙΔΕΥΤΙΚΩΝ ΜΑΘΗΜΑΤΩΝ ΑΓΓΕΙΟΧΕΙΡΟΥΡΓΙΚΗΣ ΚΑΙ ΑΓΓΕΙΟΛΟΓΙΑΣ* του Πανεπιστημίου Κρήτης κατά την Ακαδημαϊκή Περίοδο 2004-2005, Αγγειοχειρουργική Κλινική, Περιφερειακό Πανεπιστημιακό Γενικό Νοσοκομείο Ηρακλείου, 3 Μαρτίου 2005.

2. Συμμετοχή ως ομιλητής με θέμα: «**Διαλείπουσα χωλότητα των κάτω μελών: επιλογή της καταλληλότερης θεραπευτικής μεθόδου, προεγχειρητική προετοιμασία, αρχές χειρουργικής θεραπείας, μετεγχειρητική φροντίδα, μετεγχειρητικές επιπλοκές**», στο πλαίσιο των *ΜΕΤΕΚΠΑΙΔΕΥΤΙΚΩΝ ΜΑΘΗΜΑΤΩΝ ΑΓΓΕΙΟΧΕΙΡΟΥΡΓΙΚΗΣ ΚΑΙ ΑΓΓΕΙΟΛΟΓΙΑΣ* του Πανεπιστημίου Κρήτης κατά την Ακαδημαϊκή Περίοδο 2004-2005, Αγγειοχειρουργική Κλινική, Περιφερειακό Πανεπιστημιακό Γενικό Νοσοκομείο Ηρακλείου, 10 Μαρτίου 2005.

3. Συμμετοχή ως ομιλητής με θέμα: «**Αρτηριακές παθήσεις των άνω μελών**», στο πλαίσιο των *ΜΕΤΕΚΠΑΙΔΕΥΤΙΚΩΝ ΜΑΘΗΜΑΤΩΝ ΑΓΓΕΙΟΧΕΙΡΟΥΡΓΙΚΗΣ ΚΑΙ ΑΓΓΕΙΟΛΟΓΙΑΣ* του Πανεπιστημίου Κρήτης κατά την Ακαδημαϊκή Περίοδο 2004-2005, Αγγειοχειρουργική Κλινική, Περιφερειακό Πανεπιστημιακό Γενικό Νοσοκομείο Ηρακλείου, 16 Ιουνίου 2005.

4. Συμμετοχή ως ομιλητής με θέμα: «**Αιμοδυναμική παθοφυσιολογία της αρτηριοφλεβικής επικοινωνίας**», στο πλαίσιο των *ΜΕΤΕΚΠΑΙΔΕΥΤΙΚΩΝ ΜΑΘΗΜΑΤΩΝ ΑΓΓΕΙΟΧΕΙΡΟΥΡΓΙΚΗΣ ΚΑΙ ΑΓΓΕΙΟΛΟΓΙΑΣ* του Πανεπιστημίου Κρήτης κατά την Ακαδημαϊκή Περίοδο 2005-2006, Αγγειοχειρουργική Κλινική, Περιφερειακό Πανεπιστημιακό Γενικό Νοσοκομείο Ηρακλείου, 29 Σεπτεμβρίου 2005.

5. Συμμετοχή ως ομιλητής με θέμα: «**Αγγειοσυσπαστικές-αγγειοκινητικές διαταραχές**», στο πλαίσιο των *ΜΕΤΕΚΠΑΙΔΕΥΤΙΚΩΝ ΜΑΘΗΜΑΤΩΝ ΑΓΓΕΙΟΧΕΙΡΟΥΡΓΙΚΗΣ ΚΑΙ ΑΓΓΕΙΟΛΟΓΙΑΣ* του Πανεπιστημίου Κρήτης κατά την Ακαδημαϊκή Περίοδο 2005-2006, Αγγειοχειρουργική Κλινική, Περιφερειακό Πανεπιστημιακό Γενικό Νοσοκομείο Ηρακλείου, 4 Μαΐου 2006.

6. Συμμετοχή ως ομιλητής με θέμα: «**Εφαρμογή των αιμοδυναμικών αρχών στη μετεγχειρητική φροντίδα**», στο πλαίσιο των *ΜΕΤΕΚΠΑΙΔΕΥΤΙΚΩΝ ΜΑΘΗΜΑΤΩΝ ΑΓΓΕΙΟΧΕΙΡΟΥΡΓΙΚΗΣ ΚΑΙ ΑΓΓΕΙΟΛΟΓΙΑΣ* του Πανεπιστημίου Κρήτης κατά την Ακαδημαϊκή Περίοδο 2007-2008, Αγγειοχειρουργική Κλινική, Περιφερειακό Πανεπιστημιακό Γενικό Νοσοκομείο Ηρακλείου, 20 Φεβρουαρίου 2008.

7. Συμμετοχή ως ομιλητής με θέμα: «**Καρωτιδική νόσος: τι έχουμε μάθει από τις μελέτες;**», στο πλαίσιο των *ΜΕΤΕΚΠΑΙΔΕΥΤΙΚΩΝ ΜΑΘΗΜΑΤΩΝ ΑΓΓΕΙΟΧΕΙΡΟΥΡΓΙΚΗΣ ΚΑΙ ΑΓΓΕΙΟΛΟΓΙΑΣ* του Πανεπιστημίου Κρήτης κατά την Ακαδημαϊκή Περίοδο 2008-2009, Αγγειοχειρουργική Κλινική, Περιφερειακό Πανεπιστημιακό Γενικό Νοσοκομείο Ηρακλείου, 18 Δεκεμβρίου 2008.

8. Συμμετοχή ως ομιλητής με θέμα: «**Μπορεί ο κίνδυνος ρήξης των ανευρυσμάτων της κοιλιακής αορτής να προβλεφθεί;**», στο πλαίσιο των *ΜΕΤΕΚΠΑΙΔΕΥΤΙΚΩΝ ΜΑΘΗΜΑΤΩΝ*

ΑΓΓΕΙΟΧΕΙΡΟΥΡΓΙΚΗΣ ΚΑΙ ΑΓΓΕΙΟΛΟΓΙΑΣ του Πανεπιστημίου Κρήτης κατά την Ακαδημαϊκή Περίοδο 2008-2009, Αγγειοχειρουργική Κλινική, Περιφερειακό Πανεπιστημιακό Γενικό Νοσοκομείο Ηρακλείου, 15 Ιουνίου 2009.

9. Μαθήματα στους φοιτητές της Ιατρικής Σχολής Κρήτης, με τίτλο «**Βασικές Αρχές και κλινικά παραδείγματα Αιμοδυναμικής στην καθημερινή κλινική πράξη**», στο πλαίσιο του κατ' επιλογήν μαθήματος *«ΑΙΜΟΔΥΝΑΜΙΚΉ ΠΑΘΟΦΥΣΙΟΛΟΓΙΑ ΤΩΝ ΑΓΓΕΙΟΧΕΙΡΟΥΡΓΙΚΩΝ ΑΣΘΕΝΕΙΩΝ ΚΑΙ ΕΠΕΜΒΑΣΕΩΝ»* - Εαρινό εξάμηνο, 2006.

Β. Κατά τη θητεία μου στην Παν/κη Αγγειοχειρουργική Κλινική του ΔΠΘ

1. Συμμετοχή στην προπτυχιακή εκπαίδευση των φοιτητών της Ιατρικής Σχολής στο πλαίσιο του *ΥΠΟΧΡΕΩΤΙΚΟΥ ΜΑΘΗΜΑΤΟΣ «**ΑΓΓΕΙΟΧΕΙΡΟΥΡΓΙΚΗ**»* του Ζ' εξαμήνου κατά τις Ακαδημαϊκές Περιόδους 2010-11, 2011-12, 2012-13, 2013-14, 2014-15 και 2015-16. Το μάθημα περιλαμβάνει διδασκαλία από Αμφιθεάτρου, πρακτική άσκηση κατά ομάδες στους θαλάμους. Κατά τη διδασκαλία δίνεται έμφαση στην καλλιέργεια πρακτικών κλινικών και παρακλινικών δεξιοτήτων (εκτίμηση Σφυροβραχιόνιου Δείκτη, αξιολόγηση Αγγειογραφιών και χρήση φορητής συσκευής υπερηχοτομογραφίας για την Αιμοδυναμική εκτίμηση των ασθενών). Η ενεργή ενασχόληση των φοιτητών και η διαδραστική εκμάθηση και αξιολόγηση του προπτυχιακού Εκπαιδευτικού προγράμματος έχει περιγραφεί και αποτυπωθεί σε 4 δημοσιεύσεις σε έγκριτα ιατρικά περιοδικά (βλ. Ξενόγλωσσες Δημοσιεύσεις #40,45,117 &139).

2. Διδάσκοντας με θέμα «**εφαρμοσμένη ανατομία αγγείων άνω και κάτω άκρων**» στο πλαίσιο του *ΥΠΟΧΡΕΩΤΙΚΟΥ ΜΑΘΗΜΑΤΟΣ* «***ΑΝΑΤΟΜΙΑ-Ι***» της Ιατρικής Σχολής του του Δημοκριτείου Πανεπιστημίου Θράκης κατά τα Ακαδημαϊκό έτος 2019-20.

3. Προσκεκλημένος ομιλητής στο **προπτυχιακό κατ' επιλογή μάθημα «ΑΙΜΟΔΥΝΑΜΙΚΗ ΠΑΘΟΦΥΣΙΟΛΟΓΙΑ ΤΩΝ ΑΓΓΕΙΑΚΩΝ ΠΑΘΗΣΕΩΝ»** της Ιατρικής Σχολής του Αριστοτελείου Πανεπιστημίου Θεσσαλονίκης για το Ακαδημαϊκό ετος 2017-2018, με θέμα: «**Αιμοδυναμική παθοφυσιολογία της περιφερικής αρτηριοπάθειας - αιμοδυναμικής θεώρησης των ενδομοσχευμάτων για τα ανευρύσματα της κοιλιακής αορτής**» (2 διδακτικές ώρες), 19/04/2018 και «**Αιμοδυναμική παθοφυσιολογία της περιφερικής αρτηριοπάθειας**» (1 διδακτική ώρα), 06/05/2020.

4. Υπήρξα επιστημονικά υπεύθυνος για την οργάνωση και διενέργεια των μετεκπαιδευτικών μαθημάτων της Αγγειοχειρουργικής Κλινικής του Δημοκρίτειου Πανεπιστημίου στους Ειδικευόμενους Ιατρούς κατά τις Ακαδημαϊκές Περίοδους 2010-11, 2011-12, 2012-13 – επισυνάπτονται τα σχετικά προγράμματα που διατίθενται επίσης στην ηλεκτρονική διεύθυνση: http://www.vascularalex.gr), στα οποία και συμμετέχω ως βασικός ομιλητής.

5. Εκπαιδευτής της θεματικής ενότητας της «Αγγειακής Νοσηλευτικής» που οργανώθηκε για πρώτη φορά από το Ελληνικό Ινστιτούτο Αγγειακών Παθήσεων στο πλαίσιο του Συνεδρίου LIVE 2013. Η εκπαιδευτική αυτή προσπάθεια αποτελείτο από θεωρητικές διαλέξεις και κλινικά φροντιστήρια. Η προσωπική μου συμμετοχή αφορούσε στην κατάρτιση και εκπαίδευση για την εκτίμηση του σφυροβραχιόνιου δείκτη (θεωρητική διάλεξη και πρακτικό φροντιστήριο) καθώς και στην επιλογή θεμάτων διάλεξης και συντονισμό

των προσκεκλημένων εκπαιδευτών και διδασκόντων (Βλ. σχετικά επισυναπτόμενα προγράμματα). Η εκπαιδευτική αυτή εμπειρία περιγράφεται στη δημοσίευση #47.

6. Τον Ιανουάριο του 2013 συμμετείχα σαν βασικός Εκπαιδευτής στο Πρόγραμμα Μεταπτυχιακών Μαθημάτων της Πανεπιστημιακής Αγγειοχειρουργικής Κλινικής του Δημοκρίτειου Πανεπιστημίου για την «***ΑΓΓΕΙΑΚΗ ΠΡΟΣΠΕΛΑΣΗ ΝΕΦΡΟΠΑΘΩΝ***» που έχει εγκριθεί από τη Γενική Συνέλευση του Ιατρικού τμήματος (ΑρΠ. 393, 17/10/12) και απευθύνεται σε Αγγειοχειρουργούς, Γενικούς Χειρουργούς και Νεφρολόγους της Ευρύτερης Υγειονομικής Περιοχής. Το πρόγραμμα (διαθέσιμο στην επίσημη ηλεκτρονική διεύθυνση της Κλινικής: http://www.vascularalex.gr) περιλάμβανε 25 ώρες θεωρητικών διαλέξεων καθώς και 5 ώρες πρακτικής άσκησης σε υπερήχους και οδηγεί σε απόκτηση Διπλώματος (Diploma). Η συμμετοχή μου περιλάμβανε:

   Α) Διαλέξεις (διάρκειας 30’ έκαστη):

   - Αυτόλογες «προσπελάσεις» στο άνω άκρο
   - Αιμοδυναμική των αγγειακών «προσπελάσεων»
   - Επιπλοκές «προσπελάσεων»: φλ. υπέρταση, λοίμωξη, καρδ. Ανεπάρκεια
   - Φαρμακευτική αγωγή: ποιά μετά την προσπέλαση

   Β) Πρακτική άσκηση στην υπερηχογραφική προεγχειρητική μελέτη ασθενών (Διάρκειας 1.5 ωρών).

7. Συμμετοχή i) ως *ομιλητής* στο Πρόγραμμα Μεταπτυχιακών Σπουδών του Δημοκριτείου Πανεπιστημίου Θράκης στην «***ΑΓΓΕΙΑΚΕΣ ΠΡΟΣΠΕΛΑΣΕΙΣ ΣΕ ΑΣΘΕΝΕΙΣ ΜΕ ΝΕΦΡΙΚΗ ΑΝΕΠΑΡΚΕΙΑ ΤΕΛΙΚΟΥ ΣΤΑΔΙΟΥ***» και ii) ως *χειρουργός* στις εκπαιδευτικές επεμβάσεις του Μεταπτυχιακού Προγράμματος και iii) ως επιβλέποντας διπλωματικών εργασιών (βλ. ενότητα «Συμμετοχή ως Διδάσκων σε Μεταπτυχιακά Προγράμματα – Μαθήματα).

8. Υπεύθυνος επιστημονικού προγράμματος και Διδάσκοντας στο 2nd Emergency Cases School (E.C.S.) που πραγματοποιήθηκε στις 28-29 Νοεμβρίου 2015 στο Δημοτικό Θέατρο Αλεξανδρούπολης από Το Παράρτημα Αλεξανδρούπολης της Επιστημονικής Εταιρείας Φοιτητών Ιατρικής Ελλάδος (Ε.Ε.Φ.Ι.Ε.) συνεργασία με τη Θεατρική Ομάδα Φοιτητών Δ.Π.Θ.

9. Παρουσιαστής-Διδάσκοντας στο 3rd Emergency Cases School (E.C.S.) που πραγματοποιήθηκε στις 3-4 Δεκεμβρίου 2016 στο Δημοτικό Θέατρο Αλεξανδρούπολης από Το Παράρτημα Αλεξανδρούπολης της Επιστημονικής Εταιρείας Φοιτητών Ιατρικής Ελλάδος (Ε.Ε.Φ.Ι.Ε.) συνεργασία με τη Θεατρική Ομάδα Φοιτητών Δ.Π.Θ.

10. Εκπαιδευτής του Ελληνικού ATLS της Α’ Πανεπιστημιακής Χειρουργικής Κλινικής του ΔΠΘ

Γ. Συμμετοχή ως Διδάσκων σε Μεταπτυχιακά Προγράμματα -Μαθήματα

1. Συμμετοχή ως ομιλητής στο Μεταπτυχιακό Πρόγραμμα Αγγειοχειρουργικής με τίτλο «Ενδαγγειακές Τεχνικές» της Ιατρικής Σχολής του Πανεπιστημίου Αθηνών και θέμα εισήγησης: «**Αιμοδυναμικές αρχές**

των ενδοαυλικών μοσχευμάτων» (1 διδακτική ώρα) ανελλειπώς κατά τα Ακαδημαϊκά έτη 2013-14, 2014-15, 2015-16, 2016-17, 2017-18, 2018-19, 2019-2020, 2020-21 και 2021-22 (*Βλ,σχετική βεβαίωση*) (www.endovasculartechniques.gr)

2. Συμμετοχή ως ομιλητής στο Διακρατικό Διατμηματικό Μεταπτυχιακό Πρόγραμμα Σπουδών «Υπερηχογραφική λειτουργική απεικόνιση για την πρόληψη και διάγνωση των αγγειακών παθήσεων» του Τμήματος Ιατρικής του Πανεπιστημίου Θεσσαλίας σε συνεργασία με το Τμήμα Ιατρικής του Università degli Studi di Genova, Ιταλία και θέμα εισήγησης: «**Εφαρμοσμένη Αιμοδυναμική μετά από Ενδοαγγειακή Αποκατάσταση**» (1 διδακτική ώρα) κατά τα Ακαδημαϊκά έτη 2014-15, 2015-16, 2016-17 και εκ νέου από το 2022-23 (*Βλ,σχετική βεβαίωση για το τελευταίο έτος*) (http://pms-vasc-ultrasound.med.uth.gr).

3. Επιβλέπων δύο (2) μεταπτυχιακών διπλωματικών εργασιών με θέματα εισήγησης: «**Η συμβολή της υπερηχοτομογραφικής μεθόδου με ή χωρίς χορήγηση ενισχυτών ηχογένειας (CEUS) στη μετεγχειρητική παρακολούθηση μετά από ενδοαυλική αποκατάσταση ανευρυσμάτων κοιλιακής αορτής**» και «**Υπερηχογραφική διερεύνηση διαλείπουσας χωλότητας (μη αθηροσκληρυντικής αιτιολογίας σε νέα άτομα (σύνδρομο παγίδευσης ιγνυακής, κυστική νόσος του έξω χιτώνα**» στο πλάισιο του Μεταπτυχιακού Πρόγραμμα Σπουδών «Υπερηχογραφική λειτουργική απεικόνιση για την πρόληψη και διάγνωση των αγγειακών παθήσεων» του Τμήματος Ιατρικής του Πανεπιστημίου Θεσσαλίας κατά το Ακαδημαϊκό έτος 2015-16.

4. Επιβλέπων μίας (1) μεταπτυχιακής διπλωματικής εργασίας με θέματα εισήγησης: «**Ταχύτητα διάδοσης της αορτικής ροής ως δείκτης αθηροσκλήρωσης**» στο πλάισιο του Μεταπτυχιακού Πρόγραμμα Σπουδών «Υπερηχογραφική λειτουργική απεικόνιση για την πρόληψη και διάγνωση των αγγειακών παθήσεων» του Τμήματος Ιατρικής του Πανεπιστημίου Θεσσαλίας κατά το Ακαδημαϊκό έτος 2016-17.

5. Συμμετοχή ως ομιλητής στο Πρόγραμμα Μεταπτυχιακών Σπουδών του Δημοκριτείου Πανεπιστημίου Θράκης στην «Κλινική-Χειρουργική Ανατομία» με θέματα εισήγησης:

   - «**Αγγειακές Προσπελάσεις άνω άκρου**» (1 διδακτική ώρα) και «**Αγγειακές Προσπελάσεις κάτω άκρου**» (1 διδακτική ώρα) κατά τα Ακαδημαϊκά έτη 2016-17, 2017-18, 2018-19, 2020-21 και 2022-23 (*Βλ,σχετική βεβαίωση*), «**Εισαγωγή στη Χειρουργική Ανατομία του Κυκλοφορικού Συστήματος**» (1 διδακτική ώρα) κατά τα Ακαδημαϊκά έτη 2017-18, 2018-19, 2020-21 και 2022-23,
   - «**Εισαγωγή στη Χειρουργική Ανατομία Μεγάλων Αγγείων**» (1 διδακτική ώρα) κατά το Ακαδημαϊκό έτος 2022-23,
   - «**Ηθική και Δεοντολογία στην Έρευνα**» (1 διδακτική ώρα) κατά το Ακαδημαϊκό έτος 2022-23, (http://www.anatomy-duth.gr).
   - Η εμπειρία της διδασκαλίας της Χειρουργικής Ανατομίας των αγγείων στο συγκεκριμένο μεταπτυχιακό αποτυπώνεται στη Δημοσίευση #174.

6. Επιβλέπων μίας μεταπτυχιακής διπλωματικής εργασίας με θέμα εισήγησης: «**Μελέτη της αρτηριακής παράπλευρης κυκλοφορίας επί αορτολαγόνιας απόφραξης**» στο πλάισιο του Μεταπτυχιακού Πρόγραμμα Σπουδών του Δημοκριτείου Πανεπιστημίου Θράκης στην «Κλινική-Χειρουργική Ανατομία»

κατά το Ακαδημαϊκό έτος 2017-18. Η μελέτη απέδωσε 2 σημοσιεύσεις (βλ. Δημοσιεύσεις σε ξενόγλωσσα περιοδικά #142 & 156).

7. Επιβλέπων δύο μεταπτυχιακών διπλωματικών εργασιών με θέματα εισήγησης: «**Η εφαρμογή της ανατομίας του επιπολής και εν τω βάθει φλεβικού δικτύου του άνω άκρου στις τεχνικές διενέργειας ενδοαυλικής και διάσωσης αυτόλογης αρτηριοφλεβικής επικοινωνίας**» και «**Η θεωρία των αγγειοσωμάτων και η σημασία της στη σύγχρονη αγγειοχειρουργική**» στο πλάισιο του Μεταπτυχιακού Πρόγραμματος Σπουδών του Δημοκριτείου Πανεπιστημίου Θράκης στην «Κλινική-Χειρουργική Ανατομία» κατά το Ακαδημαϊκό έτος 2018-19 (Α. Π.: ΔΠΘ/ΤΙΑΤΡ/30527/2768). Οι μελέτες απέδωσαν τρεις δημοσιεύσεις ως γράμματα προς τη σύνταξη (letter to the Editor) (βλ. Δημοσιεύσεις σε ξενόγλωσσα περιοδικά #171,175,176).

8. Επιβλέπων μίας μεταπτυχιακής διπλωματικής εργασίας με θέμαεισήγησης: «**Οι παράπλευρες αρτηριακές συνδέσεις μεταξύ της εν τω βάθει μηριαίας αρτηρίας και της ιγνυακής αρτηρίας: ανασκόπηση της βιβλιογραφίας και συσχέτιση με την επιτυχία επεμβάσεων επαναιμάτωσης του κάτω άκρου**» στο πλάισιο του Μεταπτυχιακού Πρόγραμματος Σπουδών του Δημοκριτείου Πανεπιστημίου Θράκης στην «Κλινική-Χειρουργική Ανατομία» κατά το Ακαδημαϊκό έτος 2020-21 (Α. Π.: ΔΠΘ/ΤΙΑΤΡ/50854/4558). Η μελέτη απέδωσε μια δημοσιεύση ως γράμμαπρος τη σύνταξη (letter to the Editor) (βλ. Δημοσιεύσεις σε ξενόγλωσσα περιοδικά #190).

9. Προσκεκλημένος ομιλητής στα μετεκπαιδευτικά μαθήματα της Παν/κης Αγγειοχ/κης Κλινικής του Πανεπιστημιακού Νοσοκομείου Λάρισσας Περιόδου 2017-2018 με θέμα «**Γενική θεώρηση των ενδομοσχευμάτων για την αντιμετώπιση των υπονεφρικών ανευρυσμάτων της κοιλιακής αορτής**» (1 διδακτική ώρα), 13/12/2017.

10. Συμμετοχή i) ως *ομιλητής* στο Πρόγραμμα Μεταπτυχιακών Σπουδών «Αγγειακές Προσπελάσεις σε ασθενείς με νεφρική ανεπάρκεια τελικού σταδίου» του Δημοκριτείου Πανεπιστημίου Θράκης (*Βλ,σχετική βεβαίωση*) με θέματα εισήγησης: «**Αιμοδυναμική θεώρηση των αγγειακών προσπελάσεων**» (2 διδακτικές ώρες), «**Ονοματολογία/βατότητες (patencies) αγγειακών προσπελάσεων**» (2 διδακτικές ώρες), «**περιεγχειρητική φαρμακευτική αντιμετώπιση**» (2 διδακτικές ώρες), «**αιμοδυναμική θεώρηση (στένωση/θρόμβωση/υποκλοπή/ανευρυσματική νόσος)**» (2 διδακτικές ώρες), «**Αγγειακές προσπελάσεις σε παχύσαρκους**» (2 διδακτικές ώρες), κατά τα Ακαδημαϊκά έτη 2019-20 και 2020-21 (med.duth.gr), ii) ως *χειρουργός* στις εκπαιδευτικές επεμβάσεις του Μεταπτυχιακού Προγράμματος, iii) *επιβλέπων* τεσσάρων (4) –υπό εκπόνηση- μεταπτυχιακών διπλωματικών εργασιών στο πλαίσιο του προαναφερόμενου μεταπτυχιακού προγράμματος με θέματα εισήγησης: «**Διαχείριση των λειτουργούντων αρτηριοφλεβικών αναστομώσεων σε μεταμοσχευμένους ασθενείς. Διατήρηση ή απολίνωση;**», «**Αντιαιμοπεταλιακή αγωγή για την προφύλαξη από θρόμβωση αγγειακών προσπελάσεων σε αιμοκαθαιρόμενους ασθενείς: Συστηματική ανασκόπηση», «Τεχνικές μετάθεσης φλεβών του αντιβραχίου για αιμοκάθαρση: Είδη και αποτελέσματα», «Χρήση stent-graft για την αποκατάσταση κεντρικών φλεβικών στενώσεων/αποφράξεων σε αιμοκαθαιρόμενους ασθενείς: ανασκόπηση της βιβλιογραφίας».**

11. Συμμετοχή ως ομιλητής στο Πρόγραμμα Μεταπτυχιακών Σπουδών «Αγγειακά Εγκεφαλικά Επεισόδια» του Δημοκριτείου Πανεπιστημίου Θράκης με θέματα εισήγησης: «**Καρωτιδεκτομή σε ασυμπτωματική καρωτιδική νόσο. Η μέθοδος και οι μελέτες**» (1 διδακτική ώρα) κατά τα Ακαδημαϊκά έτη 2019-20 και 2020-21 (*Βλ,σχετική βεβαίωση*), (http://strokeduth.gr/).

12. Συμμετοχή ως ομιλητής στο Πρόγραμμα Μεταπτυχιακών Σπουδών «Προγεννητικός έλεγχος-αντισύλληψη-τοκετός» του Δημοκριτείου Πανεπιστημίου Θράκης με θέμα εισήγησης: «**Φλεβική θρόμβωση στην κύηση**» (1 διδακτική ώρα) κατά το Ακαδημαϊκό έτος 2019-21 και «Απολίνωση των έσω λαγονίων αρτηριών» (1 διδακτική ώρα) κατά το Ακαδημαϊκό έτος 2021-22 (*Βλ,σχετική βεβαίωση*).

13. Συμμετοχή ως ομιλητής στο Πρόγραμμα Μεταπτυχιακών Σπουδών «Θεραπευτικές επιλογές και διαχείρηση επειγουσών αγγειοχειρουργικών παθήσεων» του Αριστοτέλειου Πανεπιστημίου Θεσσαλονίκης με θέματα εισήγησης: «**Ανατομία & φυσιολογία αορτικού συστήματος και κυρίων κλάδων του-αιμοδυναμική ανευρυσμάτων**» και «**αορτικός διαχωρισμός (κλινική παρουσίαση και συντηρητική θεραπεία**» (2 διδακτικές ώρες) κατά το Ακαδημαϊκά έτος 2020-21, 2021-22 και 2022-23 (*Βλ,σχετική βεβαίωση*), (http://www.msc-ve.med.auth.gr/)

14. Επιβλέπων μίας μεταπτυχιακής διπλωματικής εργασίας με θέμα εισήγησης: «**Η ενδαγγειακή αντιμετώπιση του πυελικού τραύματος: μία αφηγηματική ανασκόπηση της βιβλιογραφίας**» στο πλάισιο του Μεταπτυχιακού Πρόγραμματος Σπουδών «Θεραπευτικές επιλογές και διαχείρηση επειγουσών αγγειοχειρουργικών παθήσεων» του Αριστοτέλειου Πανεπιστημίου Θεσσαλονίκης κατά το Ακαδημαϊκό έτος 2020-21.

Δ. Προσκεκλημένος Ομιλητής Συνεδρίων

Α. ΣΕ ΕΛΛΗΝΙΚΑ ΕΠΙΣΤΗΜΟΝΙΚΑ ΣΥΝΕΔΡΙΑ

1. Διάλεξη «τι πρέπει να γνωρίζει ο γενικός ιατρός γα την εκτίμηση της ανευρυσματικής νόσου;» κατά το Κλινικό φροντιστήριο του 13ο Παγκρήτιου Ιατρικού Συνεδρίου, 9-12 Νοεμβρίου 2006, Ηράκλειο

2. Διάλεξη με θέμα «Θεραπευτική αντιμετώπιση της αθηρωματικής προσβολής του αρτηριακού δένδρου των κάτω μελών: Σύγχρονη αποτίμηση των χειρουργικών και επεμβατικών μεθόδων» στα μετεκπαιδευτικά μαθήματα της Αγγειοχειρουργικής Κλινικής της Ιατρικής σχολής Πανεπιστημίου Κρήτης, Απρίλιος 2011.

3. Διάλεξη με θέμα «Αγγειοπλαστική» στα πλαίσια της Στρογγύλης Τράπεζας με θέμα «Η συμβολή της αγγειοχειρουργικής» κατά τη 10η Πανελλήνια Διημερίδα της Εταιρείας Μελέτης Παθήσεων Διαβητικού Ποδιού, Αλεξανδρούπολη, 21-23 Οκτωβρίου 2011.

4. Διάλεξη με θέμα «Παρουσιάζοντας μια επιστημονική εργασία» στα πλαίσια της Στρογγύλης Τράπεζας με θέμα "Αγγειοχειρουργικά παρελκόμενα" κατά το 13ο Πανελλήνιο Συνέδριο Αγγειακής και Ενδαγγειακής Χειρουργικής, Μέγαρο Μουσικής Αθηνών, στις 22-24 Μαρτίου 2012.

5. Διάλεξη με θέμα «Πώς γράφεται και παρουσιάζεται μια επιστημονική εργασία» στα μετεκπαιδευτικά μαθήματα της Α' Προπαιδευτικής Χειρουργικής Κλινικής της Ιατρικής Σχολής του Αριστοτέλειου Πανεπιστημίου Θεσσαλονίκης (Νοσοκομειο Α.Χ.Ε.Π.Α), στις 14 Νοεμβρίου 2012.
6. Διάλεξη με θέμα «Αιμοδυναμικές Αρχές των Ενδοαυλικών Μοσχευμάτων» στα μετεκπαιδευτικά μαθήματα της Αγγειοχειρουργικής Κλινικής της Ιατρικής σχολής Πανεπιστημίου Θεσσαλίας, Δεκέμβριος 2012.
7. Διάλεξη με θέμα «Closing remarks on Vascular Nursing» στη Θεματική Ενότητα-Κλινικό Φροντιστήριο «Αγγειακή Νοσηλευτική», LIVE, Αλεξανδρούπολη, 24-27 Μαΐου 2012.
8. Διάλεξη με θέμα «Εν τω βάθει Φλεβική Θρόμβωση και Πνευμονική Εμβολή – Προφύλαξη στον Τραυματία» στο Εκπαιδευτικό Σεμινάριο «Κακώσεις και τράυματα των κάτω άκρων», της Πανεπιστημιακής Ορθοπαιδικής Κλινικής του Δημοκριτείου Πανεπιστημίου Θράκης, 4-6 Μαΐου 2012.
9. Διάλεξη με θέμα «Ο σφυροβραχιόνιος Δείκτης-ένα μοναδικό εργαλείο της κλινικής πράξης» στην Επιστημονική Ενότητα Αγγειακής Νοσηλευτικής, LIVE, Θεσσαλονίκη, 23-25 Μαΐου 2013.
10. Εισήγηση με θέμα «Κακώσεις αγγείων λεκάνης/πυέλου». Επιστημονική Διημερίδα «Αγγειακές Ημέρες ΑΧΕΠΑ», Θεσσαλονίκη, 11-12 Δεκεμβρίου 2015.
11. Διάλεξη με θέμα «Κατευθυντήριες οδηγίες: Παθήσεις θωρακικής αορτής», 17ο Πανελληνίο Συνεδρίο Αγγειακής & Ενδαγγειακής Χειρουργικής – Αγγειολογίας, Θεσσαλονίκη, 15-18 Μαρτίου 2018.
12. Διάλεξη με θέμα «Σύγχρονοι προβληματισμοί στην Αγγειοχειρουργική Ειδικότητα: Βασική έρευνα στην Αγγειοχειρουργική», 17ο Πανελληνίο Συνεδρίο Αγγειακής & Ενδαγγειακής Χειρουργικής – Αγγειολογίας, Θεσσαλονίκη, 15-18 Μαρτίου 2018.
13. Διάλεξη με θέμα «Καινοτομικά μοντέλα για την αιμοδυναμική κατανόηση των σύγχρονων αγγειοχειρουργικών Προβλημάτων», Επιστημονική Ημερίδα «Αγγειακές Ημέρες ΑΧΕΠΑ», Θεσσαλονίκη, 8 Δεκεμβρίου 2018.
14. Διάλεξη με θέμα «Τεχνολογία Διαδερμικής Θρομβεκτομής», Επιστημονική Διημερίδα «Αγγειακές Ημέρες ΑΧΕΠΑ», Θεσσαλονίκη, 13-14 Δεκεμβρίου 2019.
15. Διάλεξη με θέμα «Μέθοδοι αντιμετώπισης των ανευρυσμάτων της κοιλιακής αορτής», 5ο Συνέδριο Εκπαίδευσης και Έρευνας, Αλεξανδρούπολη, 17-18 Μαίου 2019.
16. Διάλεξη με θέμα «Παραβάσεις Ηθικής και Δεοντολογίας στην Έρευνα», Ημερίδα «Η Ανατομία της Ιατρικής Έρευνας» του Εργαστηρίου Ανατομίας της Ιατρικής Σχολής του Δημοκριτείου Πανεπιστημίου Εκπαίδεσης και Έρευνας, 17-18 Μαίου 2020.
17. Διάλεξη με θέμα «Αγγεακές προσπελάσεις-αυτόλογη φίστουλα», 1η ημερίδα αγγειακών προσπελάσεων, Αμφιθέατρο Ερρίκος Ντυνάν Hospital Center, 06 Νοεμβρίου 2021.
18. Διάλεξη με θέμα «Θρόμβωση περιφερικών μοσχευμάτων», Επιστημονική Διημερίδα «Αγγειακές Ημέρες ΑΧΕΠΑ», Θεσσαλονίκη, 28-29 Ιανουαρίου 2022.

19. Διάλεξη με θέμα «Υπάρχουν χαρακτηριστικά της καρωτιδικής πλάκας στην απεικλόνιση με CTA, MRI και υπερήχους που αυξάνουν τον κίνδυνο για ΑΕΕ;» 21ο Πανελλήνιο Συνέδριο Αγγειακής & Ενδαγγειακής Χειρουργικής, Αθήνα 2022.

20. Διάλεξη με θέμα «Εξελίξεις στην Αγγειοχειρουργική», 6ο Συνέδριο Εκπαίδευσης και Έρευνας, Αλεξανδρούπολη, 28-30 Ιανουαρίου 2022.

21. Διάλεξη με θέμα «Σκληροθεραπεία μείζονος σαφηνούς φλέβας», 5ο Σχολείο Ελληνικής Φλεβολογικής Εταιρείας, Βόλος, 2-3 Σεπτεμβρίου 2022.

22. Διάλεξη με θέμα «Mini κιρσεκτομές ή σκληροθεραπεία αφρού;», 5ο Σχολείο Ελληνικής Φλεβολογικής Εταιρείας, Βόλος, 2-3 Σεπτεμβρίου 2022.

23. Διάλεξη με θέμα «χρόνια φλεβική νόσος των κάτω άκρων: κατάλυση με αφρό» 6ο Σχολείο Ελληνικής Φλεβολογικής Εταιρείας, Χαλκίδα, 1-2 Δεκεμβρίίου 2023.

24. Διάλεξη με θέμα «χρόνια φλεβική νόσος των κάτω άκρων: Μη θερμική κατάλυση με αφρό» Αγγειακές Ημέρες ΑΧΕΠΑ, Θεσσαονίκη 1-2 Μαρτίου 2024.

25. Διάλεξη με θέμα «Τεχνικές διατήρησης της μείζονος σαφηνούς φλέβας;», Πανελλήνιο Συνέδριο Φλεβολογίας, 21-23 Μαρτίου 2025.

26. Διάλεξη με θέμα «Αντιμετώπιση ανεπάρκειας της ελάσσονος σαφηνούς φλέβας», Πανελλήνιο Συνέδριο Φλεβολογίας, 21-23 Μαρτίου 2025.

Β. ΣΕ ΔΙΕΘΝΗ ΕΠΙΣΤΗΜΟΝΙΚΑ ΣΥΝΕΔΡΙΑ

1. “Haemodynamic parameters related to AAA rupture”, Larissa Interventional Vascular Endovascular Symposium (LIVES), 29-31 May, 2009, Larissa.
2. “Geometrical factors influencing the hemodynamic behaviour of the AAA stent grafts –essential for the clinician”. 3rd Munich Aortic and Carotid Conference, Munich, Germany, 29 November 2013 (www.mac-conference.com)
3. “An alternative concept for landing in a difficult proximal neck: lessons learned”-keynote lecture. 31st Annual Meeting of the German Society of Vascular Surgery and Medicine. Muenster, Germany, 16 September 2015 (www.dgg-jahreskongress.de)
4. “Fluid Dynamics and in-vivo forces in stent grafts”. 31st Annual Meeting of the German Society of Vascular Surgery and Medicine. Muenster, Germany, 16 September 2015 (www.dgg-jahreskongress.de)
5. “Computational studies in the management of AAAs”. International Society for Vascular Surgery (ISVS) 2015 Congress, Athens, Greece, 10-12 September, 2015 (www.isvscongress.com).

6. Panelist in Session “Current unmet needs in Abdominal Aorta endografting. The justa para- renal and ruptured AAA”. SITE Update (International Symposium on Endovascular Therapeutics), Barcelona, Spain, 13th May, 2016 (www.sitesymposium.com/past-congresses/site-update-2016/scientific-programme).
7. Invited panelist-speaker in SITE Update (International Symposium on Endovascular Therapeutics), Barcelona, Spain, 29-31 March, 2017 (www.sitesymposium.com).
8. “Management of Cava Thrombus”, 17th Symposium of the Greelk-German Society of Urology, 29 June-2 July 2017, Alexandroupolis, Greece www.17gdgusym.org
9. Invited speaker in the 6th FOCUS Meeting, Barcelona, Spain; Presented topic “1 - Year Results with the Bolton Abdominal Endograft in the Treatment of AAA”, 12-13 May 2017.
10. “The role of flow-induced wall shear stress in the natural history of AAA: critical or irrelevant?” Leading Innovative Vascular Education (LIVE), Larissa, Greece, 9-11 May 2019 (www.conferre.gr/congress/live2019).
11. “The AFX unibody bifurcated endograft for the treatment of abdominal aortic aneurysms: current evidence and future perspectives” Industry webinar, Leading Innovative Vascular Education (LIVE), Thessaloniki, Greece, 11 June 2021 (https://live2021.conferre.gr).
12. “Update on medical management of PTS”, In Session “Contemporary aspects of post-thrombotic venous disease”, LIVE@MAC 2022.
13. “Compression therapy after superficial venous treatment – a MUST and for how long?” MAC, 2022.
14. “Superficial vein disease: USFS- who, when and how?”, Corfu, 18-20 May, LIVE 2023
15. “Learning through clinical cases: superficial venous reflux”, Corfu, 18-20 May, LIVE2023
16. “Recurrent varocise veins”, Athens, Venous Symposium Europe, 17-19 October 2024.
17. Poster presentation “Successful management of venous ulcer with foam sclerotherapy of the great saphenous trunk and ligation of a large incompetent perforating vein in the thigh” Athens, Venous Symposium Europe, 17-19 October 2024.
18. “Prevalence study of anatomical anomalies of the aortic arch and correlation of anomalies of the visceral vessels”, 3rd Athens Cardiovascular Symposium, 29&30 November 2024.
19. Chronic venous Disease linked to cardiovascular disease and mortality, 3rd Athens Cardiovascular Symposium, 29&30 November 2024.
20. “Non thermal ablation for truncal and large varicosities”, Athens. Venous Symposium Europe, 30 October- 1 November 2025.
21. Radial 2RingPro- New Horizons for the treatment of venous incompetence. Athens, Venous Symposium Europe, 30 October- 1 November 2025.

IX. ΚΡΙΤΗΣ ΣΕ ΕΠΙΣΤΗΜΟΝΙΚΑ ΠΕΡΙΟΔΙΚΑ (INDEX MEDICUS) *

1. Journal of Endovascular Therapy (Μέλος του Editorial Board)
2. Vascular and Endovascular Surgery
3. Cardiovascular and Interventional Radiology
4. International Journal of Lower Extremity Wounds
5. Biomechanics and Modeling in Mechanobiology
6. Annals of Vascular Surgery
7. Expert Review of Medical Devices
8. European Journal of Vascular Endovascular Surgery
9. BMJ Case Reports
10. Vascular Pharmacology
11. Diagnostic and Interventional Radiology
12. Open Journal of Cardiovascular Surgery

*η συμμετοχή ως κριτής-reviewer πιστοποιείται από επισυναπτόμενες σχετικές βεβαιώσεις από τους ιστότοπους www.publons.com (τίτλοι 1-5) , www.reviewercredits.com (1-4 & 6-9), μέσω των αντίστοιχων εκδοτικών οίκων για τους τίτλους #6,8 και10-12.

Προσκεκλημένος εκδότης (guest topic-editor) στην ερευνητική ενότητα “Clinical and Hemodynamic Performance of Aortic Endografts” του on-line περιοδικού Frontiers in Surgery (https://www.frontiersin.org/research-topics/4141/clinical-and-hemodynamic-performance-of-aortic-endografts)

Συνεκδότης (Associate Editor) του Βιβλίου “Current Trends in Phlebology”, έκδοση της Ελληνικής Φλεβολογικής Εταιρείας, 2025, ISBN 978-618-5835-23-1.

Χ. ΕΡΕΥΝΗΤΙΚΟ ΕΡΓΟ

Ι. ΔΙΔΑΚΤΟΡΙΚΗ ΔΙΑΤΡΙΒΗ

«ΚΛΙΝΙΚΗ ΚΑΙ ΥΠΟΛΟΓΙΣΤΙΚΗ ΜΕΛΕΤΗ ΤΗΣ ΕΞΕΛΙΞΗΣ ΤΗΣ ΑΙΜΟΔΥΝΑΜΙΚΗΣ ΣΥΜΠΕΡΙΦΟΡΑΣ ΤΩΝ ΑΝΕΥΡΥΣΜΑΤΩΝ ΤΗΣ ΚΟΙΛΙΑΚΗΣ ΑΟΡΤΗΣ» DOI 10.12681/eadd/17418. http://www.didaktorika.gr/eadd

Η Διατριβή ολοκληρώθηκε υπό την επίβλεψη του Καθηγητή Αγγειοχειρουργικής Α.Ν. Κατσαμούρη στο Τμήμα Ιατρικής, Επιστημών Υγείας, Πανεπιστημίου Κρήτης (2006-2009) σε συνεργασία με το Ίδρυμα

Τεχνολογίας και Έρευνας-Ινστιτούτο Εφαρμοσμένων και Υπολογιστικών Μαθηματικών, Ηράκλειο-Κρήτη. Χρηματοδοτήθηκε από τη Γενική Γραμματεία Έρευνας και Τεχνολογίας (Κωδικός: 03ΕΔ244 / 28-12-2005).

15/07/2009: Δημόσια υποστήριξη της διατριβής, βαθμός «Άριστα».

24/07/2009: Καθομολόγηση ως Διδάκτορας της Ιατρικής Σχολής του Πανεπιστημίου Κρήτης.

II. ΣΥΜΜΕΤΟΧΗ ΣΕ ΠΡΩΤΟΚΟΛΛΑ

1. Συμμετοχή στην πολυκεντρική μελέτη της ACSRS, κατά την επιλογή περιστατικών και επεξεργασίας πληροφοριών στην Αγγειοχειρουργική Κλινική του Πανεπιστημιακού Νοσοκομείου Ηρακλείου (περίοδος 1999-2000).
2. Συμμετοχή σε ερευνητικό πρωτόκολλο της Αγγειοχειρουργικής Κλινικής του Πανεπιστημίου Κρήτης σε συνεργασία με το Ίδρυμα Τεχνολογίας και Έρευνας- Ινστιτούτο Εφαρμοσμένων και Υπολογιστικών Μαθηματικών. Το πρωτόκολλο είχε γίνει αποδεκτό στο πλαίσιο του Προγράμματος Ενίσχυσης Ερευνητικού Δυναμικού (ΠΕΝΕΔ 2003) και χρηματοδοτηθεί από τη Γενική Γραμματεία Έρευνας και Τεχνολογίας (Κωδικός: 03ΕΔ244 / 28-12-2005). Αποτέλεσε τη βάση ανάπτυξης του θέματος της Διδακτορικής μου Διατριβής. Η εμπειρία αυτή αποτέλεσε το έναυσμα για την ενασχόλησή μου με τις αρχές της Αιμοδυναμικής καθώς και τη βάση εκπόνησης του θέματος της Διδακτορικής μου Διατριβής, στο πλαίσιο της οποίας δημοσιεύτηκαν 4 πρωτότυπα επιστημονικά άρθρα (βλ. δημοσιεύσεις #1,4,5,15) και έγιναν 4 ανακοινώσεις σε διεθνή συνέδρια, σχετικά με το αντικείμενο της Μηχανικής των Ανευρυσμάτων της Κοιλιακής Αορτής, αποσπώντας και ένα διεθνές βραβείο (http://www.angiology.org).
3. Ενεργή συμμετοχή (sub-investigator) στην Ελληνική πολυκεντρική Μελέτη «Επιπολασμός της ασυμπτωματικής αν τω βάθει φλεβικής θρόμβωσης (DVT) σε ασθενείς με καρκίνο. Δεδομένα που προέρχονται από συνθήκες καθημερινής κλινικής πρακτικής στην Ελλάδα» (*Ακρωνύμιο*: ENGAGE) – Κωδικός Μελέτης: 2012/03.
4. Ενεργή συμμετοχή (sub-investigator) στη μη παρεμβατική μετεγκριτική μελέτη ασφάλειας (PASS) «XALIA-Xarelto® για τη μακροπρόθεσμη και την αρχική αντιπηκτική θεραπεία στη φλεβική θρόμβωση (ΦΘΕ)».

III. ΑΥΤΟΝΟΜΗ ΠΡΩΤΟΤΥΠΗ ΕΡΕΥΝΗΤΙΚΗ ΔΡΑΣΤΗΡΙΟΤΗΤΑ

(οι παρακάτω αναφορές αφορούν αποκλειστικά ερευνητικά άρθρα)

1. Ο ερευνητικός μου προσανατολισμός για την Αιμοδυναμική μελέτη των Αγγειοχειρουργικών Παθήσεων και Επεμβάσεων συνεχίστηκε και στην Πανεπιστημιακή Αγγειοχειρουργική Κλινική του «Δημοκρίτειου» Πανεπιστημίου. Αξιοποιώντας την σημαντική Κλινική Ενδοαγγειακή Εμπειρία της Κλινικής και συνδυάζοντας τη με την τεχνογνωσία συνεργατών από το εργαστήριο Βιορευστομηχανικής του Εθνικού Μετσόβιου Πολυτεχνείου (Σχολή Μηχανολόγων Μηχανικών) οργάνωσα και επέβλεψα μελέτη αιμοδυναμικής προσομοίωσης της αιμοδυναμικής συμπεριφοράς ενδοαγγειακών μοσχευμάτων με διασταυρωμένα σκέλη. Η αρχική μελέτη διήρκησε 1 χρόνο και απέδωσε 4 πρωτότυπες δημοσιεύσεις σε έγκριτα -Pubmed Indexed- ιατρικά περιοδικά (βλ. Δημοσιεύσεις #30,38,61,71 & 122). Η μελέτη της προαναφερόμενης θεματολογίας

διεξήχθη για πρώτη φορά στη Διεθνή Βιβλιογραφία, όπως μπορεί να επαληθευτεί από τις χρονολογίες δημοσίευσης. Περαιτέρω ερευνητική δραστηριότητα απέδωσε πρόσφατως και άλλη πρωτότυπη δημοσίευση (#150), η οποία έγιναν δεκτό προς προφορική ανακοίνωση στο Ετήσιο Συνέδριο SITE στη Βαρκελώνη, 27-29 Μαρτίου 2019 (βλ. «Ανακοίνωσεις σε Διεθνή Επιστημονικά Συνέδρια», σελ.18).

2. Η ερευνητική ενασχόληση μου με την Αιμοδυναμική μελέτη των Αγγειοχειρουργικών Παθήσεων και Επεμβάσεων επεκτάθηκε κατά την παρούσα θητεία μου και στην υπολογιστική αιμοδυναμική προσομοίωση της αρτηριοφλεβικής επικοινωνίας (βλ. Δημοσίευση #39), της αορτικής απόφραξης (Δημοσίευση #98) καθώς και των φαινομένων σε πιο σύνθετα ενδοαυλικά μοσχεύματα (θυριδωτά με/χωρίς κλάδους) που απέδωσε 3 πρωτότυπα δημοσιευμένα επιστημονικά άρθρα (βλ. Δημοσίευσεις #54, 95 και 138), ένα (#54) εκ των οποίων έγιναν δεκτό προς προφορική ανακοίνωση στο Συνέδριο Αγγειακής Έρευνας (Vascular Biology, Materials & Engineering) της Ευρωπαϊκής Αγγειοχειρουργικής Εταιρίας, στη Φρανκφούρτη το 2013 και ένα (#138) ως αναρτημένη ανακοίνωση (poster) στο 32ο Συνέδριο της Ευρωπαϊκής Αγγειοχειρουργικής Εταιρίας, στη Βαλένθια το 2018 (βλ. «Ανακοίνωσεις σε Διεθνή Επιστημονικά Συνέδρια», σελ.18), αποσπώντας την ίδια χρονιά και το 2ο βραβείο καλύτερης προφορικής ανακοίνωσης στο 17ο Πανελλήνιο Συνέδριο Αγγειακής & Ενδαγγειακής Χειρουργικής - Αγγειολογίας.

3. Ακολούθως διεξήγαγα μελέτες εκτίμησης της επίδρασης των αορτικών ενδομοσχευμάτων στην κυκλοφορία εκτιμώντας αιμοδυναμικές παραμέτρους με εφαρμογή πιστοποιημένων προγραμμάτων (software) καταγραφής και ανάλυσης με χρήση ερευνητικού εξοπλισμού της Πανεπιστημιακής Αγγειοχειρουργικής Κλινικής του Δημοκριτείου Πανεπιστημίου Θράκης (βλ. Δημοσίευσεις #91,96, 98,104, 112 και 114).

4. Η ερευνητική ενασχόληση μου με την Αιμοδυναμική μελέτη των Αγγειοχειρουργικών Παθήσεων και Επεμβάσεων οδήγησε στη σύνταξη ως Επιβλέποντα 2 Ερευνητικών Πρωτοκόλλων Διδακτορικών Διατριβών, όπως κατατέθηκαν στο Ιατρικό Τμήμα του Δημοκριτείου Πανεπιστημίου Θράκης (*βλέπε: Διδακτορικές Διατριβές IV.a*).

IV. ΔΙΔΑΚΤΟΡΙΚΕΣ ΔΙΑΤΡΙΒΕΣ

IV.a. ΕΠΙΤΥΧΩΣ ΔΙΕΚΠΑΙΡΑΙΩΘΕΙΣΕΣ

1. ***Συμμετοχή στην επταμελή επιτροπή*** της διατριβής «Μελέτη των ελαστικών ιδιοτήτων της αορτής και της συνακόλουθης εμφάνισης υπέρτασης σε νεαρούς ασθενείς με τοποθέτηση θωρακικού ενδομοσχεύματος λόγω τραυματικής ρήξης» υπό Δημητρίου Γ. Καμβύση, Ιατρού-Ακτινοδιαγνώστη. Υποβλήθηκε στο Τμήμα Ιατρικής της Σχολής Επιστημών Υγείας του Δημοκριτείου Πανεπιστημίου Θράκης - Δημόσια Υποστήριξη το 2013. http://www.didaktorika.gr/eadd DOI 10.12681/EADD/29337

2. ***Συμμετοχή στην επταμελή επιτροπή*** της διατριβής «Μελέτη φλεγμονώδους αντίδρασης και διαταραχών του πηκτικού μηχανισμού μετά από ενδαγγειακή αντιμετώπιση ανευρυσμάτων της κοιλιακής αορτής» υπό Γεωργίου Ν. Τρελλόπουλου, Ιατρού-Αγγειοχειρουργού. Υποβλήθηκε στο Τμήμα Ιατρικής της Σχολής Επιστημών Υγείας του Δημοκριτείου Πανεπιστημίου Θράκης - Δημόσια Υποστήριξη το 2015. http://www. https://www.didaktorika.gr/eadd/handle/10442/35780

3. ***Συμμετοχή στην επταμελή επιτροπή*** της διατριβής «Η επίδραση της τακτικής παρακολούθησης στην επιβίωση των αρτηριοφλεβικών (ΑΦ) προσπελάσεων σε αιμοκαθαιρόμενους ασθενείς» υπό Κωνσταντίνου Στ. Λειβαδίτης, Ιατρού Νεφρολόγου. Υποβλήθηκε στο Τμήμα Ιατρικής της Σχολής Επιστημών Υγείας του Δημοκριτείου Πανεπιστημίου Θράκης - Δημόσια Υποστήριξη το 2017. http://hdl.handle.net/10442/hedi/42418

4. ***Επιβλέπων*** της διατριβής «**Μελέτη των χαρακτηριστικών του σφυγμικού κύματος και άλλων αιμοδυναμικών παραμέτρων του καρδιαγγειακού συστήματος στην απόφραξη της υπονεφρικής κοιλιακής αορτής**» υπό Χρήστου Μ. Αργυρίου, Ιατρού Αγγειοχειρουργού. Υποβλήθηκε και εγκρίθηκε από το Τμήμα Ιατρικής της Σχολής Επιστημών Υγείας του Δημοκριτείου Πανεπιστημίου Θράκης το Μάρτιο του 2014- Δημόσια Υποστήριξη το 2017. Τα αποτελέσματά της απέδωσαν 2 δημοσιεύσεις (βλ. Δημοσίευσεις #98 και #114). http://www.didaktorika.gr/eadd, http://hdl.handle.net/10442/hedi/40223

5. ***Συμμετοχή στην επταμελή επιτροπή*** της διατριβής «Χειρουργική αντιμετώπιση υποτροπής κιρσών-ποιότητα ζωής» υπό Χρήστου Παπασιδέρη, Ιατρού Αγγειοχειρουργού. Υποβλήθηκε στο Τμήμα Ιατρικής της Σχολής Επιστημών Υγείας του Δημοκριτείου Πανεπιστημίου Θράκης - Δημόσια Υποστήριξη το 2020. https://www.didaktorika.gr/eadd/handle/10442/48248

6. ***Επιβλέπων*** της διατριβής «**Η συμβολή της υπολογιστικής μελέτης της Αξονικής αγγειογραφίας στην κατανόηση της συμπεριφοράς του συνδυασμού διχαλωτού ενός-τεμαχίου (unibody) αορτικού ενδομοσχεύματος ePTFE με αορτική προέκταση από Dacron**» υπο Γεωργίου Ιωαννίδη, Τεχνολόγου-Ακτινολόγου. Υποβλήθηκε και εγκρίθηκε από το Τμήμα Ιατρικής της Σχολής Επιστημών Υγείας του Δημοκριτείου Πανεπιστημίου Θράκης στις 29 Νοεμβρίου 2016. Δημόσια Υποστήριξη το 2022. Τα αποτελεσμάτα του ειδικού μέρους απέδωσαν δημοσιεύσεις (βλ. Δημοσίευση #171,176) https://www.didaktorika.gr/eadd/handle/10442/51845

7. ***Συμμετοχή στην επταμελή επιτροπή*** της διατριβής «Μεσοπρόθεσμα και μακροπρόθεσμα αποτελέσματα από τη χρήση του ενδομοσχεύματος EndurantTM στην ενδοαυλική αντιμετώπιση των ανευρυσμάτων της κοιλιακής αορτής» υπό Νικολάου Σχορετσανίτη, Αγγειοχειρουργού. Υποβλήθηκε στο Τμήμα Ιατρικής της Σχολής Επιστημών Υγείας του Δημοκριτείου Πανεπιστημίου Θράκης - Δημόσια Υποστήριξη Οκτώβριος 2022.

XI. ΒΡΑΒΕΙΑ – ΔΙΑΚΡΙΣΕΙΣ

1. 1^{Ο} Βραβείο Καλύτερης Προφορικής ανακοίνωσης από την επιστημονική επιτροπή του **23rd World Congress of the International Union of Angiology**, 21-25 Ιουνίου 2008, Athens, Greece, για την εργασία με θέμα: “The Influence of Intraluminal Thrombus on Abdominal Aortic Aneurysm Wall Stress”. **E. Georgakarakos**, S. Volanis, C. Ioannou, Y. Papaharilaou, J. Ekaterinaris, A.N. Katsamouris.

2. 2^{Ο} Βραβείο Καλύτερης Προφορικής ανακοίνωσης από την επιστημονική επιτροπή του **14ο Παγκρήτιου Ιατρικού Συνεδρίου**, 29 Οκτώβρη - 1 Νοεμβρίου 2008, Ρέθυμνο, για την εργασία με θέμα: «Επηρεάζει η γεωμετρία τον τρόπο επίδρασης του ενδοαυλικού θρόμβου στην ελάττωση της μέγιστης τοιχωματικής

τάσης στα ανασυνδυασμένα μοντέλα ανευρυσμάτων;» **Ε. Γεωργακαράκος**, Χ. Ιωάννου, Ι. Καμαριανάκης, Ι. Παπαχαριλάου, Α.Ν. Κατσαμούρης.

3. 1Ο Βραβείο Καλύτερης Ελεύθερης ανακοίνωσης στο πλαίσιο του **18ου Επιστημονικού Συνεδρίου Φοιτητών Ιατρικής Ελλάδος 2012**, Αθήνα, για την εργασία με θέμα: «Η εκτίμηση του σφυροβραχιόνιου δείκτη σε προπτυχιακό επίπεδο: μια υπερβολική προσδοκία;» Β. Βαμβακερού, Δ. Λύτρας, Α. Τσιόκανη, Ο. Τσολακάκη, Δ. Χλίμπου, Ε. Παπαδάκη, **Ε. Γεωργακαράκος (*επιβλέπων*)**.
4. Βραβείο καλύτερης αναρτημένης ανακοίνωσης (e-poster) **στο Leading Innovative Vascular Education (LIVE), Ioannina, Greece, 26-28 May 2016** για την εργασία: "Preliminary single-center experience with the Bolton Treovance endograft in the treatment of Abdominal Aortic Aneurysm", **Georgakarakos E**, Georgiadis GS, Schoretsanitis N, Argyriou C, Lazarides MK.
5. 1Ο Βραβείο Καλύτερης Ελεύθερης ανακοίνωσης στο πλαίσιο του **23ου Επιστημονικού Συνεδρίου Φοιτητών Ιατρικής Ελλάδος 2017**, Λάρισσα, για την εργασία με θέμα: "Theatrical performance in medical education: A fast-track diff erential approach of emergency cases", Koufopoulos G, Keskinis C, Stathopoulos M, Bafitis V, Tripsianis G, **Georgakarakos E**. **(*επιβλέπων*)**.
6. 2Ο Βραβείο Καλύτερης Ελεύθερης ανακοίνωσης στο πλαίσιο του **17ου Πανελληνίου Συνεδρίου Αγγειακής & Ενδαγγειακής Χειρουργικής - Αγγειολογίας 2018**, Θεσσαλονίκη, για την εργασία με θέμα: «Αιμοδυναμική σύγκριση μεταξύ διχαλωτού ενδομοσχεύματος κλασσικής διαμόρφωσης & μοντέλου στενών σκελών (dog bone)», **Ε. Γεωργακαράκος**, Α. Ξενάκης. Γ.Σ. Γεωργιάδης.
7. 3ο Βραβείο καλύτερης αναρτημένης ανακοίνωσης (poster) στο 17ο Βαλκανικό Συνέδριο Ακτινολογίας, (**BCR 17-19 October, 2019**), Heraklion, Crete, Greece για την εργασία: "contrast enhanced ultrasould (CEUS) in EVAR follow up", Foutzitzi S, Deftereos SP, **Georgakarakos E**, Souftas VD.

XII. ΑΝΑΚΟΙΝΩΣΕΙΣ ΣΥΝΕΔΡΙΩΝ

Α. ΑΝΑΚΟΙΝΩΣΕΙΣ ΣΕ ΔΙΕΘΝΗ ΕΠΙΣΤΗΜΟΝΙΚΑ ΣΥΝΕΔΡΙΑ

1. T. Kostas, CV Ioannou, I. Drygiannakis, E. Daskalaki, A. Kafetzakis, M. Veligrantakis, V. Kakoyianni, **E. Georgakarakos,** AN Katsamouris. "Does modification of predisposing factors influence chronic venous disease progression (CVDP)?" 6th Meeting of the European Venous Forum, Heraklion, Crete, Greece, 24-26 June 2005.
2. **E. Georgakarakos**, C. Ioannou, S. Volanis, Y. Papaharilaou, J. Ekaterinaris, A.N. Katsamouris. "The Influence of intraluminal thrombus on abdominal aortic aneurysm wall stress." **(1st prize*).*** 23rd World Congress of the International Union of Angiology, Athens, Greece 21-25 June 2008.
3. C. Ioannou, **E. Georgakarakos**, A. Liamis, V. Kakoyianni, M, Gionis, A. Katsamouris. "Combined simultaneous basilic and brachial vein transposion. A new technique to create an autologous vascular

access". 23rd World Congress of the International Union of Angiology, Athens, Greece, 21-25 June 2008.

4. **E. Georgakarakos**, C. Ioannou, Y. Kamarianakis, T. Kostas, C. Zohios, Y. Papaharilaou, A.N. Katsamouris. "Correlation of peak wall stress and geometric parameters in AAA reconstructed models with thrombus". 2nd European Congress of the International Congress of the International Congress for Vascular Surgery, Milan, Italy, 9-11 October 2008.
5. T. Kostas, CV. Ioannou, **E. Georgakarakos**, A.N. Katsamouris. "Correlation between chronic venous disease progression (CVDP) and modification of predisposing factors". 21st Annual Meeting of the American Venous Forum, Phoenix-AZ, USA, 11-14 February 2009.
6. **E. Georgakarakos**, Y. Kamarianakis, C. Ioannou,Y. Papaharilaou, C. Zohios, A.N. Katsamouris. "The reducing effect of intraluminal thrombus on wall stress in abdominal aortic aneurysms can be influenced by the geometric factors**."** 58th International Congress of the European Society for Cardiovascular Surgery, Warsaw, Poland, 30 April– 02 May 2009.
7. CV. Ioannou, T. Kostas, A. Kafetzakis, A. Liamis, C. Kounos, **E. Georgakarakos**, N. Kontopodis, J. Perakis, D. Koukoumtzis, A.N. Katsamouris. "Growth Factors in the Treatment of Lower Extremity Ischemic Ulcers in Diabetics." 19th Conference of the European Wound Management Association (EWMA 2009), Helsinki, Finland. 20-22 May 2009.
8. **E. Georgakarakos**, C. Ioannou,Y. Papaharilaou, T. Kostas, D. Tsetis, A.N. Katsamouris. "Peak Wall Stress does not necessarily predict the location of rupture in abdominal aortic aneurysms." 18th European Chapter Congress of the International Union of Angiology, Palermo, Italy, 24-27 October 2009.
9. **Georgakarakos E**, Papadaki E, Vamvakerou V, Lytras D, Tsiokani A, , Tsolakaki O, Chlimpou D, and Lazarides M.K. "The evaluation of Ankle-Brachial Index in undergraduate level: an excessive expectation?" (e-poster). 23rd World Congress of the International Union of Angiology, Prague, Check Republic, 1-5 July 2012.
10. Tsivgoulis G, Heliopoulos I, Vadikolias K, **Georgakarakos E**, Mantatzis M, Flamouridou M, Tsakaldimi S, Mitsoglou A, Dalos P, Lazaridis M, Piperidou C. "Risk of early revascularization procedures in symptomatic carotid artery stenosis: a phase IV single-center study" (poster). 21st European Stroke Conference, Lisbon, Portugal, 22-25 May 2012.
11. **Georgakarakos E**, Xenakis A, Manopoulos C, Georgiadis GS, Argyriou C, Tsangaris S, Lazarides MK. "The influence of inlet-to-outlet diameter ratio on the displacement forces acting on an aortic endograft: a computational study". Leading Innovative Vascular Education (LIVE), Thessaloniki, 23-25 May, 2013.
12. Argyriou C, **Georgakarakos E**, Schoretsanitis N, Charalampidis D, Papadaki E, Lazarides MK. "Increased early mortality in patients undergoing hybrid revascularization procedures in emergent setting". Leading Innovative Vascular Education (LIVE), Thessaloniki, 23-25 May, 2013.

13. **Georgakarakos E**, Xenakis A, Georgiadis GS, Argyriou C, Schoretsanitis N, Lazarides MK. "The hemodynamic impact of misalignment of branched endografts: a computational study" (e-poster). Leading Innovative Vascular Education (LIVE), Thessaloniki, 23-25 May, 2013.
14. **Georgakarakos E**, Xenakis A, Manopoulos C, Georgiadis GS, Argyriou C, Tsangaris S, Lazarides MK. "Studying the flow dynamics in an aortic endograft with crossed-limbs" (*e-poster*). Leading Innovative Vascular Education (LIVE), Thessaloniki, Greece, 23-25 May, 2013.
15. **Georgakarakos E**, Xenakis A, Georgiadis GS, Argyriou C, Schoretsanitis N, Lazarides MK. "The hemodynamic impact of misalignment of branched endografts: a computational study". ESVS Spring Meeting, Frankfurt, Germany, 24 May 2013.
16. **Georgakarakos E**, Argyriou C, Ioannou CV, Georgiadis GS, Trellopoulos G, Lazarides MK. "Non-invasive assessment of hemodynamic changes after aortobifemoral bypass in patients with juxtarenal total aortic occlusion: a preliminary study" (*poster*). ESVS Spring Meeting, London, UK, 17 May 2014.
17. **Georgakarakos E**, Ioannou CV, Trellopoulos G, Kontopodis N, Papachristodoulou A, Torsello G, Bisdas T. "The influence of the Ovation's Stent Graft fixation mode on the direct postoperative suprerenal neck angulation change; comparison to the Nitinol self-expanding stent mechanism" (*poster)*. 4th Munich Aortic and Carotid Conference, Munich, Germany, 5 December 2014 (www.mac-conference.com).
18. Trellopoulos G, **Georgakarakos** E, Pelekas D, Papachristodoulou A, Kalaitzi A, Asteri T "Initial single-center experience with the Ovation stent-graft system" (*poster)*. 4th Munich Aortic and Carotid Conference, Munich, Germany, 5 December 2014 (www.mac-conference.com).
19. **Georgakarakos E**, Manopoulos C, Agelidis M, Lazarides MK, Tsangaris S. "Studying the wall shear stress patterns and flow fields in the stent-graft of the chimney endograft configuration" (*poster)*. ESVS Spring Meeting, Frankfurt, Germany, 30 May 2015.
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Β. ΑΝΑΚΟΙΝΩΣΕΙΣ ΣΕ ΕΛΛΗΝΙΚΑ ΕΠΙΣΤΗΜΟΝΙΚΑ ΣΥΝΕΔΡΙΑ

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XIII. ΕΠΙΣΤΗΜΟΝΙΚΕΣ ΔΗΜΟΣΙΕΥΣΕΙΣ

Α. ΠΛΗΡΕΙΣ ΔΗΜΟΣΙΕΥΣΕΙΣ ΣΕ ΔΙΕΘΝΗ ΕΠΙΣΤΗΜΟΝΙΚΑ ΠΕΡΙΟΔΙΚΑ ΠΟΥ ΠΕΡΙΛΑΜΒΑΝΟΝΤΑΙ ΣΤΗ ΒΑΣΗ ΔΕΔΟΜΕΝΩΝ PUBMED & SCOPUS

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Β. ΔΗΜΟΣΙΕΥΣΕΙΣ ΠΕΡΙΛΗΨΕΩΝ ΣΕ ΔΙΕΘΝΗ ΕΠΙΣΤΗΜΟΝΙΚΑ ΠΕΡΙΟΔΙΚΑ

1. **Georgakarakos E**, Ioannou CV, Volanis S, Papaharilaou Y, Ekaterinaris J, Katsamouris AN. The Influence of Intraluminal Thrombus on Abdominal Aortic Aneurysm Wall Stress. Int Angiol 2008; 27 (No 3, Sup**P**l 1): 20.
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XIV. ΚΕΦΑΛΑΙΑ ΣΕ ΣΥΓΓΡΑΜΑΤΑ

1. **Georgakarakos E**, Katsamouris AN. Haemodynamic parameters related to AAA rupture, in "Vascular Aneurysms", Editors: Cao Piergiorgio, Giannoukas AD, Moll FL, Veller M, University of Thessaly Press, pp.67-76.
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4. **Efstratios Georgakarakos** and Christos Ioannou (2011). Pathopysiology of Abdominal Aortic Aneurysm Rupture and Expansion: New Insight on an Old Problem, Etiology, Pathogenesis and Pathophysiology of Aortic Aneurysms and Aneurysm Rupture, Prof. Reinhart Grundmann (Ed.), ISBN: 978-953-307-523-5, InTech, DOI: 10.5772/18756. Available from: http://www.intechopen.com/books/etiology-pathogenesis-and-pathophysiology-of-aortic-aneurysms-and-aneurysm-rupture/pathopysiology-of-abdominal-aortic-aneurysm-rupture-and-expansion-new-insight-on-an-old-problem. Το κείμενο έχει λάβει 4057 αναγνώσεις (downloads) μέχρι τον Μάρτιο 2023.
5. **Efstratios Georgakarakos**, Antonios Xenakis, George S. Georgiadis, Konstantinos C. Kapoulas, Evagelos Nikolopoulos and Miltos Lazarides (2012). Studying the Flow Dynamics Within Endografts in Abdominal Aortic Aneurysms, Aneurysm, Dr. Yasuo Murai (Ed.), ISBN: 978-953-51-0730-9, InTech, DOI: 10.5772/46034. Available from: https://www.intechopen.com/chapters/38618. Το κείμενο έχει λάβει 2159 αναγνώσεις (downloads) μέχρι τον Μάρτιο 2023.
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10. Foam sclerotherapy of the great saphenous vein: a technical note. “Current Trends in Phlebology”, Publication of the Hellenic Phlebological Society, 2025, ISBN 978-618-5835-23-1

XV. ΠΕΡΙΛΗΨΕΙΣ ΞΕΝΟΓΛΩΣΣΩΝ ΔΗΜΟΣΙΕΥΣΕΩΝ

(με τη σειρά που αναφέρονται στην ενότητα XIII, σελ. 30-41).

1. **Georgakarakos E**, Ioannou CV, Volanis S, Papaharilaou Y, Ekaterinaris J, Katsamouris AN. The Influence of Intraluminal Thrombus on Abdominal Aortic Aneurysm Wall Stress. Int Angiol. 2009; 28:325-33.

   AIM: The aim of this study was to examine the effect of intraluminal thrombus (ILT) on the peak wall stress (PWS) in abdominal aorta aneurysm models (AAA).

   METHODS: Anatomically correct patient specific AAA models were created by 3D reconstruction of in vivo acquired computed tomography images from 19 male patients. Patients were divided in two groups according to aneurysm peak transverse diameter, 5-7 cm (10 patients, "intermediate" group) and >7 cm (9 patients, "large" group), respectively. PWS was evaluated in the presence and absence of ILT. The percentage of PWS reduction (Delta PWS %) was estimated as a percentage of PWS value in the absence of ILT. Finite element analysis was used to numerically compute the wall stress distribution assuming a 2-mm thick hyperelastic AAA wall material model and a 120 mmHg systolic uniform wall loading. The thrombus was modeled as an isotropic, elastic, homogenous and incompressible material. The volume of ILT was estimated as a percentage of the AAA sac volume.

   RESULTS: The ILT volume was 49.9%+/-10.6% in the "large" group and 58.6%+/-13.2% in the "intermediate" group (t-test P=0.14). The "large" AAAs have higher PWS values than the "intermediate" group, both in the presence of ILT (36.9+/-5.8 vs. 23.5+/-6.2 Nt/cm(2), P=0.0001) as well as in the absence of ILT (52.6+/-15.4 vs. 35.0+/-10.5 Nt/cm(2), P=0.01). The presence of ILT resulted in a decrease of PWS (Delta PWS) in all cases. There was no statistical difference between the two groups in the mean PWS reduction, in the presence of ILT (26.9+/-12.5 Nt/cm(2) in the "large" group and 31.0+/-11.7 Nt/cm2 in the "intermediate" group, t-test P=0.48). However, a strong correlation between the ILT relative volume (ILT%) and the degree of PWS reduction was found only in the "intermediate" AAA group (Pearson correlation 0.86, P<0.001), whereas no correlation was observed in the "large" AAA group (Pearson correlation 0.05, P=0.9).

   CONCLUSIONS: The presence of ILT reduced the PWS in all cases. In the "intermediate" AAAs our results showed a linear correlation between ILT relative volume and cents PWS. However, in "large" aneurysms no such correlation was found. This indicates that the degree of ILT influence on the reduction of PWS in "large" AAAs may be related to other factors such as the geometric configurations of the AAA.

2. **Georgakarakos E**, Ioannou CV, Kamarianakis Y, Kostas T, Katsamouris AN. Regarding “Impact of calcification and intraluminal thrombus on the computed wall stresses of abdominal aortic aneurysm”. J Vasc Surg. 2009; 50:474.

   Πρόκειται για γράμμα προς τη σύνταξη που αξιολογεί με στατιστική μεθοδολογία τη σημαντικότητα της σύγχρονης-ταυτόχρονης επίδρασης της ποσότητας και θέσης του ενδοαυλικού θρόμβου στην κατανομή και μέγεθος της τοιχωματικής τάσης στα ανευρύσματα της κοιλιακής αορτής.

3. Ioannou CV, Velegrakis J, Kostas T, **Georgakarakos E**, Touloupakis E, Anezinis P, Katsamouris A.N. Caval Migration Of A Ureteral J-Stent After Simultaneous Ureter And Iliac Vein Perforation During Its Placement For Obstructive Pyelonephritis. Int Angiol. 2009; 28:421-4.

   A variety of indications have made the use of double pigtail ureteral catheters routine in urological practice. Although side effects are frequent they are usually mild. We report a case of intravenous stent migration after simultaneous perforation of the left ureter and left common iliac vein during retrograde J-stent placement. To the authors' knowledge such a potentially severe complication of a J-stent has not been previously described. A postprocedural plain abdominal radiograph is a helpful tool which may

suggest possible misplacement of the pigtail stent especially if urine fails to return from the distal opening and, if verified, advocate immediate intervention in order to avoid any further devastating complications.

4. **Georgakarakos E**, Ioannou CV, Kamarianakis Y, Papaharilaou Y, Kostas T, Manousaki E, Katsamouris AN. The role of geometric parameters in the prediction of abdominal aortic aneurysm wall stress. Eur J Vasc Endovasc Surg. 2010; 39:42-48.

   OBJECTIVE: To study the correlation between peak wall stress (PWS) and abdominal aorta aneurysm (AAA) geometric parameters in the presence of intraluminal thrombus (ILT). DESIGN: Computational study using finite element analysis.

   MATERIAL: AAA models were created by three-dimensional (3D) reconstruction of in vivo acquired computed tomography (CT) images from 19 patients.

   METHODS: PWS was evaluated in the presence and absence of ILT. DeltaPWS% represents the percentage change in PWS in the presence of ILT. The 3D lumen centrelines were extracted, and the values of torsion, tortuosity and mean curvature were estimated.

   RESULTS: A positive correlation was observed between DeltaPWS% and relative ILT volume (P=0.03). PWS in the presence of ILT significantly correlated only with the degree of centerline tortuosity (P=0.003) and maximum diameter (P<0.0001). The optimal predictive model for PWS in the presence of ILT was estimated to contain both maximum diameter and centreline tortuosity.

   CONCLUSIONS: Specific geometric parameters in AAA models in the presence of ILT could serve as potential predictors of elevated PWS. PWS correlated significantly with the maximum diameter and the degree of centreline tortuosity. Centreline tortuosity may become a useful addition to maximum diameter in the decision-making process of AAA treatment.

5. **Georgakarakos E**, Ioannou CV, Papaharilaou Y, Kostas T, Tsetis D, Katsamouris AN. Peak Wall Stress does not necessarily predict the location of rupture in abdominal aortic aneurysms. Eur J Vasc Endovasc Surg. 2010; 39:302-304.

   Using finite element analysis, we evaluated if the site of an aortic bleb, known to be prone to rupture, coincides with the location of peak wall stress (PWS) in a patient-specific abdominal aortic aneurysm (AAA) model. REPORT: PWS was not located at the bleb site, even when stress values were estimated for different bleb wall thicknesses (0.5-2.0 mm) while the rest of the AAA wall was considered constant (2 mm). DISCUSSION: The sites of PWS in AAAs should not always be considered as the sites most prone to rupture since other factors, such as wall strength, may play a role in rupture-risk prediction, depicting the need for further investigation of these parameters.

6. Kostas T, Ioannou CV, **Georgakarakos E**, Katsamouris AN. Combined simultaneous basilic and brachial vein transposition. A new technique to create an autologous vascular access. Eur J Vasc Endovasc Surg. 2010; 39:346-348.

   In this report, we present a technique to extend the function of an antecubital arteriovenous fistula in which both the basilic and the brachial veins were simultaneously transposed to create an autologous graft in the arm. This procedure may particularly be applicable for patients in whom, although a brachio-cephalic fistula, anastomosing the brachial artery and the perforating antecubital vein, has been previously performed and has remained patent arterialising the deep arm veins, the cephalic vein has failed to mature or has been thrombosed after multiple punctures. Our preliminary experience in eight patients has shown satisfactory outcome.

7. **Georgakarakos E**, Ioannou CV, Kostas T, Katsamouris AN. Inflammatory Response to Aortic Aneurysm Intraluminal Thrombus may cause increased 18F-FDG Uptake at Sites not associated with High Wall Stress. Eur J Vasc Endovasc Surg - Eur J Vasc Endovasc Surg. 2010; 39:795.

   Γράμμα προς τη σύνταξη που σχολιάζει τη σχέση πρόσληψης 18F-FDG και τοιχωματικής τάσης στα ανευρύσματα βάσει της εντόπισης της τελευταίας σε σημεία του ανευρυσματικού σάκου με παρουσία η απουσία τοιχωματικού θρόμβου. Πρόκειται για επίκριση στην πειραματική μελέτη των XuXY, et al., Eur J Vasc Endovasc Surg 2010; 39:295-301.

8. Kostas T, Ioannou CV, Drygiannakis I, **Georgakarakos E**, Kounos C, Tsetis D, Katsamouris AN. Chronic venous disease progression and modification of predisposing factors. J Vasc Surg. 2010; 51:900-7.

AIM: This study evaluated long-term characteristics of chronic venous disease (CVD) progression and its correlation with the modification of specific risk factors.

METHODS: The contralateral limb of 73 patients (95% women; mean age, 48 +/- 12 years) undergoing varicose vein surgery was prospectively evaluated using physical and color duplex examination and classified by CEAP. After 5 years of follow-up, development of new sites of reflux among the contralateral, preoperatively asymptomatic limbs and modification of predisposing factors, including prolonged orthostatism, obesity, estrogen therapy (ET), multiparity, and elastic stockings use (ESU), were assessed. Data were analyzed with Pearson chi(2), t test, binary logistic regression, and Spearman rho.

RESULTS: Forty-eight new sites of reflux (superficial system, 37; perforators, 5; deep veins, 6) were revealed in 38 limbs (52%). CEAP scores significantly deteriorated: clinical, 2.2 +/- 0.5 from 0.1 +/- 0.03 (P < .01); anatomic, 3.8 +/- 1.2 from 2.6 +/- 2.5 (P < .05); disability, 1.9 +/- 0.7 from 0 (P < .01); and severity, 7.9 +/- 2.4 from 2.7 +/- 2.2 (P < .01). Patient compliance to predisposing factor modification was low; no change was observed during follow-up (orthostatism, P = .9; obesity, P = 0.7; ET, P = .9; multiparity, P = .4; ESU, P = .3). CVD progression was significantly lower in patients who controlled orthostatism vs those who maintained orthostatism or initiated it (P < .001) and in patients who controlled preoperative obesity vs those who became obese or maintained obesity (P < .001). Non-ESU patients had a significantly higher incidence of CVD progression vs those who started ESU or continued during the study (P < .001). By binary logistic regression analysis, orthostatism (P = .002; B coefficient value [BCV] = 1.745), obesity (P = .009; BCV = 1.602), and ESU (P = .037; BCV = 0.947) were independent predictive factors for CVD progression, whereas multiparity (P = .174) and ET (P = .429) were not.

CONCLUSIONS: In about half of patients with unilateral varicosities, CVD developed in the contralateral initially asymptomatic limb in 5 years. CVD progression consisted of reflux development and clinical deterioration of the affected limbs. Obesity, orthostatism, and noncompliance with ESU were independent risk factors for CVD progression, but ET and multiparity were not. Maintenance of a normal body weight, limitation of prolonged orthostatism, and systematic ESU may be recommended in patients with CVD to limit future disease progression.

9. **Georgakarakos E**, Ioannou CV, Kostas T, Katsamouris AN, Papaharilaou Y. Comment on "the influence of wall stress on AAA growth and biomarkers". Eur J Vasc Endovasc Surg. 2010; 39:796.

   Γράμμα προς τη σύνταξη που τοποθετείται επί της σχέσης μεγέθυνσης των μικρών ανευρυσμάτων και ορολογικών δεικτών και προτείνει συμπληρωματικά τη μεταβολή του πεδίου της διατμητικής τάσης ως αιτιολογική θεώρηση για τη μεγέθυνση των μικρών ανευρυσμάτων. Πρόκειται για επίκριση στην πειραματική μελέτη των Speelman L et al., Eur J Vasc Endovasc Surg 2010; 39:410-6.

10. Ioannou CV, Kostas T, Tsetis D, **Georgakarakos E**, Gionis M, Katsamouris A.N. External jugular vein aneurysm: a source of thrombotic complications. Int Angiol. 2010; 29:284-5.

    Superficial venous aneurysms are rare and usually are uneventful. We present a case in which a 40-year old female presenting with a thrombosed external jugular vein aneurysm which previously caused an undetected pulmonary embolism. The aneurysm was excised and the external jugular vein was ligated under local anesthesia and anticoagulation was initiated. In conclusion aneurysms of the superficial venous system should be considered as a possible source of pulmonary emboli. These sites can safely be excised and ligated under local anesthesia offering long term protection from its possible complications.

11. **Georgakarakos E**, Ioannou CV, Kostas T, Papaharilaou Y. Regarding "The impact of model assumptions on results of computational mechanics in abdominal aortic aneurysm". J Vasc Surg. 2010; 52:1124.

    Γράμμα προς τη σύνταξη με αφορμή την πειραματική μελέτη των Reeps C, et al., J Vasc Surg 2010;51:679-88. Στο παρόν γράμμα διερευνάται η σημασία των υπολογιστικών παραδοχών συστημάτων μοντελοποίησης στην αναπαραγωγή χρήσιμων κλινικά συμπερασμάτων για την υπολογιστική μελέτη του κινδύνου ρήξης των ανευρυσμάτων της κοιλιακής αορτής.

12. **Georgakarakos EI**, Georgiadis GS, Schoretsanitis NG, Kapoulas KC, Lazarides MK. Composite PTFE-transposed superficial femoral vein for lower limb arteriovenous access. J Vasc Access. 2011; 12:253-7.

PURPOSE: We report our experience in creating a composite loop of transposed superficial femoral vein (tSFV) and polytetrafluoroethylene (PTFE) synthetic graft for lower limb access. The indication for surgery was exhaustion of access sites in both upper limbs.

METHODS: Surgery was performed on 3 male patients. All patients had an ankle brachial index =0.9. The SFV was mobilized up to adductor canal, with ligation of all small tributary branches, up to the level below the profunda femoral vein, then tunneled medially to the skin. A 6-mm PTFE graft was tunneled laterally, deep in the subcutaneous plane in loop fashion to the end of the tSFV, where a beveled end-to-end anastomosis was created.

RESULTS: The blood flow in both fistulas increased gradually to 0.7-1.3 l/min postoperatively. No clinical manifestation indicative of lower limb ischemia, lymphorrhea, or infection was documented. No signs related to chronic venous hypertension were noticed.

CONCLUSIONS: Our initial experience shows that the creation of a composite PTFE-tSFV conduit is a promising technique, since it can be constructed without compromising the distal perfusion, and without infectious complications.

13. **Georgakarakos E**, Ioannou CV, Georgiadis GS, Kapoulas K, Schoretsanitis N, Lazarides M. Expanding current EVAR indications to include small abdominal aortic aneurysms: a glimpse of the future. Angiology. 2011; 62:500-3.

The traditional criterion of maximum transverse diameter is not sufficient to differentiate the small abdominal aortic aneurysms (AAAs) that are either prone to rupture or prone to enlarge rapidly. Wall stress may be a more reliable indicator with respect to these tasks. We review the importance of geometric features in rupture- or growth-predictive models and stress the need for further evaluation and validation of geometric indices. This study may lead to identifying those small AAAs that could justify early endovascular intervention.

14. **Georgakarakos E**, Ioannou CV, Papaharilaou Y, Kostas T, Katsamouris AN. Computational evaluation of aortic aneurysm rupture risk: what have we learned so far? J Endovasc Ther. 2011; 18:214-25.

In current clinical practice, aneurysm diameter is one of the primary criteria used to decide when to treat a patient with an abdominal aortic aneurysm (AAA). It has been shown that simple association of aneurysm diameter with the probability of rupture is not sufficient, and other parameters may also play a role in causing or predisposing to AAA rupture. Peak wall stress (PWS), intraluminal thrombus (ILT), and AAA wall mechanics are the factors most implicated with rupture risk and have been studied by computational risk evaluation techniques. The objective of this review is to examine these factors that have been found to influence AAA rupture. The prediction rate of rupture among computational models depends on the level of model complexity and the predictive value of the biomechanical parameters used to assess risk, such as PWS, distribution of ILT, wall strength, and the site of rupture. There is a need for simpler geometric analogues, including geometric parameters (e.g., lumen tortuosity and neck length and angulation) that correlate well with PWS, conjugated with clinical risk factors for constructing rupture risk predictive models. Such models should be supported by novel imaging techniques to provide the required patient-specific data and validated through large, prospective clinical trials.

15. Georgakarakos E, Ioannou C, Papaharilaou Y, Kostas T, Kozyrakis G, Katsamouris A. Studying the expansion of small abdominal aortic aneurysms: is there a role for peak wall stress? Int Angiol. 2011; 30:462-6.

AIM: The aim of this paper was to study the characteristics of three distending small abdominal aortic aneurysms (AAAs), with an increase in maximal diameter from 5 to 5.5 cm or above.

METHODS: Peak Wall Stress (PWS) in the presence and absence of intraluminal thrombus (ILT) was evaluated in 3 cases of small AAAs (5 cm), at initial presentation and after their expansion, at maximum diameters ≥5.5 cm using finite element analysis. Furthermore, AAA sac volume (Vsac), the percentage volume of ILT (ILT%) and the percentage change of Vsac (ΔV%) and ILT (ILT%) were estimated and the location of PWS was recorded.

RESULTS: Two AAA expanded from 5cm to 5.5 cm in a period of 6 months after initial presentation, with increase of sac volume by 20% and 30%, respectively. The third AAA expanded to a diameter of 6.5 cm after a follow-up period of 13 months, with a subsequent increase in sac volume of 78%. The expansion of AAA max diameter did not correlate with differences in peak wall stress (PWS) values at the initial presentation, ranging from 20.5 to 21.3 Nt/cm2.

CONCLUSION: PWS values cannot solely serve as a predictive tool for small AAA expansion. Small AAA expansion seem to be a multifactorial process, not solely described by PWS values but rather by a combination of mechanical, hemodynamic and biological factors.

16. Georgiadis GS, Antoniou GA, Papaioakim M, **Georgakarakos E**, Trellopoulos G, Papanas N, Lazarides MK. A meta-analysis of outcome after percutaneous endovascular aortic aneurysm repair using different size sheaths or endograft delivery systems. J Endovasc Ther. 2011; 18:445-59.

PURPOSE: To determine via a meta-analysis if the success rates for percutaneous EVAR using the "preclose" technique with suture-mediated vascular closure devices (SMCDs) are higher for smaller sheaths [≤ 18-F outer diameter (OD)] than for larger sheaths (≥20-F). Methods: All English-language studies on percutaneous EVAR outcomes related to sheath sizes published between 1999 and August 30, 2010, were searched using MEDLINE and SCOPUS. Randomized trials, retrospective or prospective observational studies, and original articles (including a review) were included. The search identified 32 relevant full-text studies; data on percutaneous EVAR outcomes per sheath size category (≤ 18-F and ≥ 20-F OD) were included in the final meta-analysis of data from 17 studies (1 randomized controlled trial and 8 retrospective and 8 prospective cohort observational studies). The final analysis included 1440 patients and 2447 femoral access sites. Primary success was defined as closure of a common femoral artery arteriotomy without the need for any adjunctive surgical or endovascular procedure. Results: Pooled data revealed that success rates were significantly better when percutaneous EVAR was performed with ≤ 18-F sheaths than with ≥ 20-F sheaths (odds ratio 1.78, 95% confidence interval 1.24 to 2.54, p = 0.002). This benefit, although not significant, was more pronounced when multiple rather than single pre-applied SMCDs were deployed (odds ratio 2.16 vs. 1.64, respectively; p = 0.353). Conclusion: When considering primary success, it appears that larger-bore femoral access sheaths (≥ 20-F) introduced for percutaneous EVAR after pre-application of SMCDs are predictors of primary failure and the need for conversion to a femoral cutdown. More advanced large-bore SMCDs are required to further reduce the necessity for conversion. Planned use of multiple SMCDs might be more beneficial when ≤ 18-F sheaths are required.

17. **Georgakarakos E**, Goertz H, Tessarek J, Papke K, Seidlmayer C. Pancreatectomy for metastasis to the pancreas from colorectal cancer and reconstruction of superior mesenteric vein: a case report. J Med Case Rep. 2011; 5:424.

INTRODUCTION: Tumors of the pancreatic head can infiltrate the superior mesenteric vein. In such cases, the deep veins of the lower limbs can serve as suitable autologous conduits for superior mesenteric vein reconstruction after its resection. Few data exist, however, describing the technique and the immediate patency of such reconstruction.

CASE REPORT: We present the case of a 70-year-old Caucasian man with a metachronous metastasis of colon cancer and infiltration of the uncinate pancreatic process, on the anterior surface of which the tumor was located. En bloc resection of the tumor was performed with resection of the superior mesenteric vein and reconstruction. A 10 cm segment of the superficial femoral vein was harvested for the reconstruction. The superficial femoral vein segment was inter-positioned in an end-to-end fashion. The post-operative conduit patency was documented ultrasonographically immediately post-operatively and after a six-month period. The vein donor limb presented subtle signs of post-operative venous hypertension with edema, which was managed with compression stockings and led to significant improvement after six months.

CONCLUSION: In cases of exploratory laparotomies with high clinical suspicion of pancreatic involvement, the potential need for vascular reconstruction dictates the preparation for leg vein harvest in advance. The superficial femoral vein provides a suitable conduit for the reconstruction of the superior mesenteric vein. This report supports the uncomplicated nature of this technique, since few data exist about this type of reconstruction.

18. Kapoulas KC, **Georgakarakos EI**, Georgiadis GS, Lazarides MK. Modification of the trap door technique to treat venous aneurysms in arteriovenous fistulae. J Vasc Access. 2012; 13:256-8.

We present a modification of the "trap door" technique to treat true venous aneurysms which complicate vascular access arteriovenous fistula. The technique provides wide exposure of the aneurysm, facilitating aneurysmoraphy and permitting the exploitation of any adequate venous length for autologous reconstruction of the venous outflow. Furthermore, by precluding the proximity of the newly-reconstructed venous segments to the incised skin, their level of compromise from tissue scarring or infection is prevented.

19. **Georgakarakos EI**, Kapoulas KC, Georgiadis GS, Tsangaris AS, Nikolopoulos ES, Lazarides MK. An overview of the hemodynamic aspects of the blood flow in the venous outflow tract of the arteriovenous fistula. J Vasc Access. 2012; 13:271-8.

    Upper limb vein aneurysms complicate all types of autogenous arteriovenous fistulae (AVF) and comprise false aneurysms secondary to venipuncture trauma as well as true aneurysms, characterized by dilatation of native veins. The dilatation of a normal vein and the development of a true aneurysm are strongly influenced by local hemodynamic factors affecting the flow in the drainage venous system and are also the target of operative interventions. This review article focuses on the description of these hemodynamic aspects which all physicians involved in the management of dialysis patients should be aware of. Furthermore, it delineates their complicated interactions and also highlights their utility in clinical decision-making and therapeutic management.

20. **Georgakarakos EI**, Kostas TT. Venous hypertension due to outflow stenosis in a Gracz arteriovenous fistula: correction with distal cephalic transposition. J Vasc Access. 2012; 13:401-2.

    Πρόκειται για αυθύπαρκτο γράμμα προς τη σύνταξη (δεν αποτελεί απάντηση ή σχόλιο σε άρθρο άλλου συγγραφέα) όπου περιγράφεται η τεχνική μετάθεσης κεφαλικής φλέβας και αναστόμωσης με τη βασιλική φλέβα στο αντιβράχιο ως αντιμετώπιση φλεβικής υπέρτασης επί απόφραξης της κεφαλικής φλέβας στο βραχίονα μετά από κατασκευή αρτηριοφλεβικής επικοινωνίας με την διατιτρώσα φλέβα του αγκώνα (φίστουλα Gracz). Παρουσιάζονται φωτογραφίες της τεχνικής και συζητούνται τα αποτελέσματά της.

21. **Georgakarakos E**, Georgiadis GS, Xenakis A, Kapoulas KC, Lazarides MK, Tsangaris AS, Ioannou CV. Application of bioengineering modalities in vascular research: evaluating the clinical gain. Vasc Endovascular Surg. 2012; 46:101-8.

    Using knowledge gained from bioengineering studies, current vascular research focuses on the delineation of the natural history and risk assessment of clinical vascular entities with significant morbidity and mortality, making the development of new, more accurate predictive criteria a great challenge. Additionally, conclusions derived from computational simulation studies have enabled the improvement and modification of many biotechnology products that are used routinely in the treatment of vascular diseases. This review highlights the promising role of the bioengineering applications in the vascular field.

22. **Georgakarakos E**, Georgiadis GS, Ioannou CV, Kapoulas KC, Trellopoulos G, Lazarides M. Aneurysm sac shrinkage after endovascular treatment of the aorta: beyond sac pressure and endoleaks. Vasc Med. 2012; 17:168-73.

    The isolation of the aneurysm sac from systemic pressure and its consequent shrinkage are considered criteria of success after endovascular repair (EVAR). However, the process of shrinkage does not solely depend on the intrasac pressure, the predictive role of which remains ambiguous. This brief review summarizes the additional pathophysiological mechanisms that regulate the biomechanical properties of the aneurysm wall and may interfere with the process of aneurysm sac shrinkage.

23. **Georgakarakos E**, Kapoulas K, Koukoumtzis D, Mantatzis M, Lazarides MK. An uncommon clinical presentation of acute limb ischemia: underscoring the role of perigenicular collaterals. Vascular. 2012; 20:174-7.

    We present a case of atypical acute limb ischemia in a non-diabetic patient, with ankle-brachial pressure index of 0.6 and rest pain localized exclusively over the gastrocnemius muscle, sparing the foot. This uncommon presentation was attributed to an impaired perigenicular collateral network. Thrombolysis restored adequate perfusion only temporarily and was followed by thromboembolectomy. The ischemia presentation in our case underscores the importance of the adequacy of the perigeniculate collateral network for the perfusion of the tibial muscles and, especially, the gastrocnemius muscle.

24. **Georgakarakos EI**, Georgiadis GS, Kapoulas KC, Ioannou CV. The expression of matrix metalloproteinases may be influenced by mechanical loading and intraluminal thrombus. Ann Vasc Surg. 2012; 26:444-5.

    Γράμμα προς τη σύνταξη που επισημαίνει τη σημασία της επίδρασης της ποσότητας και της κατανομής του ενδοαυλικού θρόμβου στην τοπική έκφραση μεταλλοπρωτεινασών και στο μέγεθος της τοιχωματικής τάσης στο τοίχωμα των ανευρυσμάτων της κοιλιακής αορτής. Αποτελεί σχολιασμό στα αποτελέσματα πειραματικής εργασίας των Rahman MN, Khan JA, Mazari FA, et al., Ann Vasc Surg 2011; 25:32-8.

25. **Georgakarakos E**, Ioannou CV. Geometrical factors as predictors of increased growth rate or increased rupture risk in small aortic aneurysms. Med Hypotheses. 2012; 79:71-3.

    Abdominal Aortic Aneurysms (AAAs) are focal dilation of the aorta that can lead to excessive enlargement and rupture over time. Current practice suggests intervention when the maximum diameter exceeds 5.5 cm, since in this diameter range the annual rupture risk outweighs the operative mortality. However, small AAA (<5.5 cm), though infrequently, may rupture or produce symptoms. Evidence from large randomized studies of small AAAs support the heterogeneity in patterns of growth and rupture potential among small AAAs. Elevated wall stress values have been implicated in AAAs rupture and rapid enlargement. Additionally, many studies have identified a strong correlation between certain geometric factors and elevated stress values. In this article we discuss the possibility that geometrical factors may have a predictive value to identify those small AAAs that have an increased risk of rupture or growth rate either during initial examination or during follow-up, making them amenable for early repair.

26. Tsivgoulis G, Kerasnoudis A, Krogias C, Vadikolias K, Meves SH, Heliopoulos I, **Georgakarakos E**, Piperidou C, Alexandrov AV.Clopidogrel load for emboli reduction in patients with symptomatic carotid stenosis undergoing urgent carotid endarterectomy. Stroke. 2012; 43:1957-60.

    BACKGROUND AND PURPOSE: Microembolic signals (MES) on transcranial Doppler are an independent risk factor for recurrent stroke in patients with extracranial symptomatic/asymptomatic carotid artery stenosis (CARAS). Clopidogrel load (300 mg) combined with dual antiplatelet therapy has been shown to reduce MES in patients with symptomatic CARAS. We sought to determine feasibility of clopidogrel load in decreasing asymptomatic embolization in patients with symptomatic CARAS undergoing urgent carotid endarterectomy within the first 2 weeks from the index event.

    METHODS: Consecutive patients with symptomatic CARAS (70%-99%) and presence of MES on 1-hour baseline (<24 hours from the index event) transcranial Doppler monitoring of ipsilateral middle cerebral artery were treated with clopidogrel load followed by clopidogrel (75 mg)±aspirin (100 mg) during the elapsed time period between hospital admission and urgent carotid endarterectomy at 3 tertiary-care stroke centers. Repeat 1-hour transcranial Doppler monitoring was performed the day before surgery. Bleeding complications during surgery and recurrent strokes or transient ischemic attacks during the first month of ictus were prospectively recorded.

    RESULTS: A total of 11 symptomatic CARAS patients (mean age, 66±7 years; 73% men; 64% acute ischemic strokes) were treated with clopidogrel load followed by dual (67%) or single (33%) antiplatelet therapy. MES count was significantly reduced between baseline (median count, 8 MES/h; interquartile range, 6-19) and repeat transcranial Doppler monitoring (0 MES/h; interquartile range, 0-3; P=0.003). No bleeding complications, recurrent strokes, or transient ischemic attacks were documented.

    CONCLUSIONS: Our pilot observational study provides preliminary nonrandomized data regarding the potential efficacy of clopidogrel load to reduce asymptomatic embolization in patients with symptomatic CARAS before urgent carotid endarterectomy.

27. **Georgakarakos E**, Georgiadis GS, Nikolopoulos E, Trellopoulos G, Kapoulas K, Lazarides M. Technical advances with newer aortic endografts provide additional support to withhold the early endovascular repair of small abdominal aortic aneurysms until it is really needed. Vasc Endovascular Surg. 2012; 46:374-7.

    The idea of early endovascular aortic repair (EVAR) of "small" abdominal aortic aneurysms (AAAs) has gained attention over "watchful waiting," mostly due to the concern for losing the anatomic suitability for endovascular repair over time. Generally, small AAAs have longer, smaller, less angulated necks, and less tortuous iliac arteries than larger ones. Though the borderline anatomic characteristics were assumed to be contraindications for older generation endografts, the modifications of modern devices seem promising to overcome those limitations, in order to treat the small AAAs when reaching the 5.5 cm threshold. Moreover, early endovascular intervention has been proven neither cost effective nor beneficial for the patients' quality of life. This article evaluates the technical progress that could overcome the difficulties of those small AAAs that present technically demanding anatomies, thus advocating endovascular intervention when they reach the diameter threshold.

28. **Georgakarakos EI**, Kapoulas K, Kostas TI. Overcoming the venous outflow obstruction in true venous aneurysms of arteriovenous fistulae can lead to aneurysms' remodeling and shrinking. J Vasc Access. 2012; 13:538-9.

Πρόκειται για αυθύπαρκτο γράμμα προς τη σύνταξη (δεν αποτελεί απάντηση ή σχόλιο σε άρθρο άλλου συγγραφέα) όπου περιγράφουμε -για πρώτη φορά στη βιβλιογραφία- την κλινική εικόνα της αναδιαμόρφωσης των φλεβικών ανευρυσμάτων σε αρτηριοφλεβική επικοινωνία μετά από άρση του αποφρακτικού κωλύματος της φλεβικής απορροής. Η παρατήρηση αυτή οδήγησε μετέπειτα στην εκπόνηση πειραματικής εργασίας αγγειακής προσομοίωσης (βλ. δημοσίευση #39).

29. Nikolopoulos ES, Charalampidis DG, **Georgakarakos EI**, Georgiadis GS, Lazarides MK. Thromboprophylaxis practices following varicose veins surgery. Perspect Vasc Surg Endovasc Ther. 2012; 24:80-6.

OBJECTIVE: It is not clear whether patients undergoing varicose veins operations should receive thromboprophylaxis. A nationwide survey was conducted to assess thromboprophylaxis practice patterns in patients undergoing conventional vein surgery or endovenous procedures.

METHODS: A questionnaire was e-mailed to all members of the Greek Society of Vascular and Endovascular Surgery (n = 163).

RESULTS: In all, 68 members (42%) returned the survey, and 53% reported that they were not performing endovenous procedures. Thromboprophylaxis was used routinely by 52% after conventional surgery and 58% after endovenous procedures. Low-molecular-weight heparin was the preferred type of prophylaxis. Risk factors justifying thromboprophylaxis varied considerably among respondents. Postoperative duplex was performed routinely by 48% following stripping and by 76% following endovascular procedures.

CONCLUSION: Thromboprophylaxis practices following varicose veins procedures vary among vascular surgeons in Greece. This reflects the uncertainty regarding the exact incidence of thromboembolic events in the existing literature as well as the absence of specific guidelines.

30. **Georgakarakos E**, Xenakis A, Manopoulos C, Georgiadis GS, Tsangaris S, Lazarides MK. Modeling and computational analysis of the hemodynamic effects of crossing the limbs in an aortic endograft ("ballerina" position). J Endovasc Ther. 2012; 19:549-57.

PURPOSE: To evaluate the displacement forces acting on an aortic endograft when the iliac limbs are crossed ("ballerina" position).

METHODS: An endograft model was computationally reconstructed based on data from a patient whose infrarenal aortic aneurysm had an endovascular stent-graft implanted with the iliac limbs crossed. Computational fluid dynamics analysis determined the maximum displacement force on the endograft and separately on the bifurcation and iliac limbs. Its analogue model was reconstructed for comparison, assuming the neck, main body, and total length constant but considering the iliac limbs to be deployed in the usual bifurcated mode. Calculations were repeated after developing "idealized" models of both the bifurcated and crossed-limbs endografts with straight main bodies and no neck angulation or curved iliac segments.

RESULTS: The vector of the total force was directed anterocaudal for both the typical bifurcated and the crossed-limbs configurations, with the forces in the latter slightly reduced and the vertical component accounting for most of the force in both configurations. Idealized crossed-limbs and bifurcated configurations differed only in the force on the iliac limbs, but this difference disappeared in the realistic models.

CONCLUSION: Crossing of the iliac limbs can slightly affect the direction of the displacement forces. Although this configuration can exert larger forces on the limbs than in the bifurcated mode, this effect can be blunted by concomitant modifications in the geometry of the main body and other parts of the endograft, making its hemodynamic behavior resemble that of a typically positioned endograft.

31. **Georgakarakos EI**, Nikolopoulos ES, Karanikas MA, Mantatzis M, Lazarides MK. Successful endovascular treatment of a ruptured gigantic pseudoaneurysm of the common iliac artery secondarily complicated by infection. Vascular. 2013; 21:189-91.

We report our experience with a case of emergent endovascular treatment of a large ruptured pseudoaneurysm of the common iliac artery. A 65-year-old male was admitted to the surgical department in hypovolemic shock, due to active retroperitoneal bleeding. A computerized tomography scan with intravenous contrast revealed a ruptured gigantic pseudoaneurysm of the right common iliac artery, with a maximal diameter of 7 cm and retroperitoneal hematoma. An intraoperative angiogram revealed active

extravasation through the neck of the pseudoaneurysm, which was successfully sealed with the placement of a stent graft (Medtronic Endurant(®)) limb component. Infection of the pseudoaneurysm sac after one month was successfully treated with catheter drainage. No short-term relapse occurred. Endovascular management should be part of the basic surgical armamentarium on emergent basis, since it provides a fast and safe solution, especially when a patient's co-morbitities preclude open management and hemodynamic and anatomical status allows endovascular treatment.

32. **Georgakarakos E**, Papanas N, Papadaki E, Georgiadis GS, Maltezos E, Lazarides MK. Endovascular Treatment of Critical Ischemia in the Diabetic Foot: New Thresholds, New Anatomies. Angiology. 2013; 64:583-91.

    This review discusses the role of endovascular treatment in diabetic patients with critical limb ischemia (CLI). Angioplasty of the femoropopliteal region achieves similar technical success and limb salvage rates in diabetic and nondiabetic patients. Angioplasty in as many as possible tibial vessels is accompanied by more complete and faster ulcer healing as well as better limb salvage rates compared to isolated tibial angioplasty. Targeted revascularization of a specific vessel responsible for the perfusion of a specific ulcerated area is a promising new approach: it replaces revascularization of the angiographically easiest-to-access tibial vessel, even if this is not directly responsible for the perfusion of the ulcerated area, by revascularization of area-specific vascular territories. In conclusion, the endovascular approach shows very high efficacy in ulcer healing for diabetic patients with CLI. Larger prospective studies are now needed to estimate the long-term results of this approach.

33. Lazarides MK, Georgiadis GS, **Georgakarakos EI**, Papadaki EG. Regarding "Symptomatic venous thromboembolism after femoral vein harvest". J Vasc Surg. 2013; 57:299-300.

    Γράμμα προς τη Σύνταξη όπου καταγράφεται η εμπειρία της Κλινικής μας στο Δημοκρίτειο Πανεπιστήμιο Θράκης όσον αφορά το αμφιλεγόμενο και ελλιπώς μελετημένο θέμα της δοσολογίας και διάρκειας θεραπείας με αντιπηκτική αγωγή για πρόληψη της φλεβικής θρομβοεμβολής σε ασθενείς με λήψη της επιπολής μηριαίας φλέβας. Στην παρούσα δημοσίευση παρουσιάζεται μια σειρά 9 ασθενών που υποβλήθηκε σε λήψη της επιπολής μηριαίας φλέβας και μετάθεση αυτής στο μηρό, με κύρια ένδειξη κατασκευής σύνθετης αρτηριοφλεβικής προσπέλασης στα κάτω άκρα. Οι ασθενείς έλαβαν μετεγχειρητικά χαμηλού μοριακού βάρους ηπαρίνη σε πλήρη θεραπευτική δόση για διάστημα τουλάχιστον 10 ημερών με ικανοποιητική πρόληψη της εν τω βάθει φλεβικής θρόμβωσης (εκτός ενός ασθενούς) και αποφυγή θρομβοεμβολής. Το θεραπευτικό αυτό σχήμα της μελέτης μας προτείνεται έναντι της παρατεταμένης χορήγησης προφυλακτικής δόσης χαμηλού μοριακού βάρους ηπαρίνης για μεγάλο χρονικό διάστημα, όπως προτάθηκε από τους Dhanisetty RV et al, στο J Vasc Surg 2012;56:696-702.

34. Georgiadis GS, Trellopoulos G, Antoniou GA, **Georgakarakos EI**, Nikolopoulos ES, Iatrou C, Lazarides MK. Hybrid endografts combinations for the treatment of endoleak in endovascular abdominal aortic aneurysm repair. Int J Artif Organs. 2013; 36:28-38.

    Hybrid endografting in endovascular abdominal aortic aneurysm repair (EVAR) is defined as the process of placing a series of two or more different types of covered stents, usually to treat a complex abdominal aortic aneurysm (AAA) or a primary or secondary endoleak. We describe the treatment of a type III, a type Ib, and a type Ia endoleak in three patients respectively, using hybrid solutions, assembling components from different manufacturers. An update of the current clinical and experimental evidence on the application of anatomically compatible, hybrid endograft systems in conventional EVAR is also provided.

35. Georgiadis GS, Trellopoulos G, Antoniou GA, **Georgakarakos EI**, Nikolopoulos ES, Pelekas D, Pitta X, Lazarides MK. Endovascular therapy for penetrating ulcers of the infrarenal aorta. ANZ J Surg. 2013 2013; 83:758-63.

    BACKGROUND: We sought to investigate the short- and mid-term results of the endovascular repair of infrarenal abdominal penetrating aortic ulcers (aPAUs).

    METHODS: Patients with infrarenal aPAUs treated by endovascular means between March 2004 and June 2012 were recruited. Pre-interventional imaging included computed tomography (CT) or CT angiography. Endoprostheses were chosen and deployed according to standard elective endovascular aneurysm repair anatomical requirements. Endpoints included 30-day survival, in-hospital mortality, 1-year PAU-related mortality, 1-year all-cause mortality, freedom from death and freedom from cumulative complication and interventions. Statistically, the Kaplan-Meier method was applied.

RESULTS: Nineteen patients (18 men, median age 70 years (interquartile range, IQR = 59-75)) suffering aPAUs (n = 29, infrarenal = 25) were detected. The median co-morbid severity scoring was 1.0 (IQR = 0.4-1.4). The median follow-up period was 33 months (IQR = 8-51.5). Furthermore, 94.7% of patients had hypertension. Fourteen patients (73.7%) had symptoms, including four of them admitted with shock from large-contained PAU rupture. Endoluminal stent grafting was successfully delivered in all patients. In-hospital mortality was 10.5%. Two patients required secondary interventions (10.5%). The 30-day survival, 1-year PAU-related mortality and 1-year all-cause mortality were 94.7%, 89.5% and 89.5%, respectively. Freedom from death and freedom from cumulative complications and interventions was 86.4% and 86.4%, 78.9% and 78.9%, and 67.9% and 71.2% at 12, 24 and 36 months, respectively.

CONCLUSIONS: Urgent and elective endovascular repair of aPAUs can be achieved with high technical success. The significant co-morbid status of the treated patients is illustrated in the considerable in-hospital mortality and underlines the advantage of such treatment over open surgical repair.

36. **Georgakarakos E**, Georgiadis GS, Kontopodis N, Ioannou CV. Interpretation of the relationship between changes in pulse wave velocity and vascular interventions: a word of caution. J Endovasc Ther. 2013; 20:125-8.

    Γράμμα προς τη σύνταξη όπου αναλύονται οι μηχανικές διαφορές των διάφορων σημείων του αορτικού αγωγού (εμπέδηση, ενδοτικότητα) και των συνεπακόλουθων παθοφυσιολογικών διαφορών στην μετάδοση των προσπιπτόντων και ανακλώμενων παλμικών κυμάτων μετά από την εμφύτευση ενδοαυλικών μοσχευμάτων στα διάφορα τμήματα της αορτής: ανιούσα και κατιούσα θωρακική αορτή καθώς και κοιλιακή αορτή. Περαιτέρω, αποσαφηνίζονται έτσι οι διαφορετικοί παθοφυσιολογικοί μηχανισμοί που δύνανται να επηρεάσουν την καρδιακή λειτουργία μετά τις παραπάνω μορφές ενδοαυλικής αντιμετώπισης, επισημαίνοντας μία σημαντική παράμετρο άμεσης και μακροχρόνιας μετεγχειρητικής παρακολούθησης. Η παρούσα δημοσίευση αποτελεί συμπληρωματική επίκριση στα αποτελέσματα πειραματικής εργασίας των Kadoglou NP et al., J Endovasc Ther. 2012;19: 661–666.

37. Georgiadis GS, Antoniou GA, **Georgakarakos EI**. Hybrid endografts are effective in distal and proximal fixation zones and in intermediate docking areas in endovascular aortic aneurysm repair. J Vasc Interv Radiol. 2013; 24:449-50.

    Γράμμα προς τη σύνταξη όπου συζητούνται τεχνικές λεπτομέρειες για την ασφαλή και αποτελεσματική χρήση των υβριδικών συνδυασμών διαφορετικής προέλευσης ενδοαυλικών μοσχευμάτων (ή τμημάτων αυτών) για την αντιμετώπιση ανευρυσμάτων της κοιλιακής αορτής με ενδεδειγμένη, οριακή ή «εχθρική» ανατομία, ως συμπληρωματική επίκριση στην ερμηνεία των αποτελεσμάτων της κλινικής μελέτης των Lee M et al., J Vasc Interv Radiol 2012; 23:1065–1069.

38. **Georgakarakos E**, Xenakis A, Manopoulos C, Georgiadis GS, Tsangaris S, Lazarides M. Geometric factors affecting the displacement forces in an aortic endograft with crossed limbs: a computational study. J Endovasc Ther. 2013; 20:191-9.

    Purpose: To compare the hemodynamic behavior between an aortic endograft model in the "crossed-limbs" configuration and the customary bifurcated deployment position under the influence of several geometric factors.

    Methods: A crossed-limbs graft and its analogue model with uncrossed limbs were computationally reconstructed. The displacement forces acting over the entire endograft and at the bifurcation and iliac sites separately were calculated using a fluid structure interaction simulation under a range of specific geometric characteristics, namely, the lateral and anteroposterior (AP) neck angulation, the iliac bifurcation angulation, and the endograft curvature.

    Results: The variations of lateral neck angulation caused a constantly higher total displacement force for the crossed-limbs graft, whereas the force at the bifurcation of the two configurations differed only within a narrow range of 30° to 50°. On the contrary, the displacement force at the iliac site was higher in the crossed-limbs configuration only with lateral neck angulation >50°, reaching its highest value at 70°. The variations of AP neck angulation also caused higher total displacement forces in the crossed-limbs graft. Increasing AP neck angulation values caused generally lower forces at the crossed iliac limbs and higher at its bifurcation, respectively, compared to the uncrossed limbs model. Similarly, the influence of high iliac bifurcation angulation and endograft curvature was associated with slightly elevated forces over the entire crossed-limbs graft and its bifurcation, whereas the opposite held true at the iliac site.

Conclusion: Apart from minor differentiations due to geometric alterations, the customary bifurcated and crossed-limbs endografts present similar hemodynamic performance. Further clinical studies should be conducted to confirm the clinical applicability of these findings.

39. **Georgakarakos EI**, Xenakis A, Kapoulas KC, Tsangaris S, Georgiadis GS, Lazarides MK. A computational study of the factors influencing pressure in arteriovenous fistulae venous aneurysms. J Vasc Access. 2013; 14:325-9.

    Purpose: To investigate the factors influencing the hydrostatic pressure exerted within the venous aneurysms (VA) of an arteriovenous fistula (AVF).

    Methods: Ideal models of a side-to-end brachial-cephalic AVF were computationally constructed and typical values for the length and the local diameters were considered for both the artery and vein sections of the models. Three VA configurations were reconstructed (spherical, fusiform and curved) and hydrostatic pressure was assessed with respect to different degrees of the outflow vein stenosis, ranging from 25% to 95%, and VA maximum diameters, using validated, commercially available software.

    Results: The pressure in the VA was steady (1200 Pa) for venous outflow stenoses up to 75%. For stenoses greater than 75% a exponential pressure rise was observed, reaching 1500 Pa for stenoses of 95%. Neither the VA configuration nor its maximum diameter affected the pressure values exerted within the VA or the point of the pressure upstroke.

    Conclusions: our study supports the presence of a critical stenotic outflow vein diameter beyond which there is an exponential VA pressure increase, influenced neither by the shape nor the size of the VA. Whether the prompt, non-invasive detection of this finding can contribute or lead to the determination of a criterion for early intervention in VAs before clinical complications are developed, should be investigated by future studies.

40. **Georgakarakos E**, Papadaki E, Vamvakerou V, Lytras D, Tsiokani A, Tsolakaki O, Chlimpou D, Papanas N. Training to Measure Ankle-Brachial Index at the Undergraduate Level: Can It Be Successful? Int J Low Extrem Wounds. 2013; 12:167-71.

    We examined the effectiveness of teaching ankle-brachial index (ABI) measurement to medical students. ABI was estimated in 28 lower limbs by an experienced vascular surgeon. After a 2-week training course, 5 fourth-year students repeated the estimations and their results were compared with that of the trainer's. There was no difference in ABI values between trainees and trainer for subjects with mild-to-moderate peripheral arterial disease (PAD; 0.77 ± 0.22 vs 0.77 ± 0.19, respectively, P = .95). In the 4 normal limbs, ABI was 1.37 ± 0.12 and 1.16 ± 0.11, as measured by the trainer and the trainees, respectively (P < .00001). In subjects with severe PAD, trainees tended to overestimate ABI (P = .0002) in the beginning of the educational process, but this was no longer the case at a later stage of the training with no difference in ABI values between the 2 examiner groups (P = .09). In conclusion, training of medical students in ABI measurement can be helpful toward accurate estimation of PAD and merits further practice.

41. **Georgakarakos E**, Charalampidis D, Kakagia D, Georgiadis GS, Lazarides MK, Nikolaos Papanas N. Current Achievements With Topical Negative Pressure to Improve Wound Healing in Dehiscent Ischemic Stumps of Diabetic Patients: A Case Series. Int J Low Extrem Wounds. 2013; 12:138-45.

    Negative pressure wound therapy has been increasingly used either as a primary or as an adjunctive therapeutic measure to treat a variety of recalcitrant wounds during the past years. It is thought to act by creating a local environment that promotes cell proliferation, angiogenesis, and granulation tissue formation, leading to accelerated wound healing to the point of spontaneous closure or reducing the wound size to facilitate significantly further surgical reconstruction. This case series presents our preliminary experience with the use of a Topical Negative Pressure system in the treatment of challenging ischemic wounds of diabetic patients. It aims to underscore its beneficial effects and explore its potential role in the management of ischemic amputated stumps to avoid ipsilateral re-amputation at a higher level.

42. Kontopodis N, Metaxa, E, Pagonidis K, **Georgakarakos E**, Papaharilaou Y, Ioannou CV. Aneurysm Intraluminal Thrombus Compressibility Estimated in vivo Using Electrocardiographically Gated Computed Tomography: A Feasibility Study. EJVES Extra. 2013; 26: e4-e6.

    Introduction: We attempt to investigate if the mechanical properties of an intraluminal thrombus (ILT) could be assessed non-invasively through modern imaging techniques. Thrombus compressibility and deformation are evaluated in vivo.Report: Five patients underwent electrocardiographically (ECG) gated

computed tomography scan during surveillance of their abdominal aortic aneurysm (AAA). ILT volumes and cross-sectional areas during peak systole and end diastole were recorded and found to remain constant. Discussion: ILT elastic behaviour can be estimated non-invasively. Under physiologic arterial pressure, an ILT is incompressible and does not deform longitudinally.

43. Kontopodis N, **Georgakarakos E**, Metaxa E, Pagonidis K, Papaharilaou Y, Ioannou CV. Estimation of wall properties and wall strength of aortic aneurysms using modern imaging techniques. One more step towards a patient-specific assessment of aneurysm rupture risk. Med Hypotheses 2013; 81:212-5.

    Abdominal aortic aneurysmal disease is a major health problem with rupture representing its main complication accompanied by great mortality. Elective repair is currently performed with mortality rates <3%, based upon size or expansion rate, with a recommended threshold of 5.5 cm maximum diameter or >1cm/year enlargement. It is well established that even small AAAs without indication for surgical repair can experience rupture with catastrophic outcomes whereas larger aneurysms often remain intact for a long period. It is recognized, therefore, that the currently used, maximum diameter criterion can not accurately predict AAAs evolution. There is increasing interest in the role of patient-specific biomechanical profiling of AAA development and rupture. Biomechanically, rupture of a vessel occurs when intravascular forces exceed vessel wall structural endurance. Peak Wall Stress (PWS) has been previously shown to better identify AAAs prone to rupture than maximum diameter, but currently stress analysis takes into account several assumptions that influence results to a large extent and limit their use. Moreover stress represents only one of two determinants of rupture risk according to the biomechanical perspective. Wall strength and mechanical properties on the other hand cannot be assessed in vivo but only ex vivo through mechanical studies with mean values of these parameters taken into account for rupture risk estimations. New possibilities in the field of aortic imaging offer promising tools for the validation and advancement of stress analysis and the in vivo evaluation of AAAs' wall properties and wall strength. Documentation of aortic wall motion during cardiac cycle is now feasible through ECG-gated multi-detector CT imaging offering new possibilities towards an individualized method for rupture risk and expansion-rate predictions based on data acquired in vivo.

44. Georgiadis GS, Antoniou GA, **Georgakarakos EI**, Nikolopoulos ES, Papanas N, Trellopoulos G, Iatrou C, Papadopoulou MZ, Lazarides MK. Surgical or endovascular therapy of abdominal penetrating aortic ulcers and their natural history: a systematic review. J Vasc Interv Radiol. 2013; 24:1437-49.e3.

    Little is known regarding the outcomes of endovascular and surgical treatment of penetrating ulcers in the abdominal aorta. The potential benefit of conservative management of asymptomatic disease is also debatable. A systematic review of the literature was undertaken to investigate these issues.

45. **Georgakarakos E**, Georgiadis GS, Lazarides MK Peripheral Vascular Ultrasound Examinations are Important in Ultrasound Training for Medical Students. Acad Med. 2013; 88:1198.

    Γράμμα προς τη σύνταξη που σχολιάζει το αντικείμενο της εκπαιδευτικής εφαρμογής των υπερήχων σε προπτυχιακό επίπεδο από τους Bahner DP, et al. (Acad Med. 2013; 88:206-212) και περιγράφει τον τρόπο εκπαίδευσης των τεταρτοετών φοιτητών της Ιατρικής Σχολής του Δημοκρίτειου Πανεπιστημίου Θράκης στην εκτίμηση των αγγειακών παθήσεων με τη βοήθεια φορητής συσκευής υπερηχοτομογραφίας αγγείων. Η αναφορά αυτή αποτελεί περιγραφή πρωτότυπης προκαταρκτικής έρευνας για την αξιολόγηση της αποτελεσματικότητας της προπτυχιακής εκπαίδευσης στην Αγγειολογία βάσει της χρήσης των υπερήχων.

46. Ioannou CV, Stergiopulos N, **Georgakarakos E**, Chatzimichali E, Katsamouris AN, Morel DR. Effects of isoflurane anesthesia on aortic compliance and systemic hemodynamics in compliant and noncompliant aortas. J Cardiothorac Vasc Anesth. 2013; 27:1282-8.

    Objectives: To investigate the effect of general anesthesia on aortic compliance and other cardiovascular hemodynamics in chronically instrumented pigs with compliant and non-compliant (stiff) aortas.

    Design: Experimental study
    Setting: University animal laboratory

    Participants: Twelve adult Yucatan miniature pigs.

Interventions: Chronic instrumentation of a Compliant (Control; n=7) and Non-compliant (n=5) group to measure pressure and flow at the ascending aorta. A Teflon prosthesis was wrapped around the aortic (Non-compliant group) to limit wall compliance.

Measurements and Main Results: Hemodynamic parameters were recorded on the 15th postoperative day, both awake and after general anesthesia. Banding the aorta caused a significant decrease in arterial compliance (-49%,P<0.001) and increase in systolic blood pressure (SBP:+38%,P=0.001) and pulse pressure (+107%,P=0.005).

Induction of anesthesia in the Control group produced a 15% increase in arterial compliance (P<0.05) resulting in a 12% decrease in SBP (P=0.02), 13% decrease in diastolic blood pressure (DBP; P<0.05) and 12% decrease in mean blood pressure (MBP; P=0.03). Induction of anesthesia in the Non-compliant group also caused a significant increase in arterial compliance (17%, P<0.001) but caused an even greater decrease in SBP (21%, P=0.02), DBP (23%,P=0.03) and MBP (22%,P=0.02) as compared to Controls.

Conclusions: Induction of general anesthesia caused a similar increase in total arterial compliance and was associated with a significant decrease in SBP and increase in pulse pressure that was more pronounced in animals with non-compliant aortas. These results indicate that anesthesia causes a greater hemodynamic effect on non-compliant (stiff) aortas and may explain the extensive hemodynamic instability observed in atherosclerotic-elderly patients during anesthesia.

47. **Georgakarakos E**, Bitza C, Papanas N, Matsagkas M, Lazarides MK. Vascular nursing in Greece: luxury or necessity? Int J Low Extrem Wounds. 2013; 12:180-3.

    Although peripheral arterial disease is prevalent in the primary care setting, insufficient vascular education among nurses and physicians coupled with certain economic constraints undermines treatment efficacy. Moreover, the burden of advanced venous pathology such as posthrombotic syndrome, venous ulcers, and lymphedema remains suboptimally treated. This article advocates the development of a vascular nursing specialty as a means to improving vascular care especially nowadays, when health care providers dictate comprehensive and cost-effective nursing practice and patient management. It also presents the first attempt to organize a Vascular Nursing Educational Session in Greece.

48. Antoniou GA, Georgiadis GS, Antoniou SA, Pavlidis P, Maras D, Sfyroeras GS, **Georgakarakos EI**, Lazarides MK. Endovascular repair for ruptured abdominal aortic aneurysm confers an early survival benefit over open repair. J Vasc Surg. 2013; 58:1091-105.

    BACKGROUND: Despite the intuitive advantages of endovascular repair (EVAR) of ruptured abdominal aortic aneurysms (AAAs), uncertainty remains about the optimal management in the absence of convincing high-quality evidence. Our objective was to undertake a comprehensive literature review and perform a meta-analysis of outcome data of treatment modalities for ruptured AAAs.

    METHODS: Systematic searches were conducted of electronic information sources to identify studies comparing perioperative outcomes of EVAR and open repair for AAA rupture. Summary estimates of odds ratios (ORs) or standardized mean difference and 95% confidence intervals (CIs) were obtained with a random-effects model. Meta-regression models were formed to explore potential heterogeneity as a result of changes in practice over time.

    RESULTS: We selected 41 studies for analysis. The entire meta-analysis population comprised 59,941 patients (8201 EVAR patients and 51,740 open repair patients). EVAR was associated with a significantly lower incidence of in-hospital mortality (OR, 0.56; 95% CI, 0.50-0.64; P < .01; meta-analysis of risk-adjusted observational studies and randomized controlled trials: OR, 0.58; 95% CI, 0.46-0.73; P < .01). EVAR patients had a significantly decreased risk of developing respiratory complications (OR, 0.59; 95% CI, 0.49-0.69; P < .01) and acute renal failure (OR, 0.65; 95% CI, 0.55-0.78; P < .01) and a trend toward a reduced incidence of cardiac complications (OR, -0.02; 95% CI, -0.03 to 0.00; P = .05) and mesenteric ischemia (OR, 0.66; 95% CI, 0.44-1.00; P = .05). Patients treated with EVAR had significantly less requirements of intraoperative blood transfusion (standardized mean difference, -0.88; 95% CI, -1.06 to -0.70; P < .01). Random-effects meta-regression revealed no statistical evidence for an association between death and year of publication (P = .19).

    CONCLUSIONS: Our analysis provides evidence to motivate the adoption of an EVAR-first policy in a nonelective setting and the establishment of standardized protocols for the management ruptured AAAs.

49. Antoniou GA, Georgiadis GS, **Georgakarakos EI,** Antoniou SA, Bessias N, Smyth JV, Murray D, Lazarides MK. Meta-analysis and meta-regression analysis of outcomes of carotid endarterectomy and stenting in the elderly. JAMA Surg. 2013; 148:1140-52.

    IMPORTANCE: Uncertainty exists about the influence of advanced age on the outcomes of carotid revascularization.

    OBJECTIVE: To undertake a comprehensive review of the literature and conduct an analysis of the outcomes of carotid interventions in the elderly.

    DESIGN AND SETTING: A systematic literature review was conducted to identify articles comparing early outcomes of carotid endarterectomy (CEA) or carotid stenting (CAS) in elderly and young patients.

    MAIN OUTCOMES AND MEASURES: Combined overall effect sizes were calculated using fixed or random effects models. Meta-regression models were formed to explore potential heterogeneity as a result of changes in practice over time. RESULTS Our analysis comprised 44 studies reporting data on 512,685 CEA and 75,201 CAS procedures. Carotid stenting was associated with increased incidence of stroke in elderly patients compared with their young counterparts (odds ratio [OR], 1.56; 95% CI, 1.40-1.75), whereas CEA had equivalent cerebrovascular outcomes in old and young age groups (OR, 0.94; 95% CI, 0.88-0.99). Carotid stenting had similar peri-interventional mortality risks in old and young patients (OR, 0.86; 95% CI, 0.72-1.03), whereas CEA was associated with heightened mortality in elderly patients (OR, 1.62; 95% CI, 1.47-1.77). The incidence of myocardial infarction was increased in patients of advanced age in both CEA and CAS (OR, 1.64; 95% CI, 1.57-1.72 and OR, 1.30; 95% CI, 1.16-1.45, respectively). Meta-regression analyses revealed a significant effect of publication date on peri-interventional stroke (P = .003) and mortality (P < .001) in CAS.

    CONCLUSIONS AND RELEVANCE: Age should be considered when planning a carotid intervention. Carotid stenting has an increased risk of adverse cerebrovascular events in elderly patients but mortality equivalent to younger patients. Carotid endarterectomy is associated with similar neurologic outcomes in elderly and young patients, at the expense of increased mortality.

50. Kontopodis N, Metaxa E, Papaharilaou Y, **Georgakarakos E**, Tsetis D, Ioannou CV. Changes in geometric configuration and biomechanical parameters of a rapidly growing abdominal aortic aneurysm may provide insight in aneurysms natural history and rupture risk. Theor Biol Med Model. 2013; 10:67.

    BACKGROUND: Abdominal aortic aneurysms (AAA) are currently being treated based on the maximum diameter criterion which has often been proven insufficient to determine rupture risk in case of every AAA. We analyzed a rare case of an AAA which presented an extremely fast growth focusing on biomechanical determinants that may indicate a high risk profile. The examination of such a case is expected to motivate future research towards patient-specific rupture risk estimations.

    METHODS: An initially small AAA (maximum diameter: 4.5 cm) was followed-up and presented a growth of 1 cm in only 6-months of surveillance becoming suitable for surgical repair. Changes of morphometric characteristics regarding AAA, thrombus and lumen volumes, cross-sectional areas, thrombus maximum thickness and eccentricity, and maximum centerline curvature were recorded.
    Moreover biomechanical variables concerning Peak Wall Stress, AAA surface area exposed to high stress and redistribution of stress during follow-up were also assessed.

    RESULTS: Total aneurysm volume increased from 85 to 120 ml which regarded thrombus deposition since lumen volume remained stable. Thrombus deposition was eccentric regarding anterior AAA segment while its thickness increased from 0.3 cm to 1.6 cm. Moreover there was an anterior bulging over time as depicted by an increase in maximum centerline curvature from 0.4 cm-1 to 0.5 cm-1. Peak Wall Stress (PWS) exerted on aneurysm wall did not change significantly over time, slightly decreasing from 22 N/cm2 to 21 N/cm2. At the same time the area under high wall stress remained practically constant (9.9 cm2 at initial vs 9.7 cm2 at final examination) but there was a marked redistribution of wall stress against the posterior aneurysmal wall over time.

    CONCLUSION: Aneurysm area under high stress and redistribution of stress against the posterior wall due to changes in geometricconfiguration and thrombus deposition over time may have implications to aneurysms natural history and rupture risk.

51. Georgiadis GS, **Georgakarakos EI**, Antoniou GA, Trellopoulos G, Argyriou C, Nikolopoulos ES, Charalampidis D, Schoretsanitis NG, Lazarides MK. Clinical outcomes after crossed-limb vs. conventional endograft configuration in endovascular AAA repair. J Endovasc Ther. 2013; 20:853-62.

PURPOSE: To report a case controlled analysis of endovascular aneurysm repair (EVAR) outcomes using the crossed-limb (CxL) endovascular configuration vs. the straight-limb configuration (SLC).

METHODS: From January 2007 to July 2012, 27 patients (25 men; mean age 73.7±7.2 years, range 53-82) were treated by EVAR with the CxL technique. These patients were matched anatomically with 27 patients (27 men; mean age 72.4±7.4 years, range 52-86) who underwent EVAR using the same endograft and the standard SLC within a ±6-month period. Primary outcome measures included technical and clinical success and freedom from graft limb thrombosis, any type of endoleak, early or late secondary interventions, and aneurysm-related death estimated using the Kaplan-Meier method.

RESULTS: The median follow-up periods for the CxL and SLC groups were 29.9 (range 6-54) and 33.5 (range 6-59) months, respectively (p=0.81). The technical success rate was 100% in both groups, but mean procedure times were significantly longer in the CxL group (116.3 vs. 90.7 minutes, p=0.035). Twelve intraoperative endoleaks (3 each for types Ia, Ib, II, and IV) occurred but without any difference between groups (p=0.51). One CxL group patient died in the early postoperative period (aneurysm-related) and another had an early graft limb thrombosis. One late type Ib intraoperative endoleak was recorded in the SLC group (p=0.51). For the CxL vs. SLC groups, the 1-year rates for freedom from endograft limb thrombosis (94% vs. 96%), any type of endoleak (96% vs. 96%), early or late reintervention (94% vs. 96%), and aneurysm-related death (94% vs. 96%) were not significantly different. Respective values at 36 months were 82% vs. 82%, 85% vs. 84%, 81% vs. 78%, and 83% vs. 84% (p>0.05). Clinical success rates at 12 months for the CxL and SLC groups were 91% and 100% (p>0.05), respectively, whereas at 36 months, the rates were 83% and 90% (p>0.05).

CONCLUSION: No difference was found between the crossed-limb technique and the conventional endograft position as regards short- or midterm clinical outcomes.

52. Kontopodis N, Lipsa L, Metaxa E, **Georgakarakos E**, Papaharilaou Y, Tsetis D, Ioannou CV. Thrombus Morphology May Be an Indicator for Aneurysm Expansion. J Cardiovasc Surg (Torino). 2014; 55:301-2.

    Πρόκειται για αυθύπαρκτο γράμμα προς τη σύνταξη (δεν αποτελεί απάντηση ή σχόλιο σε άρθρο άλλου συγγραφέα) όπου περιγράφεται το θεωρητικό υπόβαθρο αξιολόγησης της παραμέτρου της αυξημένης τοπικής κατανομής του ενδοαυλικού θρόμβου σε περιοχές ταχείας διάτασης των ανευρυσμάτων της κοιλιακής αορτής, αναφερόμενη σε προκαταρκτικά αποτελέσματα μελέτης υπολογιστικής προσομοίωσης που διενεργείται σε συνεργασία με το Ινστιτούτο Εφαρμοσμένων και Υπολογιστικών Μαθηματικών του Ιδρύματος Έρευνας και Τεχνολογίας της Κρήτης και την Ιατρική Σχολή του Πανεπιστημίου Κρήτης.

53. Trellopoulos G, Georgiadis GS, Nikolopoulos ES, Kapoulas KC, **Georgakarakos EI**, Lazarides MK. Antiplatelet treatment and prothrombotic diathesis following endovascular abdominal aortic aneurysm repair. Angiology. 2014; 65:783-7.

    Prothrombotic diathesis expressed by elevated levels of coagulation-specific biomarkers has been reported in patients with abdominalaortic aneurysm (AAA) and after AAA endovascular repair (EVAR). This study investigates the effect of antiplatelet agents (APLs) on the prothrombotic diathesis in the post-EVAR period. Forty elective EVAR patients had thrombin-antithrombin complex, d-dimer, fibrinopeptide A, and high-sensitivity C-reactive protein measured before, at 24 hours, 1 month, and 6 months after EVAR. Patients receiving APLs postoperatively were compared with those not receiving APLs. All biomarkers were above the normal limits preoperatively and increased significantly 24 hours postoperatively followed by a drop at 1 and 6 months. No statistically significant changes were noted among patients receiving APLs in comparison with those not receiving APLs. The preoperative and postoperative prothrombotic diathesis of AAA following EVAR was confirmed in line with other reports. There was however no significant alteration of the examined biomarkers in patients receiving APLs.

54. **Georgakarakos E**, Xenakis A, Georgiadis GS, Argyriou C, Antoniou GA, Schoretsanitis N, Lazarides MK. The hemodynamic impact of misalignment of fenestrated endografts: a computational study. Eur J Vasc Endovasc Surg. 2014; 47:151-9.

    OBJECTIVE: The hemodynamic consequences of misaligned stent-grafts (SG) in fenestrated endografts (EG) have not been adequately studied. Our aim was to study the hemodynamic effects of positional variations of SG, investigating the potential influence on the total displacement forces acting on the EG and the shear stress values at the stented segments.

    METHODS: This was a computational study. An idealized EG model with two renal fenestrations was computationally reconstructed and centrally extended up to the suprarenal level to treat a suprarenal

aneurysm. The misalignment of SG was represented by a variable take-off angle between the SG and the EG centerline axis, corresponding to angles of 90°, 176°, 142°, 38°, and 4°, respectively. Accordingly, the maximum EG displacement forces and the shear stress within the stented segments were calculated, using commercially available software.

RESULTS: The variable positions of the SG caused no effect on the maximum displacement force acting on the EG, being quite steady and equal to 5.55 N. On the contrary, the values of maximum shear stress acting on the stented segments were influenced by their orientation. The narrow transition zone between the distal end of the mating stent and the target artery showed higher stresses than any other segment. The right-angle take off SG position (90°) was associated with the lowest stresses (12.5 Pa), whereas the highest values were detected at 38° and 142° (16.5 and 16.1 Pa, respectively). The vessel segments distal to the SG exhibited constantly lower stress values (1.9-2.2 Pa) than any other segment.

CONCLUSION: We detected differences in the values of shear stress exerted on the stented arteries, depending on different positions that SG can adapt after the deployment of fenestrated EG. The pathophysiologic implication of our findings and their potential association with clinical events deserve further investigation and clinical validation.

55. **Georgakarakos E**, Trellopoulos G, Pelekas D, Schoretsanitis N, Georgiadis GS, Ioannou CV. The chimney technique with the Ovation Trivascular device: new kid on the block! Ann Vasc Surg. 2014; 28:1080-1.

    Πρόκειται για γράμμα προς τη σύνταξη όπου περιγράφεται και αναλύεαι η δομική διαφορά του πρωτοεμφανιζόμενου στην κλινική πράξη ενδομοσχεύματος Ovation.

56. Lazarides MK, Georgiadis GS, Charalampidis DG, Antoniou GA, **Georgakarakos EI**, Trellopoulos G. Impact of long-term warfarin treatment on EVAR durability: a meta-analysis. J Endovasc Ther. 2014; 21:148-53.

    PURPOSE: To evaluate whether postoperative long-term oral anticoagulation affects the durability of endovascular aneurysm repair (EVAR) and whether it is associated with an increased incidence of endoleak and subsequent need for reintervention.

    METHODS: A literature search was performed to identify studies of abdominal aortic aneurysm patients undergoing EVAR including an arm receiving warfarin postoperatively and reporting the frequency of any endoleaks and/or persistent type II endoleaks and reinterventions. The search identified 81 articles, of which 5 observational cohort studies ultimately met the inclusion criteria.

    RESULTS: Postoperative anticoagulation was required in 219 (14.6%) of the 1499 patients in the selected studies. The pooled effects analysis found that EVAR patients receiving long-term warfarin postoperatively had significantly more endoleaks of any type (OR 1.77, 95% CI 1.26 to 2.48, p=0.001) as well as persistent type II endoleaks (OR 1.58, 95% CI 1.05 to 2.37, p=0.03) compared with patients not on anticoagulation; however, there was no statistically significant difference in the reintervention rate between the groups.

    CONCLUSION: Long-term anticoagulation in EVAR patients was associated with a statistically significant increase in any endoleak and persisting type II endoleaks, although it was not linked to an increased risk of reintervention. Close monitoring for EVAR patients who require long-term oral anticoagulation is advised.

57. Trellopoulos G, **Georgakarakos E**, Pelekas D, Papachristodoulou A, Argyriou C, Georgiadis GS. Chimney and periscope technique for emergent treatment of spontaneous aortic rupture. Ann Vasc Surg. 2014; 28:1324-8.

    Aortic rupture comprises a potentially fatal condition necessitating emergent treatment. Endovascular sealing of the rupture site is often combined with the use of chimney- and periscope stent placement to preserve perfusion of aortic branches. We present a case of successful endovascular management of contained aortic rupture in a 78-year-old patient. The left brachial access facilitated stenting of the celiac and superior mesenteric arteries, whereas the left femoral route served stenting of the renal artery. One-month follow-up confirmed complete sealing, stent patency, and absence of endograft migration. The combined periscope and chimney technique is feasible and effective in the emergency setting.

58. Argyriou C, **Georgakarakos E**, Georgiadis GS, Antoniou GA, Schoretsanitis N, Lazarides M. Hybrid revascularization procedures in acute limb ischemia. Ann Vasc Surg. 2014; 28:1456-62.

BACKGROUND: Although the clinical efficacy of hybrid procedures in patients with chronic limb ischemia has been well reported in the literature, sufficient evidence is lacking in the acute setting. Our aim was to evaluate the immediate and midterm clinical results on 28 patients with acute lower limb ischemia treated with hybrid reconstructions on emergent basis, from January 2010 to March 2013 in our tertiary referral vascular center.

METHODS: A total of 28 patients (31 operated limbs) underwent emergent hybrid revascularization, with endovascular treatment performed proximally or distally to the site of open reconstruction. The median follow-up period was 6 months (range: 1-26). The immediate technical success was clinically and hemodynamically evaluated with an ankle brachial pressure index (ABPI) measurement. Six-month overall patency, limb salvage, and survival rate were also estimated. All analyses were performed with Kaplan-Meier life table method, using the STATISTICA 7.0 statistical program.

RESULTS: Twenty-seven patients presented with grade IIb and 1 with grade III ischemia, respectively. Technical success was achieved in all patients, whereas hemodynamic improvement rate was achieved in 98%. ABPI preoperatively was increased from 0.14 ± 0.1 to 0.69 ± 0.28 postoperatively ($P < 0.05$). Perioperative morbidity and mortality rates were 21% and 11% respectively. Six-month overall patency, limb salvage, and survival rate were 86%, 92%, and 79%, respectively.

CONCLUSIONS: Hybrid revascularization in immediately threatened limbs provides an effective and durable option with acceptable mortality and amputation rate in these high-risk patients. These findings should be further confirmed by larger scale clinical studies.

59. **Georgakarakos E**, Trellopoulos G, Pelekas D, Ioannou CV, Kontopodis N, Tsetis D. Regarding "One-year outcomes from an international study of the Ovation abdominal stent graft system for endovascular aneurysm repair". J Vasc Surg. 2014; 59:877.

    Γράμμα προς τη σύνταξη όπου συζητείται η ερμηνεία των αποτελεσμάτων της κλινικής μελέτης των Mehta M. et al. (J Vasc Surg 2014; 59:65-73) για το ενδομόσχευμα Ovation.

60. Georgiadis GS, Charalampidis D, **Georgakarakos EI**, Antoniou GA, Trellopoulos G, Vogiatzaki T, Lazarides MK. Open conversion after endovascular aortic aneurysm repair with the Ovation Prime™ endograft. Int J Artif Organs. 2014; 37:177-81.

    Advances in abdominal aortic aneurysm (AAA) endograft device technology have contributed to improved outcomes and durability of endovascular aortic aneurysm repair (EVAR), even in complex infrarenal aortic anatomies. However, stent graft failure secondary to endoleaks, migration, endotension and sac enlargement are persistent problems that can result in aneurysm rupture following EVAR.A symptomatic infrarenal AAA (4mm proximal neck) was treated initially with an Ovation Prime™ device (TriVascular, Inc., Santa Rosa, CA) in an off-label fashion, leading to type Ia endoleak moderately reduced by additional proximal neck ballooning. A failed Chimney technique to the single patent, but severely stenosed, right renal artery preceded the use of this device. A large type Ia endoleak was evident at 6-month follow-up, but following a failed supplementary endovascular intervention with coils to seal the endoleak, the patient presented with hemorrhagic shock from AAA rupture, requiring urgent open conversion. Intraoperatively it was impossible to explant this new type of endograft. Circumferential tying of the infrarenal aorta with a Teflon band was unable to stop the bleeding. However, after dividing the body of the stent-graft below the two proximal polymer rings, the endoleak was successfully treated by suturing the graft with the proximal aortic neck. The procedure was completed with extension of the stump to the common femoral arteries using a bifurcated Dacron prosthesis.The body of an Ovation Prime™ endograft may be impossible to explant in open conversion conditions. Large prospective studies with longer follow-up are required to adequately reflect the behavior of this particular device.

61. **Georgakarakos E**, Xenakis A, Manopoulos C, Georgiadis GS, Argyriou C, Tsangaris S, Lazarides MK. Studying the flow dynamics in an aortic endograft with crossed-limbs. Int J Artif Organs. 2014; 37:81-7.

    PURPOSE: To evaluate the flow phenomena within an aortic endograft with crossed-limbs, comparing to an endograft with the ordinary limb bifurcation.

    METHODS: An endograft model with crossed-limbs was computationally reconstructed based on Computed Tomography patient-specific data, using commercially available software. Accordingly, its analogue model was reconstructed in the ordinary fashion (ordinary bifurcation). Computational fluid dynamics analysis was performed to determine and compare the flow fields, velocity profiles, pressure and shear stress distribution throughout the different parts of both endograft configurations, in different phases of the cardiac cycle.

RESULTS: The flow patterns between the "Ballerina" and the classic endograft were similar, with flow disturbance near the inlet zone at late diastole and smooth flow patterns during the systolic phase. Both configurations presented similar pressure distribution patterns throughout the cardiac cycle. The highest and lowest pressures were demonstrated in the inlet-main body area and the iliac limbs, respectively. Marked differences were observed in the velocity profiles of the proximal limb segments between the two configurations, mostly in the peak- and end-systolic phase. The regions of lower velocities correlated well to low shear values. Differences in the shear stress distribution were noted between the two configurations in the systolic and, predominantly, in the diastolic phase.

CONCLUSIONS: There are differences in the velocity profiles and shear distribution between the limbs of the two endograft configurations. The pathophysiologic implication of our findings and their possible association with clinical events, such as thrombus apposition, deserves further investigation.

62. Georgiadis GS, **Georgakarakos EI**, Antoniou GA, Panagoutsos S, Argyriou C, Mourvati E, Passadakis P, Lazarides MK. Correlation of pre-existing radial artery macrocalcifications with late patency of primary radiocephalic fistulas in diabetic hemodialysis patients. J Vasc Surg. 2014; 60:462-70.

OBJECTIVE: The aim of this study was to evaluate the impact of pre-existing radial artery macrocalcification (Mönckeberg type of arteriosclerosis) on patency rates of radiocephalic fistulas (RCFs) in diabetic end-stage renal disease (ESRD) patients undergoing hemodialysis.

METHODS: In this observational prospective study, the long-term patency rates (primary outcome measures) of RCFs in ESRD diabetics who had Mönckeberg radial (±brachial) artery disease (calcified [C] group) were compared with those obtained in ESRD diabetics who had healthy, noncalcified vessels before RCF construction (healthy [H] group). Vessel calcification was assessed by plain two-dimensional radiography. For inclusion in the C-group, uniform linear railroad track-type macrocalcifications of at least 6 cm in length, in the medial wall of the radial artery ipsilateral to RCF creation, were required. Patients were included in the H-group if the radial artery ipsilateral to the RCF creation was free of any macrocalcification, of either intima or media type. Any intimal-like plaque with irregular and patchy distribution was an exclusion criterion for both groups. Patients in both groups also were required to have suitable upper limb vascular anatomy on the basis of ultrasound imaging before RCF creation (cephalic vein of minimum diameter of 1.6 mm, without stenosis or thrombosis in all outflow areas, and radial artery of minimum diameter of 1.5 mm, without proximal hemodynamically significant stenosis). Secondary outcome measures included all-cause mortality. Kaplan-Meier statistics were used for comparison between groups.

RESULTS: The arm radiograph at the site of possible fistula construction showed abnormality in 39 patients (C-group, 47 RCFs), whereas 33 patients had noncalcified ("healthy") vascular anatomy (H-group, 40 RCFs). Mean duration of the diabetic disease at the time of RCF creation was 8.9 ± 5.6 years (range, 2-25 years) for the H-group and 14 ± 9.9 years (range, 1-40 years) for the C-group (P = .018). The mean follow-up period for H-group and C-group was 51.9 ± 35.9 months (range, 0.1-126 months) and 26.1 ± 31.6 months (range, 0.1-144 months), respectively (P = .0006). Forty-four patients died during the follow-up period. Primary patency rates at 12, 24, 36, and 48 months for C-group vs H-group were 50.2% vs 80%, 36.5% vs 72.3%, 32.4% vs 67.9%, and 29.1% vs 59.3% (P = .0019). Respective values for secondary patency rates were 52.4% vs 87.5%, 40.9% vs 82.4%, 36.6% vs 78.1%, and 33.2% vs 72.8% (P = .00064). Patient survival rates at 24 and 48 months were 56.1% and 46.4% for C-group and 92.4% and 67.4% for H-group, respectively (P = .05).

CONCLUSIONS: ESRD diabetics with radial artery Mönckeberg calcifications receiving RCFs had worse late clinical outcomes compared with ESRD diabetics with healthy distal arm vessels receiving the same access. The long-term benefit of RCFs may be lost in diabetics with extensively calcified vessels, and preferably the brachial artery should be used instead.

63. Antoniou GA, **Georgakarakos EI**, Antoniou SA, Georgiadis GS. Does endovascular treatment of infra-inguinal arterial disease with drug-eluting stents offer better results than angioplasty with or without bare metal stents? Interact Cardiovasc Thorac Surg. 2014; 19:282-5.

A best evidence topic in vascular and endovascular surgery was developed according to a structured protocol. The question addressed was whether treatment of infra-inguinal arterial occlusive disease with drug-eluting stents (DESs) provides improved outcomes compared with bare metal stents (BMSs) or percutaneous balloon angioplasty (PTA) alone. Altogether, 136 papers were found using the reported searches, of which 5 provided the best evidence to answer the question. All papers represent either level 1 or 2 evidence. The authors, journal, date, country of publication, patient group studied, study type,

relevant outcomes and results of these papers are tabulated. Main outcome measures varied among the studies, and included patency, in-stent restenosis, target lesion revascularization, major adverse events, clinical improvement and limb salvage. Evidence on the comparative efficacy of DESs in femoro-popliteal arterial disease is mainly based on two randomized, controlled trials. Paclitaxel-eluting stents were evaluated in the Zilver PTX trial and demonstrated superior 2-year results to either BMSs or PTA, as indicated/shown by patency (DES vs PTA, 74.8 vs 26.5%, P < 0.01), clinical benefit (DES vs PTA, P < 0.01) and event-free survival (DES vs PTA, 86.6 vs 77.9%, P = 0.02). However, the SIROCCO trial found that the sirolimus-eluting stent did not exhibit statistically significant differences in 2-year in-stent restenosis (22.9 vs 21.1%) and target lesion revascularization (6 vs 13%) compared with the BMS. Treatment of infra-politeal arterial disease with DESs was related with superior outcomes to those of BMSs, as indicated/shown by patency, freedom from target lesion revascularization and freedom from major adverse events. Furthermore, the ACHILLES trial, the only published trial comparing the infra-popliteal DES with PTA, revealed lower angiographic restenosis (22.4 vs 41.9%, P = 0.019) and greater vessel patency (75 vs 57.1%, P = 0.025) in the DES group at 1 year. However, data related to clinical parameters in patients with critical limb ischaemia secondary to infrageniculate arterial disease, such as limb salvage and ulcer healing, are insufficient. In conclusion, treatment of infra-inguinal arterial disease with DES is safe and seems to be superior to treatment with PTA alone or BMS. The role of DES in sustained improvement in clinical outcome end-points, such as limb salvage, remains to be elucidated.

64. **Georgakarakos E**, Trellopoulos G, Ioannou CV, Tsetis D. Technical challenges encountered during deployment of the ovation abdominal aortic stent-graft system. J Endovasc Ther. 2014; 21(2):333-8.

    PURPOSE: To describe technical challenges encountered using the Ovation endograft for abdominal aortic aneurysms and suggest tips and maneuvers for successful management.

    TECHNIQUE: Deployment of the Ovation's unsupported main body is often associated with the anteroposterior arrangement of the limb gates instead of the usual side-by-side configuration, rendering contralateral catheterization challenging. Successful catheterization of the contralateral limb can be confirmed by lateral deviation of the ipsilateral stiff guidewire caused by balloon inflation within the contralateral limb. Moreover, failure to cannulate the contralateral limb gate due to persistent impingement of the guidewire or compromise of the inflated rings can be overcome using the transbrachial antegrade approach.

    CONCLUSION: Awareness of certain aspects associated with the use of the Ovation device and adoption of the adjunctive techniques herein described helps the interventionist avoid unexpected challenges or manage technical difficulties to maximize the device's safety and effectiveness.

65. Kontopodis N, Metaxa E, Papaharilaou Y, **Georgakarakos E**, Tsetis D, Ioannou CV. Value of volume measurements in evaluating abdominal aortic aneurysms growth rate and need for surgical treatment. Eur J Radiol. 2014; 83:1051-6.

    PURPOSE: To examine whether indices other than the traditionally used abdominal aortic aneurysm (AAA) maximum diameter, such as AAA volume, intraluminal thrombus (ILT) thickness and ILT volume, may be superior to evaluate aneurismal enlargement.

    MATERIALS AND METHODS: Thirty-four small AAAs (initially presenting a maximum diameter <5.5cm which is the threshold for surgical repair) with an initial and a follow-up CT were examined. Median increase and percentile annual change of these variables was calculated. Correlation between growth rates as determined by the new indices under evaluation and those of maximum diameter were assessed. AAAs were divided according to outcome (surveillance vs. elective repair after follow-up which is based on the maximum diameter criterion) and according to growth rate (high vs. low) based on four indices. Contingency between groups of high/low growth rate regarding each of the four indices on one hand and those regarding need for surgical repair on the other was assessed.

    RESULTS: A strong correlation between growth rates of maximum diameter and those of AAA and ILT volumes could be established. Evaluation of contingency between groups of outcome and those of growth rate revealed significant associations only for AAA and ILT volumes. Subsequently AAAs with a rapid volumetric increase over time had a likelihood ratio of 10 to be operated compared to those with a slower enlargement. Regarding increase of maximum diameter, likelihood ratio between AAAs with rapid and those with slow expansion was only 3.

CONCLUSION: Growth rate of aneurysms regarding 3Dimensional indices of AAA and ILT volumes is significantly associated with the need for surgical intervention while the same does not hold for growth rates determined by 2Dimensional indices of maximum diameter and ILT thickness.

66. Lazarides MK, **Georgakarakos EI**, Schoretsanitis N. Extra- and intrathoracic access. J Vasc Access. 2014; 15 Suppl 7:S125-9.

    The most complex patients requiring vascular access are those with bilateral central vein occlusions. Endovascular repair of the central lesions when feasible allow upper extremity use for access. When endovascular repair is not feasible, femoral vein transposition should be the next choice. When lower limb access sites have been exhausted or are contraindicated as in obese patients and in patients with peripheral arterial obstructive disease, a range of extrathoracic "exotic" extra-anatomic access procedures as the necklace cross-chest arteriovenous (AV) grafts, the ipsilateral axillo-axillary loops, the brachial-jugular AV grafts, the axillo-femoral AV grafts or even intra-thoracic ones as the right atrial AV bypasses represent the vascular surgeon's last resort. The selection among those extra-anatomical chest-wall procedures should be based upon each patient's anatomy or patient-specific factors.

67. **Georgakarakos E,** Trellopoulos G, Georgiadis GS, Kontopodis N, Ioannou CV. The chimney technique with the Ovation abdominal stent graft system: an ideal platform for self-expandable renal stents? Cardiovasc Intervent Radiol. 2014; 37:1393-4.

    Γράμμα προς τη σύνταξη ως επίκριση των αποτελεσμάτων της κλινικής μελέτης των Massmann A. et al. (Cardiovasc Intervent Radiol. 2014; 37:488-92) για τη χρήση του ενδομόσχευματος Ovation στην τεχνική των καπνοδόχων για την αντιμετώπιση των ανευρυσματων κοιλιακής αορτής με δύσκολη ανατομία αυχένα.

68. **Georgakarakos E**, Trellopoulos G, Pelekas D, Papachristodoulou A. Non-aneurysmatic rupture of an iliac artery presenting as pseudoaneurysm followed by endovascular treatment. Vasc Med. 2014; 19:327-328.

    Παρουσίαση ενδιαφέροντος περιστατικού ρήξης αθηρωματικής λαγονίου αρτηρίας που αντιμετωπίστηκε άμεσα με την ενδοαυλική μέθοδο. Το περιστατικό προσφέρει στη συζήτηση για την ενοχοποίηση της αυτόματης ρήξης αθηρωματικής πλάκας ή έλκους στην αιμορραγία από τα λαγόνια αγγεία.

69. **Georgakarakos E**, Kapoulas K. Percutaneous Endovascular Recanalization of a Thrombosed Aortic Graft Limb with Stent Placement. Aorta (Stamford). 2014; 2:116-20.

    Common practice in recanalization of a thrombosed prosthetic graft limb in an aortoiliac bypass focuses on balloon-catheter thrombectomy and angiographic exploration followed either by open surgical revision or endovascular management. This report describes the technique of percutaneous endovascular recanalization of an early thrombosed aortic graft limb with stent placement and subsequent restoration of patency and adequate limb perfusion, which remains patent after one year. Percutaneous intervention with stent placement and angioplasty for early graft limb recanalization avoids femoral incisions, and complications or morbidity associated with open surgery, while permitting rapid mobilization of the patient.

70. **Georgakarakos E**, Gasser TC, Xenos M, Kontopodis N, Georgiadis GS, Ioannou CV. Applying findings of computational studies in vascular clinical practice: fact, fiction, or misunderstanding? J Endovasc Ther. 2014; 21:434-8.

    Άρθρο που περιγράφει τη χρησιμότητα, τους περιορισμούς και τις τεχνικές προκλήσεις της εφαρμογής της τεχνικής της υπολογιστικής προσομείωσης στα σύγχρονα πεδία βασικής αλλά και κλινικής έρευνας της Αγγειοχειουργικής.

71. **Georgakarakos E**, Xenakis A, Georgiadis GS, Argyriou C, Manopoulos C, Tsangaris S, Lazarides MK. Computational estimation of the influence of the main body-to-iliac limb length ratio on the displacement forces acting on an aortic endograft. Theoretical application to Bolton Treovance® Abdominal Stent-Graft. Int Angiol. 2014; 33:480-4.

    AIM: The influence of the relative iliac limb length of an endograft (EG) on the displacements forces (DF) predisposing to adverse effects are under-appreciated in the literature. Therefore, we conducted a computational study to estimate the magnitude of the DF acting over an entire reconstructed EG and its counterparts for a range of main body-to-iliac limb length (L1/L2) ratios.

METHODS: A customary bifurcated 3D model was computationally created and meshed using the commercially available ANSYS ICEM (Ansys Inc., Canonsburg, PA, USA) software. Accordingly, Fluid Structure Interaction was used to estimate the DF. The total length of the EG was kept constant, while the L1/L2 ratio ranged from 0.3 to 1.5.

RESULTS: The increase in L1/L2 slightly affected the DF on the EG (ranging from 3.8 to 4.1 N) and its bifurcation (4.0 to 4.6 N). However, the forces exerted at the iliac sites were strongly affected by the L1/L2 values (ranging from 0.9 to 2.2 N), showing a parabolic pattern with a minimum for 0.6 ratio.

CONCLUSION: It is suggested that the hemodynamic effect of the relative limb lengths should not be considered negligible. A high main body-to-iliac limb length ratio seems to favor hemodynamically a low bifurcation but it attenuates the main body-iliac limbs modular stability. Further clinical studies should investigate the relevant value of these findings. The Bolton Treovance(®) device is presented as a representative, improved stent-graft design that takes into account these hemodynamic parameters in order to achieve a promising, improved clinical performance.

72. **Georgakarakos E**, Argyriou C, Schoretsanitis N, Ioannou CV, Kontopodis N, Morgan R, Tsetis D. Geometrical factors influencing the hemodynamic behavior of the AAA stent grafts: essentials for the clinician. Cardiovasc Intervent Radiol. 2014; 37:1420-9.

    Endovascular aneurysm repair (EVAR) is considered to be the treatment of choice for abdominal aortic aneurysms (AAA). Despite the initial technical success, EVAR is amenable to early and late complications, among which the migration of the endograft (EG) with subsequent proximal endoleak (Type Ia) leads to repressurization of the AAA sac, exposure to excessive wall stress, and, hence, to potential rupture. This article discusses the influence that certain geometrical factors, such as neck angulation, iliac bifurcation, EG curvature, neck-to-iliac diameter, and length ratios, as well as iliac limbs configuration can exert on the hemodynamic behavior of the EGs. The information provided could help both clinicians and EG manufacturers towards further development and improvement of EG designs and better operational planning.

73. **Georgakarakos E**, Georgiadis GS, Ioannou CV. Finite element analysis methods in clinical practice: we have nothing to fear but fear itself! J Endovasc Ther. 2014; 21:565-7.

    Προσκεκλημένο άρθρο-σχόλιο από τη σύνταξη του περιοδικού Journal of Endovascular Therapy για το σχολιασμό των αποτελεσμάτων της πειραματικής μελέτης των Erhart P et al. (J Endovasc Ther. 2014; 21(4):556-64) για τη συσχέτιση των αποτελεσμάτων υπολογιστικής προσομείωσης με τη μέθοδο των πεπερασμένων στοιχείων στα ανευρύσματα κοιλιακής αορτής (AAA) με περιοχές ιστολογικής εκφύλισης που προδιαθέτουν σε ρήξη.

74. Georgiadis GS, Antoniou GA, Trellopoulos G, **Georgakarakos EI**, Argyriou C, Lazarides MK. Troubleshooting techniques for the Endurant™ device in endovascular aortic aneurysm repair. Cardiovasc J Afr. 2014; 25:239-43.

    Endovascular aortic aneurysm repair with the Endurant™ stent-graft system has been shown to be safe and effective in high-risk surgical patients with complex suprarenal and/or infrarenal abdominal aortic aneurysm anatomy. The wireformed M-shaped stent architecture and proximal springs with anchoring pins theoretically permit optimal sealing in shorter and more angulated proximal aneurysm necks even under off-label conditions. Nonetheless, extremely difficult anatomical situations and inherent graft system-related limitations must be anticipated. Herein, we describe our techniques to overcome the capture of the tip sleeve within the suprarenal bare-stent anchoring pins, other endograft segments, and native vessels.

75. Antoniou GA, **Georgakarakos EI**, Antoniou SA, Georgiadis GS. Multidisciplinary care as a holistic approach to the management of vascular disease. Int Angiol. 2014; 33:494-6.

    Αυθύπαρκτο γράμμα προς τη σύνταξη που παρουσιάζει τη διαμόρφωση των αρχών της Αγγειοχειρουργικής στη σημερινή εποχή και την αλληλεπίδρασή της με τις άλλες ιατρικές ειδικότητες.

76. Ioannou CV, Kontopodis N, Metaxa E, Papaharilaou Y, **Georgakarakos E**, Kafetzakis A, Kehagias E, Tsetis D. Graft inflow stenosis induced by the inflatable ring fixation mechanism of the Ovation stent-graft system: hemodynamic and clinical implications. J Endovasc Ther. 2014; 21:829-38.

PURPOSE: To investigate the observed inflow stenosis at the O-rings of the Ovation stent-graft and evaluate its hemodynamic and clinical impact.

METHODS: The study involved 49 consecutive patients (48 men; mean age 71.2 ± 7.7 years) treated successfully with the Ovation abdominal aortic stent-graft between June 2011 and January 2014 at a single center. Cross-sectional area and radius measurements of the infrarenal aorta just proximal to the sealing mechanism, as well at the site of stenosis, were measured from 3D reconstructions of the 1-month postoperative computed tomographic angiograms. Based on Poiseuille's law, the predicted pressure drop was calculated for each patient based on the length of the stenosis. Invasive blood pressure measurements at 3 levels (proximal to the inflatable rings, halfway inside the stenosis, and distal to the stenosis) were obtained in 10 patients intraoperatively. Ankle-brachial index (ABI) values preoperatively were compared to those after the procedure for all patients to assess the clinical impact of this phenomenon.

RESULTS: Median internal cross-sectional area at the site of the stenosis was significantly reduced compared to the area just proximal to the O-rings [57% reduction: 123 mm(2) (range 28-254) vs. 283 mm(2) (range 177-531), respectively; p<0.001]. The same was observed for the radius [6.5 mm (range 3-9) vs. 9.5 mm (range 7.5-13), respectively; p<0.001]. Based on the median 15 mm length of the stenosis (range 13-17) observed in the study population, a median pressure drop of 0.13 mmHg (range 0-0.25) along the stenosis was calculated. Invasive blood pressure measurements indicated a non-significant pressure change along the stenosis (e.g., 0.7 mmHg between the proximal level and halfway inside the stenosis). ABI remained practically unchanged postoperatively.

CONCLUSION: The advantages of the Ovation device's unique sealing mechanism come at the expense of a median area inflow stenosis of ~ 60%. This stenosis does not cause a hemodynamically significant pressure drop. Future modification of the graft ring design may be needed in order to reduce this stenosis.

77. **Georgakarakos E**, Ioannou CV, Kontopodis N, Tsetis D. A case of difficult catheterization of the contralateral limb of the Ovation Abdominal Stent Graft System in challenging aortoiliac anatomy, facilitated through the brachial access: a word of caution. Ann Vasc Surg. 2015; 29:392-6.

78. Antoniou GA, Antoniou SA, **Georgakarakos EI**, Sfyroeras GS, Georgiadis GS. Bibliometric analysis of factors predicting increased citations in the vascular and endovascular literature. Ann Vasc Surg. 2015; 29:286-92.

BACKGROUND: Dissemination of research findings in the scientific community is reflected by the citation count. Our objective was to investigate the relative citation impact of vascular research studies and identify potential predictors of increased citation rates.

METHODS: Articles published in leading journals of vascular and general surgery (Journal of Vascular Surgery, European Journal of Vascular and Endovascular Surgery, Journal of Endovascular Therapy, Annals of Vascular Surgery and Annals of Surgery, British Journal of Surgery, Journal of the American College of Surgeons, and JAMA Surgery) during a 4-month period were identified through electronic databases. Variables potentially associated with increased citation rates, including subject, design, title characteristics, article length, bibliographic references, authorship, geographic distribution, interdisciplinary collaboration, article access, and funding, were assessed in univariate and multiple linear regression models through December 2012.

RESULTS: A total of 226 articles with a total number of 4,605 citations were identified. Univariate analysis revealed that endovascular-related studies, study design, studies reporting design in the title, long articles, and studies with high number of references were associated with higher citation rates. On multivariate analysis, 3 variables were found to independently predict the number of citations: study subject (endovascular-related studies; regression coefficient [95% confidence interval], 0.474 [0.240-0.708]; P < 0.001); study design (randomized controlled trial; regression coefficient [95% confidence interval], 0.575 [0.145-1.005]; P = 0.009); and article length (number of pages; regression coefficient [95% confidence interval], 0.069 [0.016-0.123]; P = 0.011).

CONCLUSIONS: Authors involved in vascular research may enhance the impact of their work by embarking on research strategies of high methodologic quality and pursuing work related with new technologies and evolving endovascular therapies.

79. Lazarides MK, Georgiadis GS, **Georgakarakos EI**. What is the best training for vascular access surgery? J Vasc Access. 2015; 16:S16-9.

Questions have been raised whether there is a lack of appropriate training in access creation and maintenance, and if training juniors in arteriovenous (AV) fistulas may affect the outcome. A survey was undertaken to study "experts" opinion in access training using a closed questionnaire. The majority of "experts" consented that there is a lack of appropriate training in access creation and maintenance in a great extent, although they located the main deficit regarding access training in the preoperative planning and decision making. Regarding the second question, a literature search revealed only four studies, comparing the outcomes of AV fistulas created either by consultant surgeons or trainees. A meta-analysis performed revealed that 1-year patency rate was not statistically significant different among access procedures created either by consultants or trainees. Access surgery shares the same basic principles with vascular surgery and provides a valuable workload for the trainees and is a necessity to become a building component in all "core" vascular curricula; the required skills can be acquired with the trainees operating independently simple cases, as the latter is not leading to suboptimal outcomes.

80. Georgiadis GS, Charalampidis D, Argyriou C, Antoniou GA, **Georgakarakos EI**, Argyropoulou PI, Stakos D, Lazarides MK. Saddle aortic bifurcation and iliacofemoral arteries tandem embolism in a child with dilated cardiomyopathy. Vasa. 2015; 44:145-50.

    Αυθύπαρκτο γράμμα προς τη σύνταξη που παρουσιάζει τη σπάνια περίπτωση επαναλαμβανόμενων θρόμβοεμβολικών επεισοδίων σε παιδί με διατατική μυοκαρδιοπάθεια.

81. Trellopoulos G, **Georgakarakos E**, Pelekas D, Papachristodoulou A, Kalaitzi A, Asteri T. Initial single-center experience with the Ovation stent-graft system in the treatment of abdominal aortic aneurysms: application to challenging iliac access anatomies. Ann Vasc Surg. 2015; 29:913-9.

    BACKGROUND: To present our preliminary results with the Ovation(™) abdominal stent-graft system in abdominal aortic aneurysms (AAA) with narrow (≤7 mm) or angulated iliac vessels.

    METHODS: From April 2012 to January 2014, 42 patients (97% men; mean age, 71 years; range, 55-89 years) with AAAs of 55.5 mm (50-79 mm) were treated with the Ovation device. Primary end points included technical success and freedom from early secondary interventions, any type of endoleak, and aneurysm-related death. Limb occlusion was studied with respect to iliac access diameter and angulation. Iliac angulation between 90° and 120° or <90° was considered moderate or severe, respectively.

    RESULTS: The postoperative follow-up was 7.8 ± 4.6 months (mean ± standard deviation). Infrarenal neck angulation was 26° ± 26°. AAA neck length and diameter were 27.3 ± 10.5 and 24.1 ± 3.2 mm, respectively. Forty-five percent of patients had at least 1 vessel of ≤7-mm diameter, and almost half of patients (24 of 44) had at least 1 iliac artery of moderate or severe angulation. Technical and treatment success were 100% and 95%, respectively. No stent-graft migration or type I, III, or IV endoleaks occurred. Type II endoleaks were identified in 5 patients, leading to sac enlargement in 2 and necessitating an embolization attempt that was unsuccessful in 1 case. No limb occlusion occurred, irrespective of the iliac diameter or angulation.

    CONCLUSIONS: Our 1-year results of the Ovation stent-graft system demonstrate excellent safety and effectiveness. The easy navigation through highly angulated and stenosed iliac vessels ensures high technical success in cases of challenging iliac anatomy. Follow-up is ongoing.

82. Georgiadis GS, Charalampidis DG, Argyriou C, **Georgakarakos EI**, Lazarides MK. The Necessity for Routine Pre-operative Ultrasound Mapping Before Arteriovenous Fistula Creation: A Meta-analysis. Eur J Vasc Endovasc Surg. 2015; 49:600-5.

    OBJECTIVE/BACKGROUND: Existing guidelines suggest routine use of pre-operative color Doppler ultrasound (DUS) vessel mapping before the creation of arteriovenous fistulae (AVF); however, there is controversy about its benefit over traditional clinical examination or selective ultrasound use.

    METHODS: This was a systematic review and meta-analysis of randomized controlled trials (RCTs) comparing routine DUS mapping before the creation of AVF with patients for whom the decision for AVF placement was based on clinical examination and selective ultrasound use. A search of MEDLINE/PubMed, SCOPUS, and the Cochrane Library was carried out in June 2014. The analyzed outcome measures were the immediate failure rate and the early/midterm adequacy of the fistula for hemodialysis. Additionally, assessment of the methodological quality of the included studies was carried out.

    RESULTS: Five studies (574 patients) were analyzed. A random effects model was used to pool the data. The pooled odds ratio (OR) for the immediate failure rate was 0.32 (95% confidence interval [CI] 0.17-

0.60; p < .01), which was significantly in favor of the DUS mapping group. The pooled OR for the early/midterm adequacy for hemodialysis was 0.66 (95% CI 0.42-1.03; p = .06), with a trend in favor of the DUS mapping group; however, subgroup analysis revealed that routine DUS mapping was more beneficial than selective DUS (p < .05).

CONCLUSION: The available evidence, based mainly on moderate quality RCTs, suggests that the pre-operative clinical examination should always be supplemented with routine DUS mapping before AVF creation. This policy avoids negative surgical explorations and significantly reduces the immediate AVF failure rate.

83. Ioannou CV, Kontopodis N, **Georgakarakos E**, Dalainas I. Commentary: transcaval approach in the management of a type I endoleak associated with the ovation stent-graft system. J Endovasc Ther. 2015; 22:431-5.

Άρθρο σχολιασμού των τρόπων αντιμετώπισης της κεντρικής ενδοδιαφυγής τύπου Ια από το νεώτερο ενδομόσχευμα Ovation.

84. **Georgakarakos E**, Schoretsanitis N, Souftas VD, Argyriou C, Moustafa E, Georgiadis GS, Lazarides MK. Emergent conversion of the Ovation Stent Graft System to aortouniiliac modification via occlusion of a unilateral internal iliac artery with a stentgraft as a bailout solution. Vascular. 2015; 23:440-3.

PURPOSE: To present a case of inadvertent collapse of the contralateral limb gate caused by misorientation during the deployment of the Ovation Abdominal Stent Graft System in a narrow aortic lumen and the bailout conversion to aortouniiliac modification, using a covered stent to exclude the orifice of the internal iliac artery (IIA).

TECHNIQUE DESCRIPTION: Despite the repeated efforts from the femoral and brachial site, the collapsed/occluded contralateral limb gate could not be catheterized. In order to exclude successfully the orifice of the IIA, an oversized stentgraft was placed immediately at the common-to-external iliac artery (CIA-EIA) transition followed by peripheral ligation of the latter. The procedure was completed with crossover femorofemoral bypass.

CONCLUSION: Occlusion the IIA orifice with an oversized stentgraft in the CIA-EIA transition can be considered as a safe, simple, fast, and efficient bailout maneuver, followed by EIA ligation and crossover bypass.

85. **Georgakarakos E**, Manopoulos C, Lazarides MK, Tsangaris S. Commentary: occlusion of parallel/bridging stent-grafts in the treatment of complex aneurysms: a purely technical issue . . . Or not? J Endovasc Ther. 2015; 22:401-5.

Γράμμα προς τη σύνταξη που παρουσιάζει πειραματικά ευρήματα για την κατανομή διατμητικων τάσεων στους νεφρικούς κλάδους σύνθετων ενδοαυλικών μοσχευμάτων στην τεχνική των καπνοδόχων (chimney) και εισάγει την αιμοδυναμική θεώρηση στην αιτιολογία της θρόμβωσης/απόφραξης αυτών εκτός από την αποκλειστική ενοχοποίηση των τεχνικών παραγόντων.

86. **Georgakarakos E**, Raptis A, Schoretsanitis N, Bisdas T, Beropoulis E, Georgiadis GS, Matsagkas M, Xenos M. Studying the interaction of stent-grafts and treated abdominal aortic aneurysms: time to move caudally! J Endovasc Ther. 2015; 22:413-20.

Since the advent of endovascular repair of aortic aneurysms (EVAR), clinical focus has been on preventing loss of sealing at the level of the infrarenal neck, which leads to type I endoleak and repressurization of the aneurysm sac. Enhanced mechanisms for central fixation and seal have consequently lowered the incidence of migration and endoleaks. However, endograft limb thrombosis and its causal mechanisms have not been addressed adequately in the literature. This article reviews the pathophysiological mechanisms associated with limb thrombosis in order to facilitate better clinical judgment to prevent iliac adverse effects.

87. **Georgakarakos E**, Ioannou CV, Trellopoulos G, Kontopodis N, Papachristodoulou A, Torsello G, Bisdas T. Immediate Change in Suprarenal Neck Angulation After Endovascular Aneurysm Repair: Comparison of the Ovation Stent-Graft Inflatable Sealing Rings to a Conventional Self-Expanding Stent-Graft. J Endovasc Ther. 2015; 22:613-9.

PURPOSE: To compare the immediate suprarenal neck angulation change between the Ovation stent-graft, with its inflatable sealing rings, and a stent-graft with a conventional sealing mechanism.

METHODS: A case-control study was conducted in which 30 consecutive patients (mean age 67 years; all men) with abdominal aortic aneurysm (AAA) treated with the Ovation stent-graft (group O) were retrospectively compared with 24 patients (mean age 77 years; all men) contemporaneously treated with the Endurant stent-graft (group E) at 3 high-volume tertiary vascular centers. The variables recorded were the aortic neck length, preoperative and postoperative angulation, minimum and maximum diameters of the infrarenal neck, as well as the maximum AAA diameter. All patients had undergone preoperative and postoperative (within 30 days) computed tomographic angiography. Multiple regression analysis compared the relative contribution to neck angulation change of each geometric parameter and the type of endograft. Data are presented as the mean ± standard deviation.

RESULTS: The mean preoperative suprarenal neck angulation in group O was 23.2°±18.0° compared with 23.8°±22.9° in group E (t test, p=0.91). The neck lengths were 29.2±14.6 and 23.2±11.0 mm in groups O and E, respectively (p=0.1). Similarly, the minimum and maximum neck diameters were 22.4±2.6 and 25±3.5 mm, respectively, in group O vs 23.3±3.6 mm and 27.0±5.7 mm, respectively, in group E (p=0.3 and 0.12, respectively). The maximum transverse diameters of the AAA in the 2 groups were comparable, that is, 57.0±9.0 mm in group O vs 53.2±11.1 mm in group E (p=0.17). The Ovation stent-graft caused greater decrease in the aortic neck angulation postoperatively compared with the Endurant device (13.2°±16.1° vs 6.1°±5.9°, p=0.04). Multiple regression analysis revealed that preoperative neck angulation (β coefficient 0.37, p<0.001) and the type of endograft (β coefficient -7.91, p=0.01) had significant influence on the postoperative neck angulation change. The intraclass correlation coefficient ranged from 0.951 to 0.990 for the preoperative measurements and from 0.911 to 0.999 for the postoperative measurements for each examiner or the total of estimates at the measurement time points.

CONCLUSION: The Ovation stent-graft induces greater postoperative reduction in the AAA neck angulation compared to an endograft with stent-supported graft seal. Expanded research to infrarenal angle as well to greater angles and correlation to clinical events is justified.

88. Schoretsanitis N, Moustafa E, Beropoulis E, Argyriou C, Georgiadis GS, **Georgakarakos E**. Traumatic Pseudoaneurysm of the Superficial Palmar Arch: A Case Report and Review of the Literature. J Hand Microsurg. 2015; 7:230-2.

    Παρουσίαση περιστατικού αντιμετώπισης σπάνιας περίπτωσης μετατραυματικού ψευδοανευρύσματος παλαμιαίας αρτηρίας και ανασκόπηση της σχετικής βιβλιογραφίας.

89. Lazarides MK, Georgiadis GS, **Georgakarakos EI**. Author's reply to: "Comment on: What is the best training for vascular access surgery?" J Vasc Access. 2015; 16:e101.

    Γράμμα προς τη σύνταξη ως απάντηση στο γράμμα-σχόλιο των Aitken E et al. στο J Vasc Access. 2015; 16(5):e99-100.

90. Argyriou C, Schoretsanitis N, **Georgakarakos EI**, Georgiadis GS, Lazarides MK. Preemptive open surgical vs. endovascular repair for juxta-anastomotic stenoses of autogenous AV fistulae: a meta-analysis. J Vasc Access. 2015; 16:454-8.

    PURPOSE: There is controversy about the best mode of preemptive repair of juxta-anastomotic stenoses in radial-cephalic arteriovenous fistula (AVFs). The aim of the present review was to compare the outcome of surgical vs. endovascular repair of those AVF stenoses.

    METHODS: A systematic review and meta-analysis was performed for studies comparing the outcome of open surgical vs. endovascular preemptive repair of AVF stenoses located in the juxta-anastomotic region. A search was carried out in April 2015. The analyzed outcome measures were the primary patency at 12 and 18 months and the assisted primary patency at 24 months. In addition, assessment of the methodological quality of the included studies was carried out.

    RESULTS: Four non-randomized cohort studies (297 patients) were analyzed. A random effects model was used to pool the data. The pooled odds ratio (OR and 95% confidence intervals) for the primary patency at 12 and at 18 months was 0.42 (0.25-0.72) and 0.33 (0.2-0.56), respectively, showing statistically significant higher patency of the surgically repaired group. The pooled OR for the assisted primary patency at 24 months was 0.53 (0.28-0.98) also in favor of the surgically repaired group (p<0.04).

    CONCLUSIONS: The available evidence, based on non-randomized cohort studies, suggests that surgery is the best way to treat 'juxta-anastomotic' stenotic lesions in distal radial-cephalic AVFs, although angioplasty remains a valuable but less durable option in this location of the stenosis.

91. **Georgakarakos E**, Argyriou C, Ioannou CV, Kontopodis N, Lazarides MK. The Effect of Ovation Stent-Graft System on Aortic Pulse Wave Velocity: Preliminary Report on 3 Cases. Ann Vasc Surg. 2015; 29:1658.e5-9.

    BACKGROUND: The Ovation Aortic Stent-Graft System is based on a pair of polymer-filled inflatable O-rings to achieve sealing at the infrarenal level. However, this O-rings inflation has been associated with restriction of flow lumen and regional stenosis up to ~60%. Since the aortic pulse wave velocity (aPWV) is considered a valuable marker of aorta stiffening we investigated the influence of the O-rings induced aortic lumen stenosis on the aPWV during the early postoperative period in a sample of 3 patients.

    METHODS: The internal cross-sectional area and the corresponding radius at the level immediately caudally to the renal arteries (Aupper and Rupper) and at the site of the inflated O-rings (Aint and Rint) was calculated from postoperative images of Computed tomography using dedicated software (3Mensio Medical Imaging B.V., Bilthoven, The Netherlands). Accordingly, the difference in the previously mentioned parameters between these areas was recorded. Noninvasive estimation of aPWV was conducted preoperatively and at 1-week and 1-month postoperatively with a brachial cuff-based automatic oscillometric device (Mobil-O-Graph; IEM, Stolberg, Germany).

    RESULTS: Aupper was 286, 385, and 286 mm(2) for the 3 patients with Aint being 116, 86 and 95 mm(2), corresponding to inflow stenosis of 60%, 75%, and 66%, respectively. Accordingly, the radius reduction of the lumen between Rupper and Rint was 35%, 50%, and 60%. aPWV was kept quite constant for all patients 1-week and 1-month postoperatively, ranging 13.2–13.7, 11.4-11.5, and 8.3-8.6 m/sec, respectively.

    CONCLUSIONS: The inflow restriction caused by the stiff, inflatable O-rings does not necessarily coincide with significant increase of aortic stiffness in the early postoperative period. Furthermore studies with more hemodynamic indices and longer follow-up are needed to delineate the impact of the Ovation's unique structural pattern on central hemodynamics.

92. Kontopodis N, Antoniou SA, **Georgakarakos E**, Ioannou CV. Endovascular vs Open Aneurysm Repair in the Young: Systematic Review and Meta-analysis. J Endovasc Ther. 2015; 22:897-904.

    PURPOSE: To examine the results of elective abdominal aortic aneurysm (AAA) repair in young patients (<70 years old) and compare the outcome of endovascular aneurysm repair (EVAR) and open surgical repair (OSR) techniques.

    METHODS: The MEDLINE, CENTRAL, and OpenGray databases were searched from January 2000 to March 2015. Periprocedural (30-day mortality and morbidity, length of hospitalization) and long-term outcomes (long-term mortality, rate of secondary procedures) were compared between young patients undergoing EVAR and OSR. For the meta-analysis of comparative studies, the random effects model was used to calculate combined overall effect sizes of pooled data. One randomized control trial and 8 observational studies were included in the analysis. Data are presented as the odds ratio (OR) or mean difference (MD) with 95% confidence interval (CI).

    RESULTS: EVAR was associated with a decreased risk of 30-day mortality (OR 0.25, 95% CI 0.14 to 0.42, p<0.001) and 30-day morbidity (OR 0.36, 95% CI 0.22 to 0.58, p<0.001) and shorter length of hospitalization (MD -4.28 days, 95% CI -4.86 to -3.70, p<0.001). Moreover, a potential long-term survival benefit did not reach statistical significance (OR 0.48, 95% CI 0.17 to 1.34, p=0.16), whereas the need for reintervention was similar between EVAR and OSR groups (OR 0.94, 95% CI 0.61 to 1.54, p=0.89).

    CONCLUSION: There are insufficient data for definite conclusions to be drawn regarding the relative effectiveness of EVAR and OSR in young subjects. Contemporary evidence suggests that EVAR should not be discouraged in this cohort of patients based solely on the age criterion.

93. Argyriou C, Georgiadis GS, **Georgakarakos EI**, Roumeliotis S, Roumeliotis A, Kikas P, Tziakas D, Lazarides MK. Applying Evidence-Based Medicine in Actual Clinical Practice: Can We Bridge the Gap? A Review of the Literature. Hellenic J Cardiol. 2015; 56:373–8.

    Ανασκόπηση της βιβλιογραφίας αναφορικά με την εφαρμογή στην καθημερινή κλινική πράξη των κανόνων εφαρμογής της ιατρικής βασισμένης σε πειστήρια.

94. Georgiadis GS, **Georgakarakos EI**, Schoretsanitis N, Argyriou CC, Antoniou GA, Lazarides MK. Valve-Like and Protruding Calcified Intimal Flap Complicating Common Iliac Arteries Kissing Stenting. Case Rep Vasc Med. 2015; 2015:451962.

Endovascular therapy for iliac artery chronic total occlusions is nowadays associated with low rates of procedure-related complications and improved clinical outcomes, and it is predominantly used as first-line therapy prior to aortobifemoral bypass grafting. Herein, we describe the case of a patient presenting with an ischemic left foot digit ulcer and suffering complex aortoiliac lesions, who received common iliac arteries kissing stents, illustrating at final antegrade and retrograde angiograms the early recognition of a blood flow obstructing valve-like calcified intimal flap protruding through the stent struts, which was obstructing antegrade but not retrograde unilateral iliac arterial axis blood flow. The problem was resolved by reconstructing the aortic bifurcation at a more proximal level. Completion angiogram verified normal patency of aorta and iliac vessels. Additionally, a severe left femoral bifurcation stenosis was also corrected by endarterectomy-arterioplasty with a bovine patch. Postintervention ankle brachial pressure indices were significantly improved. At the 6-month and 2-year follow-up, normal peripheral pulses were still reported without intermittent claudication suggesting the durability of the procedure. Through stent-protruding calcified intimal flap, is a very rare, but existing source of antegrade blood flow obstruction after common iliac arteries kissing stents.

95. **Georgakarakos E**, Xenakis A, Bisdas T, Georgiadis GS, Schoretsanitis N, Antoniou GA, Lazarides M. The shear stress profile of the pivotal fenestrated endograft at the level of the renal branches: A computational study for complex aortic aneurysms. Vascular. 2016; 24:368-77.

    PURPOSE: This study investigated the impact of the variant angulations on the values and distribution of wall shear stress on the renal branches and the mating vessels of a pivotal fenestrated design.

    METHODS: An idealized endograft model of two renal branches was computationally reconstructed with variable angulations of the left renal branch. These ranged from the 1:30' to 3:30' o'clock position, corresponding from 45° to 105° with increments of 15°. A fluid-structure-interaction analysis was performed to estimate the wall shear stress.

    RESULTS: The proximal part of the renal branch preserved quite constant wall shear stress. The transition zone between its distal end and the renal artery showed the highest values compared to the proximal and middle segments, ranging from 8.9 to 12.4 Pa. The lowest stress values presented at 90° whereas the highest at 45°. The post-mating arterial segment showed constantly low stress values regardless of the pivotal branch angle (6.3 to 6.6 Pa). The 45° configuration showed a distribution of the highest stress posteriorly whereas the 105°-angulation anteriorly.

    CONCLUSIONS: The variant horizontal branch orientation influences the wall shear stress distribution across its length and affects its values only at its transition with the mating vessel. These findings and their potential association with adverse effects deserve further clinical validation.

96. **Georgakarakos E**, Argyriou C, Georgiadis GS, Lazarides MK. Non-Invasive Pulse Wave Analysis in a Thrombus-Free Abdominal Aortic Aneurysm after Implantation of a Nitinol Aortic Endograft. Front Surg. 2016; 2:68.

    Endovascular aneurysm repair has been associated with changes in arterial stiffness, as estimated by pulse wave velocity (PWV). This marker is influenced by the medical status of the patient, the elastic characteristics of the aneurysm wall, and the presence of intraluminal thrombus. Therefore, in order to delineate the influence of the endograft implantation in the early post-operative period, we conducted non-invasively pulse wave analysis in a male patient with an abdominal aortic aneurysm containing no intraluminal thrombus, unremarkable past medical history, and absence of peripheral arterial disease. The estimated parameters were the systolic and diastolic pressure calculated at the aortic level (central pressures), PWV, augmentation pressure (AP) and augmentation index (AI), pressure wave reflection magnitude (RM), and peripheral resistance. Central systolic and diastolic pressure decreased post-operatively. PWV showed subtle changes from 11.6 to 10.6 and 10.9 m/s at 1-week and 1-month, respectively. Accordingly, the AI decreased from 28 to 14% and continued to drop to 25%. The AP decreased gradually from 15 to 6 and 4 mmHg. The wave RM dropped from 68 to 52% at 1-month. Finally, the peripheral resistance dropped from 1.41 to 0.99 and 0.85 dyn × s × cm(-5). Our example shows that the implantation of an aortic endograft can modify the pressure wave reflection over the aortic bifurcation without causing significant alterations in PWV.

97. **Georgakarakos E**, Ioannou CV, Georgiadis GS, Storck M, Trellopoulos G, Koutsias S, Lazarides MK. The ovation abdominal stent graft for the treatment of abdominal aortic aneurysms: current evidence and future perspectives. Expert Rev Med Devices. 2016; 13:253-62.

The Ovation Abdominal Stent Graft System is a trimodular endoprosthesis recently introduced for the endovascular repair of abdominal aortic aneurysm (AAA). It uncouples the stages of stent-graft fixation and sealing with the suprarenal fixation achieved with a long, rigid anchored stent while the sealing onto the neck is accomplished via a pair of polymer-filled inflatable rings that accommodate to each patient's individual anatomy. Moreover, the lack of Nitinol support enables lower profiles of the endograft's delivery system, thus facilitating the navigation through angulated and stenosed iliac vessels. Ovation's novel design expands further the AAA eligibility to endovascular repair. This article discusses the clinical and hemodynamic consequences of the Ovation design and contributes to better understanding of current and future implications.

98. **Georgakarakos E**, Argyriou C, Georgiadis GS, Ioannou CV, Lazarides MK. Immediate hemodynamic changes after revascularization of complete infrarenal aortic occlusion: A classic issue revisited. Med Hypotheses. 2016; 87:22-7.

    Chronic total occlusion of the infrarenal aorta (CTOA) is a rare disease, characterized by severe impairment of limb perfusion. It is advocated that revascularization may improve survival rates, presumably due to improved cardiovascular performance; however no experimental or clinical data exist to identify a clear causative correlation and provide a relevant pathophysiologic background. Therefore we conducted a pilot study based on pulse wave analysis to detect the hemodynamic changes immediately after revascularization, in a group of six consecutive patients with CTOA. All patients were subjected to non-invasive measurements 1 day before surgery and at the end of the 1st postoperative month. Pulse wave analysis was performed noninvasively with a novel validated brachial cuff-based automatic oscillometric device. All patients had markedly preoperative high Augmentation Index (adjusted at heart rate 75 beats/min, AI@75). The AI@75 decreased from 46 ± 6.6 preoperatively to 24 ± 5.7 (p 0.0002). Wave reflection magnitude decreased from 72.3 ± 5.2% to 63 ± 6.7% (p 0.02). Cardiax index increased from 2.8 ± 1.2 to 3.4 ± 1.2l/min × 1/m(2) (p 0.41). Pulse wave velocity remained practically unchanged post-interventionally. These findings show that central aorta hemodynamics can be improved immediately following revascularization procedures in patients with complete occlusion of the entire length of the infrarenal aorta and can constitute the background of improved postoperative life-expectancy.

99. Kontopodis N, Lioudaki S, Pantidis D, Papadopoulos G, Georgakarakos E, Ioannou CV. Advances in determining abdominal aortic aneurysm size and growth. World J Radiol. 2016; 8:148-58.

    Abdominal aortic aneurysm is a common pathology in the aging population of the developed world which carries a significant mortality in excess of 80% in case of rupture. Aneurysmal disease probably represents the only surgical condition in which size is such a critical determinant of the need for intervention and therefore the ability to accurately and reproducibly record aneurysm size and growth over time is of outmost importance. In the same time that imaging techniques may be limited by intra- and inter-observer variability and there may be inconsistencies due to different modalities [ultrasound, computed tomography (CT)], rapid technologic advancement have taken aortic imaging to the next level. Digital imaging, multi-detector scanners, thin slice CT and most- importantly the ability to perform 3-dimensional reconstruction and image post-processing have currently become widely available rendering most of the imaging modalities used in the past out of date. The aim of the current article is to report on various imaging methods and current state of the art techniques used to record aneurysm size and growth. Moreover we aim to emphasize on the future research directions and report on techniques which probably will be widely used and incorporated in clinical practice in the near future.

100. Schoretsanitis N, Argyriou C, Georgiadis GS, Lazaridis MK, Georgakarakos E. Hostile Neck in Abdominal Aortic Aneurysms: Does it Still Exist? Vasc Endovascular Surg. 2016; 50:208-10.

    Άρθρο προς τη Σύνταξη (editorial) που σχολιάζει τις εξελίξεις των ενδομοσχευμάτων νεώτερης διαμόρφωσης αναφορικά με την εφαρμογή και αποτελεσματικότητά τους στα ανευρύσματα κοιλιακής αορτής με εχθρικούς αυχένες.

101. **Georgakarakos E**, Trellopoulos G, Kontopodis N, Tsetis D, Ioannoub CV. The inflatable-rings fixation mechanism of the Trivascular Ovation® Stent Graft System: every revolution comes at a price! J Cardiovasc Surg (Torino). 2016; 57:479-81.

Αυθύπαρκτο γράμμα προς τη σύνταξη που περιγράφει τις ανατομικές συνθήκες υπό τις οποίες μπορεί να προκύψει το διεγχειρητικό πρόβλημα της συστροφής των σκελών του ενδομοσχεύματος Ovation και παράλληλα προτείνεται ένας χειρισμός για την επίλυσή του.

102. **Georgakarakos E**, Georgiadis GS, Argyriou C, Schoretsanitis N, Antoniou GA, Lazarides MK. Preliminary Single-Center Experience with the Bolton Treovance Endograft in the Treatment of Abdominal Aortic Aneurysms. Ann Vasc Surg. 2016; 34:68-74.

BACKGROUND: Our aim was to present our preliminary experience with the recently introduced Treovance aortic stent-graft device (Bolton Medical, Barcelona, Spain) in the treatment of abdominal aortic aneurysm (AAA).

METHODS: Eight patients underwent treatment of an infrarenal AAA (mean maximum diameter, 56.4 ± 6.8 mm) with the Treovance device. Iliac tortuosity was considered mild, moderate, or severe when ≥1 angulation of 45-90°, 1 angulation ≥90°, or ≥2 angulations ≥90°, respectively, were present.

RESULTS: Mild angulation of the infrarenal neck (10-45°) was present in 7 patients, whereas the remaining patient had severe infrarenal neck angulation (65°). Three patients had severe iliac tortuosity. Primary technical success was achieved in all but 1 patient in whom a type Ia endoleak was identified on completion angiogram. The endoleak was successfully treated with a proximal aortic cuff. A femoral access complication occurred in 1 patient. Mean follow-up was 6.8 months (range, 1-12). No device-related serious adverse events or rupture occurred during the given follow-up period. The only type II endoleak identified resolved spontaneously within 12 months.

CONCLUSIONS: The Treovance abdominal stent-graft system seems to guarantee an accurate, safe, and effective deployment in AAA even through angulated and tortuous iliac vessels. Although our preliminary results are promising, follow-up data are needed to establish the durability of this new-generation endovascular device in standard or challenging anatomies.

103. Ioannou CV, Kontopodis N, **Georgakarakos E**, Kehagias E, Metaxa E, Lioudaki S, Papaharilaou Y, Tsetis D. Routine use of an aortic balloon to resolve possible inflow stenosis induced by the inflatable ring fixation mechanism of the Ovation endograft. Radiol Med. 2016; 121: 882-889.

PURPOSE: To investigate if the routine use of an aortic balloon within 15-30 min after Ovation stent graft ring inflation would resolve any inflow stenosis which may reach 60% at the level of the sealing rings. Moreover, we estimated the potential hemodynamic compromise in these patients during rest and exercise.

METHODS: Following 3-dimensional reconstruction of AAA models, cross-sectional area of the infrarenal aorta just proximal the sealing mechanism (A aort, R aort, respectively) and internal area at the site of stenosis (A int, R int, respectively) were measured for 83. Forty-nine patients were managed without and 34 with an aortic balloon use. Pressure drop during rest and exercise was estimated.

RESULTS: Technical success was 98 % and there were no perioperative deaths, one type-I endoleak, and 12 (14.5 %) type-II endoleaks. Median A int and R int were significantly reduced compared to A aort [55 % reduction, 143 (range 28-380) mm2 vs 314 (range 177-531) mm2, P value <0.001] and R aort [42 % reduction, 6.75 (range 3-11) mm vs 10 (range 7.5-13) mm, P value <0.001]. The observed stenosis was significantly less for patients in whom an aortic balloon was used intraoperatively (area reduction 36 vs 59 %, P value = 0.009). This stenosis caused a statistically significant, but clinically insignificant ΔP in both groups during rest (0.13 vs 0.06 mmHg, P value = 0.02) and exercise (1 vs 0.5 mmHg, P value = 0.02).

CONCLUSION: The advantages of the unique sealing mechanism of the Ovation device seem to be accompanied by an inflow stenosis which is significantly reduced when neck molding with an aortic balloon is used. Overall, the hemodynamic impact of this abnormality seems to be clinically insignificant at 1-month follow-up.

104. **Georgakarakos E**. Estimating the influence of aortic-stent grafts after endovascular aneurysm repair: Are we missing something? Med Hypotheses. 2016; 97:26-30.

The implantation of a stiff aortic endograft for endovascular abdominal aneurysm repair (EVAR) has been reported to increase aortic stiffness and pulse wave velocity (PWV), raising potential concern over

deterioration of myocardial performance. Yet, additional stiffness indices such as the augmentation index (AIx), reflection magnitude (RM) and changes in augmentation pressure (AP) have not been studied adequately to facilitate and improve our knowledge regarding the ways that EVAR affects central hemodynamics. In this article it is suggested that the implantation of an aortic stent-graft exerts its immediate effects not only by interposing extra stiffness on the infrarenal segment but by also modifying the pulse wave reflection site and changing the aortic flow field without necessarily causing significant alterations in PWV. Hence, further studies on myocardial performance in large patient populations are expected to delineate the precise influence of different designs of EVAR endografts on the cardiovascular hemodynamic which, in turn, can affect the morbidity and survival of these patients.

105. Lazarides MK, Argyriou C, Antoniou GA, **Georgakarakos E**, Georgiadis GS. Lack of evidence for use of heparin-bonded grafts in access surgery: a meta-analysis. Semin Vasc Surg. 2016; 29(4):192-197.

The aim of this study was to evaluate the efficacy of heparin-bonded vascular grafts to offer improved outcomes compared with standard prosthetic grafts in access surgery. A systematic review and meta-analysis was performed and eight studies (seven observational studies and one randomized controlled trial) were included. The pooled 6-month and 1-year primary patency was not significantly different between heparin-bonded arteriovenous (AV) grafts and standard prosthetic AV grafts in seven studies reporting on 1,209 access procedures. The assisted primary patency and secondary patency at 1-year was not significantly different either. Heparin-bonded AV grafts offer no distinct advantage over standard prosthetic AV grafts and their preferential use in access surgery cannot be recommended based on the available evidence.

106. Raptis A, Xenos M, **Georgakarakos E**, Kouvelos G, Giannoukas A, Labropoulos N, Matsagkas M. Comparison of physiological and post-endovascular aneurysm repair infrarenal blood flow. Comput Methods Biomech Biomed Engin. 2017; 20(3):242-249.

Endovascular aneurysm repair (EVAR) of abdominal aortic aneurysms results in redirection of blood through the deployed endograft (EG). Even though EVAR is clinically effective, the absolute flow restoration is not warranted. Our purpose was to compare the physiological with the post-EVAR infrarenal flow conditions. We developed patient-specific models based on computed tomography data of five healthy volunteers and ten patients treated with the Endurant® stent-graft system. Wall shear stress (WSS), helicity, pressure and velocity fields were calculated using computational fluid dynamics. The results showed a decrease of peak WSS on the part of the EG that resides in the iliac arteries, compared to the physiological value ($p = 0.01$). At the abdominal part, the average helicity seems to increase after EVAR, while at the iliac arteries part, the intensity of helical flow seems physiological. Pressure drop and peak velocity in the iliac arteries part are lower than the physiological values ($p = 0.04$). The comparison revealed that most hemodynamic properties converge to normal levels at the abdominal part whereas statistically significant variations were observed in the iliac arteries part. The delineation of the differences between physiological and postoperative flow data could pave the way for the improvement of EG designs.

107. Georgiadis GS, VAN Herwaarden J, Saengprakai W, **Georgakarakos E**, Argyriou C, Schoretsanitis N, Giannoukas AD, Lazarides MK, Moll FL. Endovascular treatment of complex abdominal and thoracoabdominal type IV aortic aneurysms with fenestrated technology. J Cardiovasc Surg (Torino). 2017; 58(4):574-590.

BACKGROUND: The establishment use of fenestrated and branched devices to treat complex aortic aneurysms as a first-line management option has been previously reported. This article reviews the current literature of the use of fenestrated devices to treat complex abdominal and thoracoabdominal type IV aortic aneurysms as a first-line management option.

METHODS: A literature search was performed. This review particularly focuses on all the aspects of the use and results of fenestrated stent-grafts (SGs) in patients with complex abdominal and type IV thoracoabdominal aortic aneurysms and summarizes the available evidence.

RESULTS: The use of fenestrated SGs for complex aortic aneurysm disease has grown enormously the last years. SGs with fenestrations, scallops and occasionally branches have to be customized to each patient's anatomy and precisely deployed in vivo. Bridging covered stents between the main graft and the target vessels eventually exclude the aneurysm preserving blood flow to vital organs. Multiple device morphologies have been used incorporating the visceral arteries in various combinations. High technical

success rates and satisfactory perioperative outcomes are described as well as mid- and long-term success and durability including target vessel and branch stent perfusion, data emerging mainly from high volume specialized centers. Percentage of target vessel successfully perfused was reported between 90.5 and 100%. 30-day mortality is reported between 0 and 4.1% while the lowest type 1 or type 3 endoleak rates were 2.5% and 1.3% respectively. Migration rates are kept below 3%. Renal failure was the most frequent complication reported. Advances in SG technology have reduced but not eliminated secondary interventions. Outcomes depend mostly on proximal extension of the disease which increases also the complexity of the repair. High level of expertise and organizational facilities are required for better mid- and long-term outcomes.

CONCLUSION: Fenestrated EVAR (fEVAR) has been shown to be safe and effective in the short and mid-term follow-up. Remaining issues including secondary interventions and the need for follow-up are still within the range of those reported for EVAR. These, continue to plague fEVAR for complex abdominal or type IV thoracoabdominal aortic aneurysms.

108. Georgiadis GS, Antoniou GA, Kantartzi K, **Georgakarakos EI**, Argyriou C, Passadakis P, Lazarides MK. Comparison of standard forearm prosthetic loop grafts to composite semiloop forearm grafts ("semi-grafts") in hemodialysis patients: A prospective study. Hemodial Int. 2017; 21(2):274-283.

Introduction: To prospectively assess the performance of composite semiloop antebrachial grafts ("semi-grafts," SGs) in hemodialysis patients. Methods Eighty-five patients who received 67 loop antebrachial grafts (LG-group) and 25 antebrachial semigrafts (SG-group) were enrolled. SGs were defined as those originating from the brachial artery and anastomosed with the proximal mature mid-antebrachial cephalic vein. Cephalic vein length should be at least 10 cm in length and of ≥5 mm in diameter for inclusion in the SG-group. LG-group included all possible outflow vein options of minimum diameter 3 mm. Kaplan-Meier statistics was used for comparison of groups. Findings Main indication for a SG was a failing radiocephalic fistula with extensive distal cephalic vein stenosis not amenable to correction or failed after endovascular repair or requiring long interposition grafting. The mean follow-up period was 20.16 ± 22.6 and 29.6 ± 36.7 months for the LG- and SG-group, respectively (P = 0.14). Forty-two patients died during the follow-up. Primary patency (up to first intervention or failure) at 6 and 12 months for LG- vs. SG-group was 93.9% vs. 83.7% and 47% vs. 55.8% (P = 0.08). Secondary patency (up to abandonment) was 58.2% vs. 61.1% and 36% vs. 45.8% at 12 and 24 months (P = 0.18). Mortality at 48 months was 22.4% (LG-group) and 24% (SG-group) (P = 0.9). Discussion There was a trend toward better primary and secondary patency rates for the SGs especially in the long-term. This is a valuable option in selected patients that access surgeons and nephrologists should be aware of.

109. **Georgakarakos E**, Georgiadis GS, Christopoulos DC, Lazarides MK. Vascular Educational Needs in the "Real World" and Teaching of Vascular Surgery in Medical Schools: Evidence and Suggestions. Angiology. 2016; 68:93-95.

Άρθρο σύνταξης (editorial) που παρουσιάζει και αναλύει τους λόγους διδασκαλίας της Αγγειοχειρουργικής ως αυτόνομο υποχρεωτικό μάθημα στο προπτυχιακό πρόγραμμα των Ιατρικών Σχολών. Παράλληλα αναπτύσσεται και ο τρόπος διδασκαλίας του υποχρεωτικού μαθήματος της Αγγειοχειρουργικής στους τεταρτοετείς φοιτητές του Ιατρικού Τμήματος του Δημοκριτείου Πανεπιστημίου Θράκης.

110. **Georgakarakos E**, Georgiadis GS. Towards improvement of facilitating the contralateral limb cannulation of currently available endografts for the treatment of Abdominal Aortic Aneurysms: First innovate then intervene! Med Hypotheses. 2017; 98:87-88.

Γράμμα προς τη σύνταξη με αφορμή το ερευνητικό άρθρο των Mazzaccaro D, Sciarrini M, Nano G στο Med Hypotheses. 2016; 94:43-6. Στο κείμενό μας περιγράφονται τα τεχνικά χαρακτηριστικά και πλεονεκτήματα του αορτικού ενδομοσχεύματος Bolton Treovance.

111. **Georgakarakos E**, Souftas V. Shortening of the Sealing Zone With the Ovation Endograft. J Endovasc Ther. 2017; 24(2):198-200.

Πρόσκεληµµένο σχόλιο από τη Σύνταξη όπου αναλύονται τα τεχνικά πέονεκτηματα του ενδομοσχεύματος Endologix Ovation με αφορμή δημοσιευμένο άρθρο των De Donati et al. J Endovasc Ther. 2017; 24(2):191-197. ενώ στο κείμενό μας παρουσιάζεται και περιστατικό μας με διόρθωση επιπλοκής από το συγκεκριμένο ενδομόσχευμα.

112. **Georgakarakos E**, Argyriou C, Georgiadis GS, Lazarides MK. Pulse wave analysis after treatment of abdominal aortic endografts with the ovation device. Ann Vasc Surg. 2017; 40:146-153.

BACKGROUND: Ovation Aortic Stent-Graft System is a new device for the endovascular treatment of Abdominal Aortic Aneurysms achieving fixation via a 35-mm long, rigid ancored suprarenal stent and sealing stent at the infrarenal level by a means of a polymer-filling pair of inflatable O-rings which cause narrowing of flow lumen and regional stenosis. Thus, concerns have been raised regarding hemodynamic consequences associated with this new desing . Our preliminary report showed no significant increase of aortic pulse wave velocity (aPWV) immediately after implantation of the Ovation in 3 patients. We studied further the hemodynamic implications of the Ovation implantation in six patients for a follow-up of 6 months.

METHODS: A brachial cuff-based automatic oscillometric device (Mobil-O-Graph; IEM, Stolberg, Germany) was used to perform noninvasively pulse wave analysis and stiffness estimation. Measurements were held preoperatively in six patients treated for Abdominal Aortic Aneurysm, at the end of the 1st postoperative week, 1st and 6th postoperative month. Changes in systolic and diastolic blood pressure (cSyst, cDiast), heart rate (HR), aortic pulse wave velocity (aPWV), augmentation index (AI@75), augmentation pressure (AP) and in the amplitude ratio of the reflected-to-forward pressure waves (Reflection Magnitude, RM) were recorded and compared. Significant change in any parameter was examined via ANOVA repeated measures.

RESULTS: The cSyst was 132±19.6, 127±17.63, 131.3±19.96 and 129.83±31.72mmHg (p 0.81) and cDiast was 88±10.58, 86.83±11.72, 89.83±16.01 and 98.5±24.56 mmHg (p 0.40). The heart rate showed an increasing yet non-significant tendency (67±10.60, 75.1±8.63, 74.33±8.89 and 70.66±6.65 beats-per-minute, 0.27). The aPWV remained constant (11.61±1.88, 11.6±1.74, 11.8±2.08 and 11.85±2.30 m/sec, p 0.79). Similarly, RM (71.16±9.94, 60.66±11.79, 61.5±14.47 and 64.5±3.78), AI@75 (33.83±12.25, 22.16±7.93, 27.83±11.23 and 19.5±14.72) and AP (18.33±10.36, 9.83±4.91, 11.5±9.22 and 12±15.08mmHg) remained practically unaltered during the follow-up period (p: 0.79, 0.25, 0.10 and 0.27, respectively.

CONCLUSIONS: The implantation of the Ovation Stent Graft does not cause increase in aortic stiffness or in pulse wave reflection in the mid-period. The rationale of investigating non-invasively the impact of aortic stent-grafts on the mechanical properties and the hemodynamic parameters should be encouraged since such findings may contribute to further development of newer endograft designs.

113. **Georgakarakos E**, Schoretsanitis N, Koufopoulos G, Paulou K, Lazarides MK. Abdominal pain on presence of small abdominal aortic aneurysms: if in doubt, cut it out! Ann Vasc Surg. 2017; 40:300.e17-300.e21.

Although small (<5cm) Abdominal Aortic Aneurysm (AAA) have been associated with symptoms and indication for intervention scarcely, the clinicians should never exclude such potential association especially in the absence of other overt pathological findings. In such cases, a surgical exploration with consequent intervention, if feasible, should be justified in order to prevent a detrimental evolution in a dubious scenario. In this article we present two cases of patients with small AAA presenting with severe abdominal pain. In absence of other solid clinical and radiological pathological findings, both patients underwent laparotomy where an inflammatory small AAA was identified and subjected either to resection and restoration with a tube graft or secondary endovascular repair since the periarotic fibrosis precluded the open repair. The characteristics and rationale of treatment modalities are exemplified and discussed.

114. Argyriou C, **Georgakarakos E**, Georgiadis GS, Schoretsanitis N, Lazarides MK. The effect of revascularization on the hemodynamic profile of patients with infrarenal aortic occlusion. Ann Vasc Surg. 2017; 43:210-217.

Objective: Patients undergoing revascularization for infrarenal aortic occlusion (IAO) have been reported to present improved survival rates compared to those treated conservatively. Aim of this study was to investigate the hemodynamic changes induced after revascularization for IAO, as expressed with pulse wave velocity (PWV), Augmentation Index (AIx), Augmentation Pressure (AP) and pulse wave reflection coefficient (RC).

Materials and Methods: Twelve patients underwent revascularization (9 aortobifemoral / aortobiiliac bypasses, 2 primary iliac stenting and 1 hybrid procedure of unilateral aortoiliac stenting and crossover bypass). Calculation of hemodynamic parameters was performed in all patients preoperatively, at 1-month and 1-year postoperatively. Pulse wave analysis was performed noninvasively with a novel validated

brachial cuff-based automatic oscillometric device (Mobil-O-Graph; IEM, Stolberg, Germany). The estimated hemodynamic parameters were augmentation index (AIx), augmentation pressure (AP), reflection coefficient (RC) and pulse wave velocity (PWV). Data were analyzed with the Friedman ANOVA test.

Results: Aix decreased significantly at 1-month and further at 1-year postoperatively compared to preoperative values (24±11 and 17±13 vs. 34±13.5 respectively, p:0.0006). AP decreased at 1-month and 1-year postoperatively compared to preoperative values (6.5±4mmHg and 8±6.5mmHg vs. 13±12mmHg respectively, p:0.045). RC decreased also at 1-month and 1-year postoperatively compared to preoperative values (62±5.5, 64±4.3 vs. 73±5.1 respectively, p:0.002). However, changes in PWV were less prominent in this short/term postoperative period.

Conclusion: Improved hemodynamic profile may theoretically contribute to the enhanced survival rates of these patients.

115. **Georgakarakos E**, Argyriou C, Schoretsanitis N, Georgiadis GS. Custom-made conical endograft in the treatment of saccular abdominal aortic aneurysms with tight and calcified distal neck: thinking out of the box. Ann Vasc Surg. 2017; 39:291.e15-291.e19.

Purpose: to describe the use of the combination of a conical custom-made TREO® (TREO CM) stent-graft in the treatment of a saccular abdominal aortic endograft (AAA) with long but tight and calcified distal neck.

Technique: A 65-year female patient was treated for a saccular 5.2 cm AAA with a 3cm-long but calcified and tight (16mm) distal neck, precluding the safe use of a bifurcated endograft. Since the patient refused an open surgery, a conical TREO CM endograft was manufactured with 20% proximal oversizing, whereas the 3cm caudal sealing segment demonstrated a conical configuration comprised of a 2cm and 1cm nitinol-supported zones of 20% and 10% oversizing, respectively, in order to avoid excessive strain and incomplete expand at the most distal calcified area, leading ultimately to an insidious infolding and consequent type Ib endoleak. A 24 x 40mm Treovance aortic cuff was centrally deployed resulting in a 30mm overlap with the main endograft. After 6 months, there is complete sealing and the AAA sac has been shrunk to 45mm.

Conclusion: The use of a conical Treo CM endograft with a proximal cuff provides a firm fixation centrally and a sufficient distal sealing design in AAAs with calcified and tight distal aorta, constituting a reliable alternative to bifurcated endografts or aortouniliac configurations followed by crossover adjuncts.

116. Schoretsanitis N, **Georgakarakos E**, Argyriou C, Ktenidis K, Georgiadis GS. A critical appraisal of endovascular stent-grafts in the management of abdominal aortic aneurysms. Radiol Med. 2017; 122(4):309-318.

Endovascular repair of abdominal aortic aneurysms has widely replaced the open surgical repair due to its minimal invasive nature and the accompanying lower perioperative mortality and morbidity. During the past two decades, certain improvements and developments have provided a wide variety of endograft structural designs and geometric patterns, enabling the physician to approach a more patient-specific treatment of AAA. This review presents the currently available aortic endografts and describes the clinical, technical and mechanical characteristics of them.

117. Bafitis V, Keskinis C, Katsikogianni F, Katsaros I, Lazarides MK, **Georgakarakos E**. The undergraduate teaching of vascular surgery in Greek medical schools: theory and clinical practice. Int Angiol. 2017; 36(4):386-391.

BACKGROUND: The objective of this survey was to document and analyze the teaching methods of vascular surgery (VS) in the undergraduate curricula of the seven Greek medical schools.

METHODS: The type of VS subject (core, selective, integrated in other subject), the type of clinical practice, and the specialty of the VS tutors were recorded from the curriculum of each medical school, as documented online. The information was cross-checked with the academic tutors of each Medical School via phone contact and verified by ten medical students of Medical School.

RESULTS: VS is taught mainly as part of general surgery (GS) in four medical schools, as part of another academic subject in two MS but as a core subject in only one Medical School. Five out of seven curricula offer VS as selective subject while three of them focusing on the hemodynamic principles of Angiology and VS. The specialty of instructors was VS in every Greek Medical School.

CONCLUSIONS: Despite the great need for diagnosis and treatment of vascular diseases we recorded a limited VS training among the undergraduate Greek curricula. This heterogeneity does not ensure high-quality education in VS. Furthermore, emphasis on clinical skill acquisition should be further encouraged.

118. **Georgakarakos E,** Pitoulias G, Schoretsanitis N, Argyriou C, Mavros DM, Lazarides MK, Georgiadis GS. Early Results of the Bolton Treovance Endograft in the Treatment of Abdominal Aortic Aneurysms. J Endovasc Ther. 2017; 24(4):559-565.

    PURPOSE: To present early results with the Treovance aortic stent-graft in the treatment of abdominal aortic aneurysms (AAAs).

    METHODS: Between October 2013 and January 2016, 35 consecutive AAA patients (mean age 74±7.7 years; 32 men) were treated with Treovance. The maximum diameter of the treated AAA was 60±9 cm. Nine (25%) patients presented with concomitant iliac aneurysms. Seven (20%) AAAs had infrarenal neck angulation >60°. The infrarenal neck length and diameter were 21.6±12.6 mm and 25.7±4.6 mm, respectively. Sixteen (45%) AAAs had a reversed tapered neck contour. Six (17%) and 9 (25%) patients showed severe or moderate iliac tortuosity, respectively. Primary endpoints were endoleak, reintervention, and aneurysm-related death.

    RESULTS: Primary technical success was 94% due to 2 intraoperative type Ia endoleaks, which were successfully treated with a proximal aortic extension (100% assisted primary technical success). Local dissection was encountered in 5 (7%) of 70 femoral artery access sites in 4 patients. During a mean 12-month follow-up (range 6-24), clinical success was 97%. No type I or III endoleak, death, AAA rupture, open conversion, or device-related serious adverse events were documented. Four type II endoleaks were detected; one resolved spontaneously at 12 months and 2 remained stable, while one associated with AAA sac enlargement was treated successfully with embolization of the lumbar arteries (3% reintervention rate).

    CONCLUSION: Treovance shows accurate deployment even through angulated and tortuous iliac vessels and presents satisfactory conformability in highly angulated necks with acceptable clinical results. Future development to lower the profile and increase the flexibility of its delivery system will enhance its applicability in cases of narrow access vessels.

119. Argyriou C, Georgiadis GS, Lazarides MK, **Georgakarakos E**, Antoniou GA. Endograft Infection After Endovascular Abdominal Aortic Aneurysm Repair: A Systematic Review and Meta-analysis. J Endovasc Ther. 2017; 24(5):688-697.

    PURPOSE: To report a meta-analysis of the published evidence on the outcomes of aortic endograft infection after endovascular aneurysm repair (EVAR).

    METHODS: A search of electronic information sources (PubMed/MEDLINE, SCOPUS, CENTRAL) and bibliographic reference lists identified 12 studies reporting on 362 patients (mean age 72 years; 279 men). The methodological quality of the selected studies was assessed using the Newcastle-Ottawa scale. Endpoints were 30-day/in-hospital mortality and follow-up mortality. Pooled estimates are reported with the 95% confidence interval (CI). The review was registered at the International Prospective Register of Systematic Reviews in Health and Social Care (CRD42016034166).

    RESULTS: The incidence of graft infection after EVAR was 0.6% (95% CI 0.4% to 0.8%). The time from implantation to diagnosis ranged from 1 to 128 months (mean 25). The majority of patients (293, 81%) underwent surgical treatment (95% CI 77% to 83%); 9 (2.5%) patients (95% CI 21% to 43%) received conservative treatment. Aortic replacement with a prosthetic graft was performed in 58% (95% CI 52% to 62%), whereas cryopreserved allografts and autologous grafts were used in 31% (95% CI 28% to 33%) and 11% (95% CI% 8 to 14%), respectively. Less than half of the patients (40%) had emergency surgery. The pooled estimate of 30-day/in-hospital mortality was 26.6% (95% CI 16.9% to 39.2%). The pooled 30-day/in-hospital mortality for 9 patients treated conservatively was 63.3% (95% CI 30.7% to 87.0%). The pooled overall follow-up mortality was 45.7% (95% CI 36.4% to 55.4%) vs 58.6% (95% CI 28.8% to 83.3%) for the 9 patients receiving conservative treatment.

    CONCLUSION: Aortic endograft infection is a rare complication after EVAR. Surgical treatment with complete xplantation of the infected endograft seems to be the optimal management in selected patients. Supportive medical treatment without surgical intervention has a significant associated mortality.

120. Raptis A, Xenos M, **Georgakarakos E**, Kouvelos G, Giannoukas A, Matsagkas M. Hemodynamic profile of two aortic endografts accounting for their postimplantation position. J Med Devices. 2017;11(2):021003-1 - 021003-8.

    Endovascular aneurysm repair (EVAR) is a clinically effective technique for treating anatomically eligible abdominal aortic aneurysms (AAAs), involving the deployment of an endograft (EG) that is designed to prevent blood leakage in the aneurysmal sac. While most EGs have equivalent operating principles, the hemodynamic environment established by different EGs is not necessarily the same. So, to unveil the post-EVAR hemodynamic properties, we need an EG-specific computational approach that currently lacks from the literature. Endurant and Excluder are two EGs with similar pre-installation designs. We assumed that the flow conditions in the particular EGs do not vary significantly. The hypothesis was tested combining image reconstructions, computational fluid dynamics (CFD), and statistics, taking into account the postimplantation position of the EGs. Ten patients with Endurant EGs and ten patients with Excluder EGs were included in this study. The two groups were matched with respect to the preoperative morphological characteristics of the AAAs. The EG models are derived from image reconstructions of postoperative computed tomography scans. Wall shear stress (WSS), displacement force, velocity, and helicity were calculated in regions of interest within the EG structures, i.e., the main body, the upper and lower part of the limbs. Excluder generated higher WSS compared to Endurant, especially on the lower part of the limbs (p=0.001). Spatial fluctuations of WSS were observed on the upper part of the Excluder limbs. Higher blood velocity was induced by Excluder in all the regions of interest (p=0.04, p=0.01, and p=0.004). Focal points of secondary flow were detected in the main body of Endurant and the limbs of Excluder. The displacement force acting on the lower part of the Excluder limbs was stronger compared to the Endurant one (p=0.03). The results showed that two similar EGs implanted in similar AAAs can induce significantly different flow properties. The delineation of the hemodynamic features associated with the various commercially available EGs could further promote the personalization of treatment offered to aneurysmal patients and inspire ideas for the improvement of EG designs in the future.

121. Argyriou C, Papasideris C, Antoniou GA, **Georgakarakos E**, Papanas N, Lazarides MK, Georgiadis GS. The effectiveness of various interventions versus standard stripping in patients with varicose veins in terms of quality of life. Phlebology. 2018; 33(7):439-450.

    Purpose Lower limb varicose veins have a significant effect upon the quality of life and a considerable socioeconomic impact despite their relatively benign nature. The aim of this study is to compare the effects of various therapeutic strategies among patients with varicose veins to surgical ligation and vein stripping on the basis of quality of life. Methods PubMed/Medline and Scopus databases were systemically searched from 1 January 2000 until 23 December 2015 for studies reporting outcome on the quality of life of different treatment techniques for varicose veins. We used Cohen's d to make the outcomes of the reported scales comparable. Heterogeneity was calculated with the use of the Q statistic and the I2. Results A total of 1047 participants were randomized across all analyzed trials. The number of participants in a single trial ranged from 30 to 308. The majority of participants in any trial were C2 on the CEAP scores. Overall, the quality of evidence was low. For the meta-analysis performed at 12 months postintervention (seven studies, n = 1047 patients) and after random effects meta-analyses due to high heterogeneity, no differences are observed between intervention and surgical ligation and vein stripping. The pooled estimate is -0.001 and the 95% confidence interval is -0.069 to 0.067 with a p = 0.98. In the case of the 24 months, postintervention analysis (six studies, n = 840 patients) the inference is almost identical. The effect of various interventional modes of treatment compared to surgical ligation and vein stripping is negligible in terms of clinical outcomes and quality of life so that surgical ligation and vein stripping versus the other interventional procedures were equally effective approaches to treat great saphenous vein incompetence in terms of quality of life measurements. Conclusion The procedures were at least equally efficient in treating patients with varicose vein disease in terms of quality of life assessment tools at 12 and 24 months compared to surgical ligation and vein stripping.

122. **Georgakarakos E**, Xenakis A, Georgiadis GS. Estimating the hemodynamic influence of variable main body-to-iliac limb length ratios in aortic endografts. Int Angiol. 2018; 37(1):41-45.

    BACKGROUND: We conducted a computational study to assess the hemodynamic impact of variant main body-to-iliac limb length (L1/L2) ratios on certain hemodynamic parameters acting on the endograft (EG) either on the normal bifurcated (Bif) or the cross-limb (Cx) fashion.

    METHODS: A customary bifurcated 3D model was computationally created and meshed using the commercially available ANSYS ICEM (Ansys Inc., Canonsburg, PA, USA) software. The total length of the EG, was kept constant, while the L1/L2 ratio ranged from 0.3 to 1.5 in the Bif and Cx reconstructed EG

models. The compliance of the graft was modeled using a Fluid Structure Interaction method. Important hemodynamic parameters such as pressure drop along EG, wall shear stress (WSS) and helicity were calculated.

RESULTS: The greatest pressure decrease across EG was calculated in the peak systolic phase. With increasing L1/L2 it was found that the Pressure Drop was increasing for the Cx configuration, while decreasing for the Bif. The greatest helicity (4.1 m/s2) was seen in peak systole of Cx with ratio of 1.5 whereas its greatest value (2 m/s2) was met in peak systole in the Bif with the shortest L1/L2 ratio (0.3). Similarly, the maximum WSS value was highest (2.74Pa) in the peak systole for the 1.5 L1/L2 of the Cx configuration, while the maximum WSS value equaled 2 Pa for all length ratios of the Bif modification (with the WSS found for L1/L2=0.3 being marginally higher). There was greater discrepancy in the WSS values for all L1/L2 ratios of the Cx bifurcation compared to Bif.

CONCLUSIONS: Different L1/L2 rations are shown to have an impact on the pressure distribution along the entire EG while the length ratio predisposing to highest helicity or WSS values is also determined by the iliac limbs pattern of the EG. Since current custom-made EG solutions can reproduce variability in main-body/iliac limbs length ratios, further computational as well as clinical research is warranted to delineate and predict the hemodynamic and clinical effect of variable length ratios.

123. **Georgakarakos E**, Dimitriadis S. Posterior Contained Rupture of an Abdominal Aortic Aneurysm Within the Psoas Muscle After Endovascular Repair. Eur J Vasc Endovasc Surg. 2018; 55(4):527.

    Βραχεία παρουσίαση σπάνιου περιστατικού όπου περιγράφεται η διάγνωση και χειρουργική αντιμετώπισή του.

124. **Georgakarakos E**, Kratimenos T, Koutsoumpelis A, Georgiadis GS. The Bolton Treo endograft for treatment of abdominal aortic aneurysms: just another trimodular platform? Expert Rev Med Devices. 2018; 15(1):5-14.

    The Treo abdominal aortic stent graft system (Bolton Medical, Barcelona, Spain) is a trimodular endovascular endoprosthesis recently introduced for the endovascular repair of abdominal aortic aneurysms (AAA). It presents some unique structural characteristics such as the combination of suprarenal and infrarenal fixation, variability of the main-body length, lock-stent mechanism in the iliac limbs to enhance their stability. Areas covered: This article discusses the technical features and clinical performance of Treo as well as the interesting hemodynamic consequences of its design. Expert commentary: The Treo aortic stent-graft provides accurate deployment, secure proximal seal and fixation as well as efficient conformability in angulated necks. Early results drawn from single-center studies are promising with acceptable technical and clinical success. Moreover, the custom-made solution provided with the Treo platform is one of the most intriguing challenges in current endovascular era and is expected to broaden significantly the armamentarium of endovascular specialists.

125. Schoretsanitis N, Argyriou C, Nikova AS, Valsamidou CD, **Georgakarakos EI**, Lazarides MK, Georgiadis GS. Positional Changes of an Endurant Endograft Leading to Simultaneous Ipsilateral Iliac Limb Obstruction and Contralateral Type IIIa Endoleak. Ann Vasc Surg. 2018; 48:252.e9-252.e14.

    We report the case of a 79-year-old man who was admitted to our department with acute limb ischemia due to the occlusion of the left iliac limb of an Endurant endograft. The admission computed tomography angiography revealed also a type IIIa endoleak due to modular disconnection of the iliac extensions from the right iliac limb of the endograft main body. Interestingly, during the 4-year post-endovascular aneurysm repair period, an increased kinking of the right limb has been observed leading to an almost cross-limb configuration of the limbs at the time of complications. To our knowledge, this is the first case in the literature of the simultaneous presence of limb thrombosis and late type IIIa endoleak with this particular device. The ischemia was treated with a femoro-femoral cross-over bypass, and the endoleak was corrected with the position of 2 Endurant iliac limb extensions bridging the dislocated endograft pieces.

126. **Georgakarakos E**, Tasopoulou KM, Koutsoumpelis A, Georgiadis GS. The Importance of Profunda Femoris Artery Justifies Further the Endovascular Approach in Critical Limb Ischemia. Ann Vasc Surg. 2018; 49:318-319.

    Γράμμα προς τη σύνταξη όπου συζητούνται τα αποτελέσματα της σπάνιας μεθόδους της αγγειοπλαστικής στην εν τω βάθει μηριαία αρτηρία, ως συμπληρωματική επίκριση στην ερμηνεία των αποτελεσμάτων της

κλινικής μελέτης των Taurino M. et al., Ann Vasc Surg 2017; 45:16–21. Παράλληλα παρουσιάζεται και η αντιμετώπιση αντίστοιχου δικού μας περιστατικού.

127. Lazarides MK, Argyriou C, Koutsoumpelis A, **Georgakarakos EI**, Georgiadis GS. Thigh arteriovenous grafts. Quantitative comparison with alternative options: A meta-analysis. J Vasc Access. 2018; 19(5):430-435.

    Thigh arteriovenous grafts are required in a number of patients with exhausted upper extremity veins and comprise 1%-5% of the total access procedures performed. Alternative autogenous lower extremity options are the rarely used sapheno-tibial arteriovenous fistulae, the saphenous vein transpositions, and the femoral vein transpositions. The latter have proven to be the most durable lower limb access procedures, with low infection rates and their primary patency rates ranged from 74% up to 87% at 2 years. Synthetic thigh grafts are suitable for patients who are not good candidates for any upper limb or any autogenous lower limb access and their secondary patency rates ranged from 54% up to 83% at 2 years. Thigh grafts often get infected and their average weighed infection rate in 920 such grafts included in eight large series was 22.9%. A literature search was performed to evaluate thigh grafts compared with alternative options using meta-analysis. Lower limb accesses were found superior compared to HeRO® device regarding 1-year primary failure rate (odds ratio = 0.28, confidence interval = 0.09-0.88, p = 0.03) and additionally autogenous lower limb accesses were found superior compared to thigh grafts regarding the 1-year primary failure rate (odds ratio = 6.54, confidence interval = 2.29-18.72, p = 0.0005).

128. **Georgakarakos E**, Koutsoumpelis A. Commentary: The Unsupported Nitinol Main Body of the Ovation Device: Blamed More Often Than Deserved? J Endovasc Ther. 2018; 25(2):255-256.

    Γράμμα προς τη σύνταξη ως επίκριση των αποτελεσμάτων της μελέτης των Ni W. et al., J Endovasc Ther. 2018; 25(2):252-254.

129. **Georgakarakos E**, Koutsoumpelis A. Use of balloon-expandable stents to support the efficacy of ultra-low profile endografts in the treatment of abdominal aortic aneurysms with challenging iliac anatomy. Diagn Interv Radiol. 2018; 24(2):113-114.

    Γράμμα προς τη σύνταξη ως επίκριση των αποτελεσμάτων της μελέτης των Mazzaccaro D, et al., Diagn Interv Radiol 2017; 23:448–453, όπου παράλληλα παρουσιάζεται και η αντιμετώπιση δύο αντίστοιχων δικού μας περιστατικών.

130. Kontopodis N, Tavlas E, **Georgakarakos E**, Galanakis N, Chronis C, Tsetis D, Ioannou CV. Has Anatomic Complexity of Abdominal Aortic Aneurysms Undergoing Open Surgical Repair Changed after the Introduction of Endovascular Treatment? Systematic Review and Meta-analysis of Comparative Studies. Ann Vasc Surg. 2018; 52:292-301.

    BACKGROUND: At a time when endovascular aneurysm repair (EVAR) is increasingly used to treat abdominal aortic aneurysms (AAAs), lesions undergoing open surgical repair (OSR) may present significant differences compared with those treated before wide EVAR availability. We aim to record discrepancies in AAAs surgically treated before and after the introduction of EVAR.

    METHODS: We conducted a systematic review of the literature and meta-analysis of comparative studies. The MEDLINE, CENTRAL, and OpenGrey databases were searched up to October 2017. Outcome measures were anatomic complexity, procedural details, and postoperative outcomes. The random-effects model was used to calculate combined overall effect sizes. Data are presented as odds ratio (OR) or mean difference (MD) with 95% confidence intervals (CIs).

    RESULTS: Five observational studies were included. These involved 1,091 patients treated in the pre-EVAR era and 802 in the post-EVAR era. In general, patients undergoing OSR during the first period presented more comorbidities. Increased anatomic complexity was found among patients in the second group as demonstrated by the increased rate of suprarenal clamping (10.5% vs. 22.3%; OR, 0.34; 95% CI, 0.24-0.50), left renal vein division (10.3% vs. 18.8%; OR, 0.46; 95% CI, 0.25-0.88), iliac aneurysm (28.3% vs. 44.9%; OR, 0.48; 95% CI, 0.37-0.64), and iliac occlusive disease (13.1% vs. 20.2%; OR, 0.59; 95% CI, 0.39-0.88). Intraoperative use of blood products was greater during the latter period, but this difference did not reach statistical significance. Procedural duration was slightly increased in the same group. Morbidity and mortality were similar among the groups.

CONCLUSIONS: After the wide availability of endoluminal grafting, more compromised patients tend to be managed with EVAR, leaving a fitter patient population to undergo OSR. At the same time, anatomic complexity of AAAs undergoing open surgery has considerably increased, requiring advanced proximal aortic surgical expertise to deal with these complex aortic pathologies. Overall, morbidity and mortality remained unchanged, possibly due to the counterbalancing effects of these factors.

131. **Georgakarakos E**. Editorial: Clinical and Hemodynamic Performance of Aortic Endografts. Front Surg. 2018; 5:44.

    Εισαγωγικό συντακτικό άρθρο για το ερευνητικό θέμα με τίτλο: Clinical and Hemodynamic Performance of Aortic Endografts, όπως παρουσιάστηκε στην ιστοσελίδα: https://www.frontiersin.org/articles/10.3389/fsurg.2018.00044/full και στο οποίο είχα την τιμή να είμαι topic editor.

132. **Georgakarakos E**, Tsikliras N. Autologous Arteriovenous Loop Fistula in the Forearm With Transposition of a Matured Forearm Cephalic Vein. Eur J Vasc Endovasc Surg. 2018; 56(3):399.

    Βραχεία παρουσίαση πρωτότυπης χειρουργικής τεχνικής όπου περιγράφεται η διάσωση αυτόλογης αρτηριοφλεβικής επικοινωνίας στο αντιβράχιο με μετάθεση υπολειπόμενου βατού τμήματος κεφαλικής φλέβας.

133. Georgiadis GS, Argyriou C, Kantartzi K, **Georgakarakos EI**. Which is the most powerful adverse factor for autogenous access patency between diabetes and high arterial calcification burden? Ren Fail. 2018; 40(1):455-457.

    Γράμμα προς τη σύνταξη ως επίκριση των αποτελεσμάτων της μελέτης των Yan Y. et al., στο Ren Fail. 2018; 40:379–383.

134. **Georgakarakos E**, Pitoulias G. Favorable Results of the RATIONALE Registry: Are They Comparable? J Endovasc Ther. 2018; 25(6):735-736.

    Προσκεκλημμένο άρθρο σχολιασμού (commentary) ως επίκριση των αποτελεσμάτων της μελέτης των Uberoi R. Et al., στο J Endovasc Ther. 2018; 25(6):726-734.

135. Koutsoumpelis A, Argyriou C, Tasopoulou KM, **Georgakarakos EI**, Georgiadis GS. Novel Oral Anticoagulants in Peripheral Artery Disease: Current Evidence. Curr Pharm Des. 2018; 24(38):4511-4515.

    BACKGROUND: Peripheral artery disease is a common manifestation of systemic atherosclerosis which strongly correlates to cardiovascular morbidity and mortality. In addition, the progression of peripheral artery disease leads to an increased risk of limb loss. In order to reduce these events, the benchmark of treatment and research over the last years has been the antiplatelet therapy which aims at inhibition of platelet aggregation. Over the last years, new studies combining antiplatelet agents in different therapeutic schemes have been proven efficacious. Unfortunately, patients remain still at high risk of CV events. Novel Oral Anticoagulants have been introduced as alternatives to warfarin, in the prevention and treatment of venous thromboembolism. The rationale of using medication which acts on platelet activation and the coagulation pathway of thrombosis has led investigators to examine the role of Noac's in preventing CV events in patients with peripheral artery disease, stable or unstable.
    METHODS: The aim of this study is to review the current evidence with respect to recently published studies concerning the use of Novel anticoagulants in peripheral artery disease.
    RESULTS: The Compass trial has shown that a combination of rivaroxaban with traditional therapy may produce promising results in reducing amputation rates, stroke, cardiac events, and mortality, however, there are still safety issues with bleeding requiring acute care. The ePAD study has provided us with insight concerning safety and efficacy after peripheral angioplasty or stenting and actually the need for further research. The Voyager Pad study, following the steps of Compass, is studying the effect and safety of the addition of rivaroxaban to traditional therapy in the highest risk population aka patients undergoing peripheral revascularization. The evidence concerning patients with concomitant atrial fibrillation appears to be insufficient, however, recent guidelines propose the use of novel oral anticoagulants.
    CONCLUSION: For the time being, novel oral anticoagulants in combination with aspirin may provide an alternative treatment in PAD, however, it is deemed necessary to identify patient subgroups who will benefit the most.

136. **Georgakarakos E**, Koutsoumpelis A, Popidis S, Tasopoulou KM, Georgiadis GS. A Complex Case of Synchronous Thoracic and Abdominal Endoleak Repair with Custom-Made Relay NBS Thoracic Stent Graft and Abdominal Open Reconstruction. Ann Vasc Surg. 2019; 56:345-349.

    A 71-year old man with previous thoracic aneurysm endovascular repair and endovascular abdominal aneurysm repair presented with simultaneous type III endoleak from the thoracic components and type Ia endoleak from migration of the abdominal endograft, leading to enlargement of both aneurysms. A custom-made reverse tapered Relay NBS thoracic endograft was used to bridge the thoracic stent grafts. While a low-flow type III endoleak persisted in the immediate postoperative phase, because of incomplete apposition of the new stent graft, further deployment of its nitinol skeleton resulted in resolution of the endoleak at 1-week follow-up. The abdominal aneurysm enlargement was corrected via excision of the central segment of the abdominal endograft, preservation of the distal main body and limbs, and interposition of a short Dacron tube graft.

137. Koutsoumpelis A, **Georgakarakos E**, Tasopoulou KM, Kontopodis N, Argyriou C, Georgiadis GS. A clinical update on the mid-term clinical performance of the Ovation endograft. Expert Rev Med Devices. 2019; 16(1):57-62.

    INTRODUCTION: The Ovation stent-graft uncouples the steps of fixation and sealing via a pair of polymer-filled inflatable rings. Apart from the well-documented early results, newer data emerged for mid-term results of Ovation and are presented in this review.
    AREAS COVERED: Aim of this article was to report all current studies with the mid-term results of the particular endograft, the incidence of complications and failure, and discuss their management.
    EXPERT COMMENTARY: The Ovation stent-graft exhibits very satisfactory clinical mid-term results in abdominal aortic aneurysms treated within the instructions-for-use. It can also have a very promising role in challenging neck anatomies with conical shape and presence of thrombus or calcification. However, this should be not considered a panacea and long-term results are needed to validate this intriguing aspect.

138. **Georgakarakos E**, Xenakis A, Georgiadis GS. Computational Comparison Between a Classic Bifurcated Endograft and a Customized Model With "Dog Bone"-Shaped Limbs. J Endovasc Ther. 2019; 26(2):250-257.

    PURPOSE: To use computational simulations to compare the hemodynamic characteristics of a classic bifurcated stent-graft to an equally long endograft design with "dog bone"-shaped limbs (DB), which have large diameter proximal and distal ends and significant narrowing at the midsection to accommodate aneurysms with an extremely narrow bifurcation.
    MATERIALS AND METHODS: A 3-dimensional model was constructed using commercially available validated software. Inlet and outlet diameters were 28 and 14 mm, respectively. The total length of both models was kept constant to 180 mm, but the main body of the DB model was 20 mm shorter than the bifurcated endograft. The iliac limbs of the DB model had a 9-mm stenosis over a 30-mm segmental length in the midsection. Flow was quantified by time-averaged wall shear stress, oscillatory shear index (OSI), and relative residence time (RRT). The displacement forces in newtons (N) and maximum wall shear stress (WSS) in pascals (Pa) were compared during a cardiac cycle at 3 segments (main body, bifurcation, and iliac limbs) of both models with computational fluid dynamics analysis.
    RESULTS: The DB accommodation was associated with higher forces at the main body (range 3.15-4.9 N) compared with the classic configuration (1.56-2.34 N). On the contrary, the forces at the bifurcation (3.81-5.98 vs 3.76-5.54 N) and at the iliac limbs (0.34-0.85 vs 0.49-0.74 N) were comparable for both models. Accordingly, maximum WSS was detected at the iliac sites for both models throughout the cardiac cycle. The highest values were detected at peak systole and equaled 26.6 and 12 Pa for the DB and bifurcated configurations, respectively. The narrow segments in the DB model displayed high stress values but low OSI and very low RRT.
    CONCLUSION: The DB accommodation seems to correlate with higher displacement forces at the main body and higher stresses at the iliac limbs. Consequently, regular imaging follow-up of the DB design deems necessary to delineate its mid- and long-term clinical performance.

139. **Georgakarakos E**, Anastasiadou E, Papoutsi M, Koufopoulos G, Georgiadis GS. Tips and tricks for facilitating teaching of Doppler waveforms and ankle-brachial index in undergraduate level: A practical guide. J Vasc Nurs. 2019; 37(1):64-68.

    Although the measurement of ankle-brachial index (ABI) is considered a fundamental skill in assessment and diagnosis of peripheral arterial disease and a predictive tool for cardiovascular events, real-world

practice shows that the experience of many health professionals is far from ideal. Not only teaching and practice of ABI measurement in undergraduate medical curricula are limited but various mistakes in the process of calculation, estimation, and interpretation of ABI results in the postgraduate practice have also been documented. Because vascular surgery is a core subject in our medical school, we deal with the difficulties and challenges that undergraduate medical students and nurses face to measure and comprehend ABI. We came up with useful tips and maneuvers to overcome these difficulties. Accordingly, this article provides twelve easy-to-follow useful tips to enhance and facilitate the teaching and comprehension of ABI. Moreover, it favors the simultaneous teaching of Doppler arterial waveform examination as a means to facilitate accurate interpretation and validation of ABI results.

140. **Georgakarakos E**, Skarentzos K. Haemangioma of the Thumb. Eur J Vasc Endovasc Surg. 2019; 58(1):32.

    Βραχεία παρουσίαση σπάνιου περιστατικού όπου περιγράφεται η περίπτωση αιμαγγειώματος σε αντίχειρα και η χειρουργική του εξαίρεση.

141. **Georgakarakos E**, Koutsoumpelis A, Koufopoulos G, Tilkeridis K. Never Underestimate a Concomitant Repairable Inflow Lesion in Buerger's Disease! Int J Low Extrem Wounds. 2019; 18(3):342-343.

    Πρόκειται για αυθύπαρκτο γράμμα προς τη σύνταξη (δεν αποτελεί απάντηση ή σχόλιο σε άρθρο άλλου συγγραφέα) όπου περιγράφεται η σημασία της διόρθωσης κενρικής στενοαποφρακτικής αρτηριακής βλάβης σε ασθενείς με αποφρακτική θρομβαγγειίτιδα, με παρουσίαση δικού μας περιστατικού.

142. Katsaros I, **Georgakarakos E**, Frigkas K, Tasopoulou KM, Souftas V, Fiska A. Arterial collateral circulation pathways in patients with aortoiliac occlusive disease. Vascular. 2019; 27(6):677-683.

    Objectives: Aortoiliac occlusive disease is a leading cause of morbidity and mortality worldwide. Patients typically present with intermittent claudication or critical limb ischemia but the majority of them remain asymptomatic. Collateral arterial pathways restore the arterial blood supply distal to the lesions. The objective of this study is the description of collateral pathways' patterns of aortoiliac occlusive disease.
    Methods: Records from the Department of Vascular Surgery of University General Hospital of Alexandroupolis were retrospectively searched from March 2016 to August 2018 for patients suffering from aortoiliac occlusive disease.
    Results: Thirty-three patients (24 males, 9 females) with a mean age of 64.2 ± 11.8 years were included in this study. Twenty-two patients had diabetes mellitus, 25 hypertension, and 16 dyslipidemia. Twenty-two were active smokers. Seventeen patients suffered from intermittent claudication and 16 patients presented with critical limb ischemia. Seven patients had TASC-II B lesions, 10 TASC-II C lesions, and 16 patients had TASC-II D lesions. Systemic collateral pathways were dominant in 17 patients, whereas visceral pathways were prominent in 16 patients. While 62.5% of patients having lesions in the abdominal aorta presented systemic pathways, the lesions located only in the iliac arteries followed visceral patterns or systematic patterns equally.
    Conclusions: Collateral anastomotic networks provide blood supply to regions distal to aortoiliac occlusive lesions. Their pattern is defined mainly by the location of the lesion and does not seem to associate with comorbid factors or the extent of the lesion. Failure to recognize these networks during surgery could lead to limb threatening situations.

143. **Georgakarakos E**, Koutsoumpelis A. Use of BeGraft and BeGraft+ Stent-Grafts in the Management of Complex Aortic Aneurysms: Toward More Dedicated Stent-Graft Platforms? J Endovasc Ther. 2019; 26(6):795-796.

    Προσκεκλημμένο άρθρο σχολιασμού (commentary) ως επίκριση των αποτελεσμάτων της μελέτης των Torsello GF et al., J Endovasc Ther. 2019 Dec;26(6):787-794, παρουσιάζοντας ταυτόχρονα και την ημετέρα εμπειρία με τη σύνθετη αντιμετώπιση δύο δύσκολων αορτικών ανευρυσμάτων (θωρακικής και κοιλιακής αορτής) όπου εφαρμόστηκε η τεχνική chimney με τοποθέτηση καλυμμένων ενδοναρθήκων BeGraft.

144. **Georgakarakos E**, Koutsoumpelis A, Tasopoulou KM, Georgiadis GS. Tips to Ensure Optimal Ring Apposition of the Ovation Stent Graft in Challenging Necks of Abdominal Aortic Aneurysms. Aorta (Stamford). 2019; 7(2):67-69.

    The Ovation stent graft has been recently introduced for endovascular repair of abdominal aortic aneurysms. Its sealing mechanism is based on a pair of polymer-filled inflatable rings. Based on our

experience, we describe useful tips to optimize the use of Ovation in thrombosed or severely angulated necks.

145. **Georgakarakos E**, Potolidis D, Georgiadis GS. Are Mechanical Properties of Aortic Endografts a Major Determinant for Postoperative Aneurysm Sac Shrinkage? J Surg Res. 2020; 247:304-305.

Γράμμα προς τη σύνταξη ως επίκριση των αποτελεσμάτων της κλινικής μελέτης των Balceniuk MD, Zhao P, et al., J Surg Res. 2019; 241:48-52.

146. **Georgakarakos E**, Ioannidis G, Koutsoumpelis A, Papatheodorou N, Argyriou C, Spanos K, Giannoukas AD, Georgiadis GS. The AFX unibody bifurcated unibody aortic endograft for the treatment of abdominal aortic aneurysms: current evidence and future perspectives. Expert Rev Med Devices. 2020; 17(1):5-15.

Introduction: AFX is a bifurcated unibody aortic endograft for the treatment of Abdominal Aortic aneurysms. It consists of an inner metallic endoskeleton with multiple metallic struts covered by a polytetrafluoroethylene graft fabric. The endoskeleton is sutured to the outer fabric only at the proximal and distal ends. The unique design of AFX aims at fixation onto the aortic bifurcation while a proximal cuff ensures sealing at the infrarenal level.Areas covered: Since this endograft design by Endologix has undergone significant changes over the last years, the aim of this article is to present its unique structure and deployment method and discuss the relevant clinical results as well as reported complications and associated concerns.Expert commentary: the AFX stent-graft exhibits very satisfactory clinical mid-term results in abdominal aortic aneurysms treated within the instructions-for-use. Its 'active-seal' concept of infrarenal fixation stemming from the loose conjugation of the fabric material to the endoskeleton can accommodate efficiently to challenging necks with thrombus or morphological irregularities, thereby extending the anatomical sealing zone without exerting significant radial outward force. Long-term results are needed to validate the promising performance of AFX.

147. **Georgakarakos E**, Kostoglou P. The "No Clamp" Technique for Anastomosis in Calcified Vessels. Eur J Vasc Endovasc Surg. 2020; 59(3):483.

Παρουσίαση πρωτότυπης χειρουργικής τεχνικής όπου περιγράφεται για πρώτη φορά πρωτότυπη τεχνική χειρισμού επασβεστωμένων αγγείων κατά τη διενέργεια αναστομώσεων. Το άρθρο αυτό έλαβε ξεχωριστό σχολιασμό (commentary) από τους Schwein A & Georg Y. To Clamp or Not to Clamp: That Is the Question! Eur J Vasc Endovasc Surg. 2020; 59(3):484.

148. **Georgakarakos E**, Kourdakis D, Apostolidis T, Koutsoumpelis A. Cutting the Gordian Knot of Abdominal Aneurysm Hostile Neck Definitions with the Ovation Stent Graft. Ann Vasc Surg. 2020; 65:e294-e295.

Γράμμα προς τη σύνταξη ως επίκριση στην ερμηνεία των αποτελεσμάτων της κλινικής μελέτης των Mufty H et al., Mid- to Long-Term Outcome Results of the Ovation Stent Graft. Ann Vasc Surg. 2020;63:129-135, όπου εκθέτονται οι απόψεις μας περί της διευρυσμένης έννοιας του «εχθρικού αυχένα» στην ενδοαυλική αντιμετώπιση των ανευρυσμάτων. Παράλληλα, παρουσιάζεται σχετικά και η αντιμετώπιση δικού μας περιστατικού.

149. Georgiadis GS, Argyriou C, **Georgakarakos EI**, Koutsoumpelis K, Papatheodorou N, K. Lazarides MK. Composite contralateral axillo-bifemoral bypass for ipsilateral axillo-bifemoral bypass infection. Ann Vasc Surg 2020; 68:568.e1-568.e5.

We report an innovative technique in a 82 year-old patient with a patent but infected right axillo-bifemoral (AxBF) bypass performed 7 years ago due to critical limb ischemia who underwent a semi-elective de novo left-sided composite AxBF bypass consisting of a central prosthetic PTFE segment and distal autologous limbs to the femoral regions (femoral crossover bypass vein to the right limb using femoral vein and jump-graft to the left femoral limb using great saphenous vein). Although AxBF bypass is not considered the “gold-standard” surgical composite revascularization procedure in the suprainguinal region, it can constitute an acceptable intervention in selected cases.

150. **Georgakarakos E**, Xenakis A, George S.Georgiadis GS. Computational Comparison Between The Altura Aortic Endograft Configuration And The Classic Bifurcated Idealized Designs. Ann Vasc Surg 2020; 68: 442–450.

Introduction: The Altura (Alt) endograft is a new design lacking the classic mainbody with the flow divider. Instead, 2 proximal D-shaped endografts form a round circumference in the aortic neck for secure sealing

and land in the iliac arteries in across-limb fashion. The aim of this computational study was to compare hemodynamically this model to the classic-bifurcated (Bif) and cross-limb (Cx) endograft designs of equal total length.

Materials and Methods: All 3D endograft models were created using the finite volume analysis application ANSYS CFX (Ansys Inc., Canonsburg, PA, USA). The Alt inlet was constructed as two opposing D-shaped sections. Flow was quantified by time-averaged wall shear stress (TAWSS), oscillatory shear index (OSI), relative residence time (RRT) and helicity. The displacement forces were also compared for all models with computational fluid dynamics analysis.

Results: The Alt design was associated with lower forces (range 4.0-5.9N) compared to Bif (4.17-6.15N) and Cx (4.43-6.53N). The 2-piece inlet site of the separated limbs of Alt has higher TAWSS that the uniform inlet segment of the Cx and the Bif model. Most importantly, the mid-and distal segment of the limbs in the Altura design present higher TAWSS in a greater area than the other two models. The inlet of the Alt design showed higher OSI than the other accommodations and similar or comparable OSI values along their mid- and distal limb segments. The range, location and values or RRT were comparable between the three models. Helicity in the iliac limbs is more prominent in the crossed accommodations (Alt, Cx).

Conclusion: Only small differences in the hemodynamic indices and displacement forces were detected between the Alt and classic accommodations. From this point of view, the Alt design could be theoretically considered not inferior to other widely used endograft configurations.

151. Georgiadis GS, Argyriou C, **Georgakarakos EI**, Souftas V. Surgical Revision of Lymphatic Groin Complications Needs Reappraisal. Ann Vasc Surg. 2020; 67:e580-e582.

Γράμμα προς τη Σύνταξη αναφορικά με την ανάγκη εναπαπροσδιορισμού της χειρουργικής παρέμβασης για μετεγχειρητικές επιπλοκές από τα λεμφαγγεία.

152. **Georgakarakos E**, Argyriou C, Georgiadis GS. Re to Commentary "To Clamp or Not to Clamp: That is the Question!", Eur J Vasc Endovasc Surg. 2020; 60(3):487.

Απάντηση σε προηγούμενο σχόλιο των Schwein and Georg (Eur J Vasc Endovasc Surg 2020;59:484) αναφορικά με τη δημοσιευμένη τεχνική μας The "No Clamp" Technique for Anastomosis in Calcified Vessels. Eur J Vasc Endovasc Surg. 2020; 59(3):483.

153. Kontopodis N, Galanakis N, Tzartzalou I, Tavlas E, **Georgakarakos E**, Dimopoulos I, Tsetis D, Ioannou CV. An update on the improvement of patient eligibility with the use of new generation endografts for the treatment of abdominal aortic aneurysms. Expert Rev Med Devices. 2020; 17:1231-1238.

Purpose: Endovascular aneurysm repair (EVAR), performed within device instructions for use (IFU), offers improved outcomes. New endograft designs attempt to increase eligibility rates of abdominal aortic aneurysm (AAA) patients treated within device IFU. We aim to examine the anatomic suitability of the Ovation endograft in our AAA patients and compare it with the other contemporary devices.

Research design and methods: Three-hundred and seven consecutive elective AAA patients treated during a 5-year period were included. Patient-specific anatomic characteristics were based on endograft IFUs to determine eligibility rates of each system.

Results: Two-hundred-twenty-five patients underwent EVAR and 82 open surgery. Ineligibility for device implantation was significantly lower for the Ovation iX system (32%) compared to other devices (AFX-2:49%, Altura:49%, Anaconda:54%, Endurant II:46%, Excluder:52%, Excluder Conformable:39%, Incraft:43%, E-Tegra:52%, Zenith-Alpha:52%; P-Value<0.001). The Alto system (next-generation Ovation) achieved an even lower ineligibility rate of 30% (P = 0.008). Short proximal aortic neck length followed by access vessel inadequacy were the primary reasons for ineligibility.

Conclusion: The Ovation-iX included more patients with anatomic characteristics within device IFUs resulting in improved eligibility rates compared with the rest of contemporary devices. Its evolution, the Alto system, further improves patient eligibility due to the inclusion of shorter aortic necks.

Expert opinion: The Ovation iX system presented a significantly better performance and was eligible for use in a greater number of patients in our series of elective AAA repairs, accommodating patient-specific aortic anatomies. Of course, performing EVAR within the endograft's IFU is important to achieve optimal and durable outcomes. The proximal neck length followed by the size of the access vessels are the two more common factors resulting in loss of eligibility. Except for overall eligibility rates, a case by case decision

must be made on which is the most suitable device for each patient, based on the specific characteristics of its unique anatomy.

154. **Georgakarakos E**, Papatheodorou N, Argyriou C, Tasopoulou KM, Doukas D, Georgiadis GS. An update on the ovation abdominal stent graft for the treatment of abdominal aortic aneurysms: current evidence and future perspectives. Expert Rev Med Devices. 2020; 17:1249-1256.

Introduction: The Ovation stent-graft has presented satisfactory mid-term results in the management of abdominal aortic aneurysms (AAA). Its unique design with uncoupling of fixation and sealing and the lowest profile in the market has expanded the treatment in AAA with challenging neck anatomies and, especially, in the females presenting mostly with narrow iliac access vessels. Morever, a new design modification, the Ovation Alto was recently introduced in the Market, while certain off-label uses of the Ovation in treating either juxtarenal- or short-necked AAA have been proposed. Areas covered: Aim of this article was to present the current articles with the long-term results of the Ovation endograft and discuss the new developments and modifications in its use. Expert commentary: the Ovation stent-graft exhibits very satisfactory clinical long-term results in AAA treated within the instructions-for-use, expands significantly the treatment of AAA in females and overcomes reliably challenging anatomical issues of the infrarenal neck that would render these cases ineligible for treatment with any other endograft. Experience with the specific, unique technical features of Ovation as well as careful selection of patients and meticulous preoperative study of the AAA anatomy are key-elements to the successful performance of this endograft.

155. **Georgakarakos E**, Georgiadis GS, Papatheodorou N. The Treovance aortic stent graft can confer advantage in dealing with the patient origin-related unfavorable abdominal aortic aneurysm anatomy. J Vasc Surg. 2020; 72(6):2213.

Γράμμα προς τη Σύνταξη ως σχόλιο στην εργασία των Murray et al (J Vasc Surg 2020;71:1881-9) όπου σχολιάζουμε την ειδική σημασία του μακρού σώματος (main-body) του ενδομοσχεύματος TREO στις ειδική ανατομική μορφολογία των Ασιατών ασθενών της προαναφερόμενης μελέτης καθώς και πιθανές εφαρμογές της σχέσης αυτής.

156. **Georgakarakos E**, Katsaros I, Fiska A. Aortoiliac Occlusive Disease: When the Development of Arterial Collateral Network Takes Over. Aorta (Stamford). 2020; 8(4):116-117.

Σύντομο άρθρο υπό μορφή ιατρικής απεικόνισης (vascular image) που περιγράφει το παράπλευρο αγγειακό δίκτυο μεταξύ αορτής και λαγονίων αρτηριών επί απόφραξης του αορτολαγόνιου άξονα.

157. Koufopoulos G, **Georgakarakos E**, Keskinis C, Stathopoulos M, Bafitis V, Tripsianis G. Theatrical performance in medical education: A fast-track differential approach of emergency cases. Hippokratia. 2020; 24(3):127-132.

Introduction: The idea of implementing theatrical acts in medical education has recently been gaining attention, with the inclusion of art-based programs in medical curricula being a growing trend. This study aimed to present an innovative pilot program of presenting medical emergencies through theatrical presentation.

Materials and methods: Students-members of the theatrical team of Democritus University of Thrace and the Scientific Society of Hellenic Medical Students were appointed into eight groups, supervised by a clinical tutor. The groups were given four weeks to prepare scenarios for eight different medical emergencies and organize a theatrical sketch accordingly. A 25-item questionnaire was formed and distributed to the audience. Each theatrical act lasted 10 min, followed by a 10 min discussion between the tutors and the audience. After the event, the impressions of the attendees were documented in the questionnaire as responses on a Likert scale from one (strongly disagree) to five (strongly agree).

Results: Two hundred and thirty-two fully completed questionnaires were returned. The contribution of theatrical presentation to medical education was widely acknowledged (Likert score 4.14 ± 0.68). Theatrical seminars were not deemed insufficient to provide medical information (disagreed or strongly disagreed 53.8 % and 12.1 %, respectively). Most students were optimistic about the long-term maintenance of the theatrical-aided knowledge, with the majority of attendees (52.1 %) adapting a more favorable response after the seminar ($p < 0.001$). The students' efficacy to recognize medical emergencies was improved (from 2.96 to 3.43, $p < 0.001$).

Conclusion: Students find the theatrical approach of emergency cases entertaining and educational, facilitating teaching in medicine and enhancing their efficacy to recognize medical emergencies and the

commonest pitfalls in their diagnosis and management. Such events may be established as a supplementary educational tools to the classical amphitheatric didactic lectures. Future studies with specific objective tools are needed to validate the abovementioned tasks.

158. Georgiadis GS, Argyriou C, Antoniou GA, Nikolopoulos ES, Kapoulas KC, Schoretsanitis N, Tasopoulou KM, Koutsoumpelis A, **Georgakarakos EI**, Lazarides MK. Lessons Learned from Open Surgical Conversion after Failed Previous EVAR. Ann Vasc Surg. 2021; 71:356-369.

Background: Delayed open conversion (OpC) after endovascular aortic aneurysm repair (EVAR) is becoming increasingly common worldwide. We reviewed our experience to characterize the perioperative spectrum of OpC repairs.

Materials and methods: A retrospective analysis of a prospectively maintained institutional database to identify patients who underwent late OpC after failed EVAR was performed. Patient and aneurysm baseline characteristics, mechanism of failure, perioperative details, including type of repair/complications/survival, and late outcomes were examined.

Results: From January 2003 to January 2020, 38 male patients (mean age, 75 ± 7 years; range, 60-90) required late OpC. Interval time from initial EVAR to OpC was 63.6 ± 33.8 months (range, 17-120). Mean diameter of the aneurysms was 82.2 ± 22.1 mm before OpC compared with 62.9 ± 13 mm before endograft implantation. Mechanisms of failure were type Ia, Ib, II, and III endoleaks in 14 (36.8%), 9 (23.7%), 4 (10.5%), and 1 (2.6%) patient(s), respectively; infection in 3 (7.9%), leg ischemia in 2 (5.3%), and multiple causes in 5 (13.2%) patients. We observed 4 (10.5%) asymptomatic, 16 (42.1%) symptomatic, and 18 (47.3%) ruptured aneurysms. Four patients (10.5%) had stable contained ruptures, whereas the remaining 13 (34.2%) and 1 additional patient (2.6%) with aortoenteric fistula presented with hemorrhagic shock (class ≥II). Total endograft explantation, endograft preservation, or proximal/distal partial graft removal was performed in 16 (42.1%), 10 (26.3%), and 2 (5.2%)/9 (23.7%) of patients, respectively. Technical success was 100%, excluding an early postaortic clamping death. Overall, 30-day mortality was 21.1% (8 of 38) and significantly higher in patients with hemorrhagic shock or hemodynamic instability at presentation (P = 0.04 and P = 0.009, respectively) and in patients who had endografts with hooks/barbs or experiencing higher postoperative complication rate (P = 0.02 and P = 0.006, respectively). By definition, procedure success was 81.1%. Mean follow-up was 37.6 ± 39.8 months. By the end of the study, we recorded 11 deaths (2 were aneurysm related).

Conclusions: Despite high technical success, OpC has a significant mortality in patients presenting with hemorrhagic shock and had active fixation endografts or experiencing high complication rate. Many other confounding factors may play a role.

159. Georgiadis GS, Chatzigakis PK, Kouvelos G, Argyriou C, Kopadis GC, **Georgakarakos EI**, Matsagkas M. Multicenter Mid-term Results After Endovascular Aortic Aneurysm Repair with the Incraft® Device. Ann Vasc Surg. 2021; 72:464-478.

Objectives: Durability after endovascular aortic aneurysm repair (EVAR) is considered an ongoing topic of investigation and was always a point of concern with smaller profile devices. Recently released five-year clinical trial results using the Incraft® ultralow profile device are encouraging. However, additional real-life experience will need to assist these initial findings. Herein, we investigated the outcomes after EVAR, in real world practice using the Incraft® endograft (EG).
Material and methods: Seventy-seven patients with infrarenal abdominal aortic aneurysms (AAA) ≥50 mm in diameter treated with the Incraft® device in three vascular centers were enrolled from November 2015 to July 2018. Follow-up was completed in August 2020. Selection of EVAR using the Incraft® device was individualized according to aorto-iliac morphologic features, comorbidities, history of previous abdominal surgery and preference of the patient. At the early phase of the study, we specifically opted for preferential use of this low profile EG mainly in cases of small and tortuous iliac vessels (more challenging access routes). At later stages, it was used according to surgeon preference and not specifically in complex anatomies (real-world conditions). End-points included technical success, perioperative complications, 30-day survival, endoleg patency, presence of endoleaks, sac enlargement >5 mm and clinical success.
Results: The primary technical success rate was 97.4% before the addition of an aortic cuff and iliac extension for a type Ia and type Ib endoleak respectively, and the repair of a maldeployment iliac component (primary-assisted and secondary technical success, 100%). Intraoperative small type II endoleaks (visible in final angiogram) were noted in 19 patients (24.7%). There were no intraoperative deaths from AAA rupture, primary conversions or conversions to aortounilateral grafts. Two complications occurred, necessitating hybrid techniques for repair (replaced of a dislodged endoleg and distal external iliac artery

hemostasis). No deaths were reported within 30 days. Occlusion of an endoleg, was observed in two patients, 6 and 14 months respectively after implantation (2.6%), and were treated by femoral-femoral PTFE bypass after unsuccessful endovascular recanalization. The latter required open conversion, 3 mo later, to repair compromised flow to the inflow iliac axis. Three patients (3.9%) experienced sac enlargement >5 mm in diameter compared with the 1-month CT scan. All of these had type II endoleaks and two received embolization procedures. Eleven patients died from causes unrelated to AAA repair. Clinical success was 97.3%, 92.8% and 89.4% through 1, 2 and 3 years respectively.

160. **Georgakarakos E**, Tasopoulou KM, Koutsoumpelis A, Argyriou C. The "Pull, Cast, and Fix" Technique for Bypass in the Midpopliteal (P2) Arterial Segment in Chronic Femoropopliteal Occlusions. Ann Vasc Surg. 2021; 71:523-527.

    Femoropopliteal bypass operations can be difficult when the occlusive disease involves the superficial femoral artery and the popliteal arterial segment above the knee joint (supragenicular artery, P1). In case of lack of suitable vein graft or when the surgeon wishes to spare to infrapopliteal segment, the choice of the midpopliteal artery as anastomotic site becomes challenging because of its location. Moreover, totally endovascular recanalization procedures in such cases can be complex and demanding, whereas other reported hybrid revascularization techniques require advanced technical skills and raise significantly the cost. Therefore, we present our suggestion of a "pull, cast, and fix" technique to encounter these challenges and facilitate a successful bypass with a synthetic graft in the upper midpopliteal (P2) segment, combing a secure endarterectomy and anastomosis even under marginal visualization by means of securing the lumen with a soft feeding tube after the artery has been pulled via a Satinsky vascular clamp. Accordingly, the procedure is accomplished with placement of a flexible self-expandable stent in the midpopliteal artery through the synthetic graft.

161. **Georgakarakos E**, Tasopoulou KM, Georgiadis GS. Introducing a "no-touch" maneuver to manage challenging anastomoses in arteriovenous fistulae. J Vasc Access. 2021; 22(6):1030-1031.

    Τεχνική πρόταση όπου περιγράφουμε χειρισμό διευκόλυσης διενέργειας αρτηριοφλεβικών αναστομώσεων με επιβοήθηση ρινογαστρικών καθετήρων για βελτίωση τεχνικής ευχέρειας.

162. Lazarides MK, Christaina E, Argyriou C, **Georgakarakos E**, Tripsianis G, Georgiadis GS. Editor's Choice - Network Meta-Analysis of Carotid Endarterectomy Closure Techniques. Eur J Vasc Endovasc Surg. 2021; 61:181-190.

    Objective: There is discordance between reviews comparing eversion endarterectomy (EvE) with conventional carotid endarterectomy (CEA) mostly because under this term various "closure" techniques are included, from direct closure to a wide spectrum of patches with different materials.

    Data sources: MEDLINE (via PubMed) and SCOPUS.

    Review methods: This was a systematic review of the Medline (via PubMed) and SCOPUS databases for randomised controlled trials (RCTs) comparing different CEA closure techniques. Network meta-analysis (NMA) was performed with a frequentist approach. The primary and the secondary outcome measures were the 30 day combined stroke and death rate and the late restenosis rate, respectively.

    Results: Twenty-three RCTs were finally included in the NMA with a total of 4440 patients randomised, representing seven different techniques (primary carotid closure, n = 753; EvE, n = 431; vein patch closure, n = 973; polytetrafluoroethylene [PTFE] patch, n = 948; Dacron patch, n = 828; bovine pericardium patch, n = 249; and polyurethane patch, n = 258). NMA showed that EvE had a decreased 30 day combined stroke and death rate vs. all other methods of arterial closure, with the exception of PTFE and bovine pericardium patching. Additionally, EvE was associated with the lowest restenosis rate vs. all other methods of arterial closure after CEA. EvE was significantly superior to Dacron patches with regard to late restenosis, with the prediction intervals (PIs) lying completely on the beneficial side (risk ratio 0.06; PI 0.01-0.58) and increasing confidence of this comparison. Rare catastrophic complications of vein patch blow out or synthetic patch infection were reported in 0.2% of the total (n = 9/4 400) and no comparisons were made.

    Conclusion: EvE and patching with bovine pericardium or PTFE is associated with a lower incidence in both short term and late undesired outcomes following CEA and seems to represent the best choice compared with other carotid closure techniques. These results may support the vascular surgeon's choice of technique/patch material.

163. **Georgakarakos E**, Esempidis A, Argyriou C. Loop Transposition of the Cephalic Vein in the Forearm: A Surgical Option When the Radial Artery is Ineligible for Radiocephalic Fistula. Ann Vasc Surg. 2021; 72:e1-e2.

    Τεχνική πρόταση ως γράμμα προς τη σύνταξη όπου περιγράφεται τεχνική μετάθεσης της κεφαλικής φλέβας «δίκην αγκύλης» στο αντιβράχιο όταν είναι ανέφικτη η διενέργεια αρτηριοφλεβικής επικοινωνίας (κερκιδοκεφαλικής) στη συνήθη θέση στον καρπό.

164. Tripsianis G, Christaina E, Argyriou C, **Georgakarakos E**, Georgiadis GS, Lazarides MK. Network meta-analysis of trials comparing first line endovascular treatments for arteriovenous fistula stenosis. J Vasc Surg. 2021; 73:2198-2203.e3.

    Objective: We investigated the comparative effectiveness of different endovascular treatments for patients with failing autogenous arteriovenous fistulas (AVFs) with outflow vein stenosis.

    Methods: The Medline (via PubMed) and SCOPUS databases were searched. We performed a systematic review and network meta-analysis of randomized controlled trials that had investigated the effectiveness of plain balloon angioplasty (PBA), cutting balloon angioplasty, and drug-coated balloon angioplasty (DCBA) to treat vein stenoses in autogenous AVFs. Studies of central vein stenosis were excluded. The main outcome measures were the failure rates at 6 months and 1 year after treatment.

    Results: Eleven randomized controlled trials were included, with 814 patients, 395 of whom had undergone PBA. The network meta-analysis showed that DCBA at 6 months was significantly more effective than PBA (odds ratio, 0.39; 95% confidence interval, 0.18-0.81) and ranked as the best treatment option, although the difference was not statistically significant compared with cutting balloon angioplasty (odds ratio, 0.65; 95% confidence interval, 0.20-2.12). The differences among the three treatments at 1 year were not statistically significant. Additional conventional pairwise meta-analyses did not find significant differences at 1 year.

    Conclusions: In failing AVFs with outflow stenosis, DCBA was significantly superior to PBA, with improved 6-m onth failure rates. However the effectiveness of DCBA in the long term deserves further investigation.

165. **Georgakarakos E**, Efenti GM, Koutsoumpelis A, Veloglou AM, Mechmet B, Tasopoulou KM, Argyriou C, Georgiadis GS. Five-Year Management of Vascular Injuries of the Extremities in the "Real-World" Setting in Northeastern Greece: The Role of Iatrogenic Traumas. Ann Vasc Surg. 2021; 74:264-270.

    Background: Vascular trauma comprises a diagnostic and surgical challenge. Aim of this study was to present the vascular traumas treated in our Tertiary Hospital during the last 5 years.

    Methods: We retrospectively reviewed the surgical records of our vascular department and documented the site and type of vascular injuries of the extremities along with the concurrence of musculoskeletal injuries. The type and outcome of surgical interventions were also recorded.

    Results: Fifty-eight cases of vascular trauma were recorded (39 in the upper and 19 in the lower extremities). Overall, iatrogenic traumas accounted for 41.3% of cases. The arterial injuries of the upper limb were blunt and penetrating in 27% and 67%, respectively. The most affected artery in the upper limb was the radial artery (37.8%), followed by the ulnar artery (27%) and the brachial artery (24.3%). Orthopedic injuries were recorded in 19% of patients. Management involved simple revascularization, bypass operations, patch arterioplasty and endovascular management in 48.7%, 33.3%, 5.1%, and 5.1%, respectively. The most affected site in the lower extremity was the common femoral artery (36.8%) followed by the popliteal artery (21%). Bone fractures were reported in 5 cases (26.3%). The surgical management involved bypass, simple revascularization, patch arterioplasty in 42.1%, 26.3%, and 21%, respectively. Endovascular management was performed in 10.5%.

    Conclusions: A considerable percentage of iatrogenic vascular injuries was recorded, affecting both the upper and lower limbs. Despite the trend toward centralization of vascular services, a basic service of vascular surgery should be available in most sites to ensure that patients with vascular injuries receive fast and appropriate care.

166. **Georgakarakos E**, Tasopoulou KM, Doukas D, Argyriou C. Off-Label Use of a Pigtail Angiographic Catheter for Contralateral Access Over the Aortic Bifurcation. Ann Vasc Surg. 2021; 74:e1-e2.

Τεχνική πρόταση ως γράμμα προς τη σύνταξη όπου περιγράφεται τεχνική χρήσης αγγειογραφικού καθετήρα pig-tail για διευκόλυνση ετερόπλευρης προσπέλασης του λαγονίου άξονα ύπερθεν του αορτικού διχασμού.

167. **Georgakarakos E**, Tasopoulou KM, Kofina K, Argyriou C. Irreversible Limb Ischemia Due to Embolizing Aneurysm of the Superficial Femoral Artery. Vasc Endovascular Surg. 2021; 55(6):654-657.

Background: Degenerative superficial femoral artery aneurysms are rare and can lead to catastrophic complications; among these, rupture is the most usual, whereas peripheral embolization is less common.

Method: We report a patient with a large superficial femoral artery aneurysm presenting with irreversible limb ischemia, due to multiple distal embolization as demonstrated with urgent computed tomography angiography. Due to local and systemic consequences primary limb amputation was performed. Unfortunately, the patient died from cardiac arrest on the 2nd postoperative day.

Conclusion: Delayed diagnosis of true superficial femoral artery aneurysms can result in life-threatening consequences. Peripheral embolization is an uncommon event, but can lead to irreversible ischemia and limb loss.

168. Ioannidis G, **Georgakarakos E**, Raptis A, Xenos M, Manopoulos C, Matsagkas M, Giannoukas A. Modeling and computational comparison of the displacement forces exerted between the AFX unibody aortic stent graft and its hybrid combination with a Nitinol-based proximal aortic cuff. Ann Vasc Surg. 2021; 74:400-409.

Background: The bifurcated AFX (Endologix, Inc, Irvine, CA, USA) aortic stent-graft is the sole unibody endograft for the management of Abdominal Aortic Aneurysms (AAA). In order to improve the AFX central sealing and clinical efficacy in challenging cases, a replacement of the central chromium-cobaltium AFX extension with a Nitinol-based proximal aortic cuff has been suggested. Yet, comparative data regarding the hemodynamic performance of this design is missing. Aim of this study was to compare the displacement forces (DF) acting on the hybrid AFX-Endurant design, with the classic AFX and Endurant endografts, in angulated and non-angulated cases based on patient-specific Computational Fluid Dynamics (CFD) simulations.

Methods: 3D endograft models of 11 treated AAA cases were reconstructed from Computed Tomography Angiography (CTA) imaging data: 5 cases of AFX, 3 cases of the combination AFX-Endurant and 3 cases of the classic Endurant design. The DF on the main-body, the iliac limbs, and the entire stent-graft was calculated by processing the velocity and pressure fields generated by pulsatile CFD simulations.

Results: The range of total DF (acting on the whole endograft structure) in the AFX, hybrid AFX-Endurant and Endurant group was 2.5-5.2N, 2.0-5.9N and 1.9-2.9N respectively, with the maximum total DF being lower for Endurant. The DF on the main-body of the classic and hybrid AFX cases were higher than the right and left iliac limbs (2.5-4.9N vs. 0.6-5.3N and 0.7-3.6N respectively). Conversely, the DF on the main-body of the Endurant cases was comparable to the force exerted on the right and left limbs. When separating the cases with respect to their neck angulation, the DF on all endograft parts (main-body, limbs) and on the endograft as a whole were lower for the hybrid AFX-Endurant group compared to the classic AFX and Endurant groups, for cases with almost straight neck.

Conclusion: The off-label use of the hybrid AFX-Endurant stent-graft does not seem superior to the conventional AFX or Endurant endografts in angulated cases but was associated with lower DF than AFX or Endurant in non-angulated cases. The clinical value and utility of these findings remain to be elucidated.

169. Georgiadis GS, Doukas D, Argyriou C, Devetzis V, **Georgakarakos EI**, Lazarides MK. Late Basilic Vein Superficialization Combined with Revision Using Distal Inflow (RUDI) Operation to Treat a Symptomatic High Flow Fistula. Ann Vasc Surg. 2021; 74:502-510.

Background: Vascular access (VA)-related high flows (HF) are common with brachial artery based fistulas. Flow-reduction procedures are indicated in symptomatic patients or asymptomatic ones with flows >2 L/min. However concomitant issues increase their complexity. We describe a case of a patient suffering congestive heart failure as a result of HF brachial-basilic fistula >3 L/min. A simultaneous late basilic vein transposition and revision using distal inflow (RUDI) was performed.

Methods: A large diameter untransposed arterialized basilic vein was carefully and completely mobilized up to the proximal upper arm. After harvesting an autologous great saphenous vein (GSV) segment, a new inflow anastomosis was performed in the proximal ulnar artery. At the final stage, and after tunneling the mobilizing basilic vein in a subcutaneous semicircular configuration, an end-to-end anastomosis joining the

two stumps (basilic vein outflow portion and GSV inflow arterial portion) was performed. A decision-making process in order to reach this complex option is discussed. Results Access flow and cardiac output were greatly attenuated following our approach. After a mean follow-up of 9 months no VA complications were observed, with flow still detected below 2 L/min. All cardiac symptoms and ultrasound investigations improved.

Conclusion: Multiple VA issues including HF pose a risk for abandonment and a challenge for the vascular surgeon. An effort toward increasing the "upper extremity life span" is advised.

170. **Georgakarakos E,** Tasopoulou KM. A Clampless Technique to Facilitate Successful End-to-End Anastomosis in Small Vessels With Spasm. Ann Vasc Surg. 2021; 75:527-530.

End-to-end anastomosis in small arteries can be challenging, especially when the stumps are in spasm after traumatic transection. We describe a novel technique to facilitate such anastomoses under local anesthesia, presenting a 24-year old patient who suffered complete traumatic transection of the left ulnar artery. After having found and prepared the proximal and distal stumps, a soft polyurethane feeding tube (La-med Healthcare, India) and a vein cannula were inserted in the proximal and distal stump, respectively, without using vascular clamps. The manipulation of the catheters offered excellent visualization and widening of the anastomotic line, enabling simultaneous infusion of heparinized saline or vasodilating agents. The anastomosis was completed with no stenosis and pulpable pulses were restored immediately postoperatively. At 1-month follow-up, the Allen test was normal with a normal regular flow of the ulnar artery at duplex ultrasound. The described technique ensures efficient sealing avoiding clamping, casts the small lumens, provides optimal visualization of the anastomotic aspects and prevents stenosis. We believe it should have a place in the surgeon's armamentarium.

171. **Georgakarakos E**, Kontes I. The Angiosome-based Revascularization: Overestimated, Misunderstood, or Incomplete? Int J Low Extrem Wounds. 2021; 20(2):172-173.

Γράμμα προς τη σύναξη όπου σχολιάζονται από αγγειοχειρουργικής απόψεως τα αμφιλεγόμενα σημεία της εφαρμογής της θεωρίας των αγγειοσωματων στο σχεδιασμό και επιλογής θεραπευτικής παρέμβασης στην κρίσιμη ισχαιμία των κάτω άκρων.

172. **Georgakarakos E**, Ioannidis G, Raptis A, Xenos M. Computational Fluid Dynamic Analysis Supports the Hemodynamic Stability of Hybrid Combinations With the AFX Bifurcate and Nitinol-Based Proximal Segments in Solutions of Failed Endovascular Aneurysm Repair. Vasc Endovascular Surg. 2021; 55(8):907-909.

Hybrid endograft combinations of two or more different types of covered stents are rarely reported to treat complex abdominal aortic aneurysm cases or primary and secondary endoleaks. Clinical and laboratory data regarding the clinical efficacy and mechanical stability of such combinations are lacking. Based on a recently published case report, we describe and comment on the hemodynamic profile of a representative simulated hybrid case of AFX and Nitinol-based proximal cuff and support the stability of this combination in non-angulated cases.

173. Lazarides MK, Argyriou C, **Georgakarakos E**, Georgiadis GS. More on the comparison of the various carotid endarterectomy patch materials. J Vasc Surg. 2021; 74(4):1431-1432.

Απαντητικό γράμμα προς τη σύνταξη ωςσχόλιο για τη σύγκριση των υλικών εμβαλώματος της καρωτιδικής αρτηριοπλαστικής.

174. **Georgakarakos E**, Fiska A. Issues in Teaching Vascular Anatomy: Thoughts and Suggestions from the Clinician's Point of View. Anat Sci Educ. 2022; 15(1):210-216.

The role of anatomy in modern curricula is under reform due to competency of other rapidly evolving subjects and the rapid evolution of several practical aspects and applications dictating modernization of teaching methods as well as of teaching demands. Moreover, modern practice of medicine has put the arterial and vascular system in the center of numerous minimally invasive techniques. Therefore, regardless of their specialty, most doctors should have a very clear and precise knowledge of the vascular anatomy and the basic access techniques from the early years. This viewpoint commentary reflects the experience of the two authors in applying the principles and content of surgical vascular anatomy in undergraduate anatomy teaching and discusses the rationale of this. Moreover, it is suggested that cadaveric dissections should be modified with emphasis on standard surgical vascular exposures and the multidisciplinary teaching of vascular anatomy as a means not only to gain optimal long-term knowledge retention, but also to emphasize through realistic examples on the practical clinical value of vascular anatomy.

175. **Georgakarakos E**, Keskinis C, Fiska A. Combined transposition of brachial and basilic vein: Response to "Percutaneous creation of proximal radio-radial arteriovenous hemodialysis fistula before secondary brachial vein elevation. J Vasc Access. 2020; doi: 10.1177/1129729820936921". J Vasc Access. 2022 Mar;23(2):333-334.

    Τεχνική πρόταση ως γράμμα προς τη σύνταξη όπου περιγράφεται η τεχνική διπλής μετάθεσης της βραχιονίου και βασιλικής φλέβας στο βραχιόνα ως εναλλακτική μέθοδο εξασφάλισης μεγαλύτερου μήκους παρακέντησης μετά από ενδοαυλική διενέργεια αρτηριοφλεβικής επικοινωνίας.

176. **Georgakarakos E**, Keskinis C, Fiska A. The more options to rescue a failing arterio-venous fistula, the better! J Vasc Access. 2022; 23(4):674-675.

    Τεχνική πρόταση ως γράμμα προς τη σύνταξη όπου περιγράφεται τεχνική μετάθεσης της βασιλικής φλέβας στο αντιβράχιο και αναστόμωση με κεντρικό λειτουργικό τμήμα θρομβωμένης αρτηριοφλεβικής επικοινωνίας στον καρπό, ως μέθοδο διατήρησης και διάσωσης της αυτόλογης επιλογής αρτηριοφλεβικής επικοινωνίας πριν την πλήρη εγκατάλειψή της.

177. Georgiadis GS, Argyriou C, **Georgakarakos EI**, Lazarides MK. Unmasking Peripheral Arterial Disease in Diabetic Patients Presenting With Inflammatory Skin Manifestations During the COVID-19 Pandemic. Int J Low Extrem Wounds. 2022; 21(3):344-345.

    Γράμμα προς τη σύναξη όπου σχολιάζεται η συσχέτιση της περιφερικής αρτηριακής νόσου και δερματικών αλλοιώσεων σε διαβητικούς ασθενείς στις συνθήκες της πανδημίας COVID-19.

178. **Georgakarakos E**, Karaolanis GI, Argyriou C, Papatheodorou N, Karangelis D, Georgiadis GS. Update on the TREO endograft device: overview of its safety and efficacy. Expert Rev Med Devices. 2022; 19(1):31-35.

    Introduction: The TREO abdominal aortic stent graft system (Terumo Aortic, Sunrise, Fla) is a low-profile, trimodular endovascular endoprosthesis for the endovascular repair of abdominal aortic aneurysm (AAA). The objective of the present study was to collect and discuss all the available modern data of this device highlighting especially its mid-and long-term clinical results.

    Areas covered: This updated review article presents the most current results from great-scale clinical studies and the RATIONALE registry involving also angulated neck anatomies and challenging AAA geometries, reflecting the real-world experience.

    Expert opinion: The global, multicenter RATIONALE registry prospectively enrolled 202 patients (mean age 73.0 ± 7.8 years) who underwent EVAR. Technical success, primary clinical success and assisted primary patency rate was 96%, 92.2% and 97%, respectively. The clinical success at 1 year was 96%. Another multicenter, non-randomized, clinical trial confirmed also high technical and clinical success. Additionally, a comparative study comparing favorable and hostile necks in AAA, demonstrated a comparable technical success (95.2%), achieving proper sealing and technical success in the hostile neck group. TREO endograft seems to be safe and effective for EVAR, especially in hostile neck anatomies. Long-term outcomes from ongoing registries are awaited to complete these results.

179. Schoretsanitis N, **Georgakarakos E**, Argyriou C, Lazarides M, Ktenidis K, Papanas N, Deftereos S, Georgiadis GS. The Incraft stent graft for the treatment of abdominal aortic aneurysms: an iliac-friendly device with an effective conventional proximal sealing mechanism. Expert Rev Med Devices. 2022; 19(1):37-41.

    Introduction: The Incraft aortic stent graft (Cordis, Bridgewater, NJ, USA) is a trimodular endovascular stent graft with a conventional suprarenal active fixation specifically designed to overcome the anatomic limitation of small, stenotic, and tortuous iliac vessels.

    Areas covered: The present article provides a complete description of the Incraft stent graft, its clinical performance, its technical characteristics as well as a comparison with other competitive endografts.

    Expert opinion: The Incraft stent graft is an EVAR ultra low-profile device initially designed for overcoming the limitation of the hostile iliac anatomy. Recently, the device is being increasingly used in real-world conditions and not only in complex iliac anatomies with good mid-term results. Whether it remains a useful EVAR toolbox or will become a workhorse endograft is yet to be determined.

180. Tasopoulou KM, Argyriou C, Kakkos SK, Mourvati E, **Georgakarakos EI,** Thodis E, Lazarides MK, Georgiadis GS. Superficialization Methods of Arteriovenous Fistula in Obese Patients: A Review of the Literature. Ann Vasc Surg. 2022; 83:313-327.

    Background: The creation of an arteriovenous fistula in obese patients with end-stage-renal-disease, might not lead to a successful hemodialysis session, partly due to excess adipose tissue overlapping the enlarged vein. This review summarizes the available evidence on superficialization methods in studies dealing with obese patients.

    Methods: An English-language literature search was undertaken in the MEDLINE/SCOPUS databases looking for publications that described procedures of salvaging autologous arteriovenous access in upper extremities of obese patients. Perioperative outcomes including technical and clinical success, mean vein depth reduction, wound complications and patency rates were compared within all identified techniques.

    Results: We identified 12 prospective and 8 retrospective studies. A total of 1149 patients with a mean age 57.2 (range: 49-68) years and a mean BMI 35.8 (range: 28.2-40.8) kg/m2 underwent mainly radial-cephalic and brachial-cephalic arteriovenous fistula superficialization procedures [transposition, 54%; elevation, 11.1%; lipectomy, 26.1%; liposuction, 2.4%; implantation of a venous window needle guide device, 6.4%]. Technical success was similar between all methods (≥96%). However, successful cannulation was lower after liposuction and elevation (81.5% and 78.1% respectively). Transposition achieved lower mean vein depth reduction and clinical success when compared with lipectomy (4.9 mm vs. 8.8 mm and 90% vs. 92.7% respectively). Transposition and liposuction had the lowest and highest complication rate respectively (1.6% vs. 40.8%). Primary and secondary patency rates were lower with liposuction (51.8% and 76.6% respectively), while lipectomy and elevation achieved the highest primary patency rates (68.3% and 71.6% respectively) at 12 months.

    Conclusions: In obese patients, all superficialisation techniques report high technical success rates. Although limited by the design of individual published studies and lack of a standard for reporting outcomes, these results lead to satisfactory postoperative and early outcomes. In aggregate, lipectomy and transposition are more clinically effective and more durable procedures.

181. Manoly I, Uzzaman M, Karangelis D, Kuduvalli M, **Georgakarakos E**, Quarto C, Ravishankar R, Neuroprotective strategies with circulatory arrest in open aortic surgery - A meta-analysis.Mitropoulos F, Nasir A.Asian Cardiovasc Thorac Ann. 2022; 30(6):635-644.

    Objective: Deep hypothermic circulatory arrest (DHCA) in aortic surgery is associated with morbidity and mortality despite evolving strategies. With the advent of antegrade cerebral perfusion (ACP), moderate hypothermic circulatory arrest (MHCA) was reported to have better outcomes than DHCA. There is no standardised guideline or consensus regarding the hypothermic strategies to be employed in open aortic surgery. Meta-analysis was performed comparing DHCA with MHCA + ACP in patients having aortic surgery.

    Methods: A systematic review of the literature was undertaken. Any studies with DHCA versus MHCA + ACP in aortic surgeries were selected according to specific inclusion criteria and analysed to generate summative data. Statistical analysis was performed using STATS Direct. The primary outcomes were hospital mortality and post-operative stroke. Secondary outcomes were cardiopulmonary bypass time (CPB), post-operative blood transfusion, length of ICU stay, respiratory complications, renal failure and length of hospital stay. Subgroup analysis of primary outcomes for Arch surgery alone was also performed.

    Results: Fifteen studies were included with a total of 5869 patients. There was significantly reduced mortality (Pooled OR = +0.64, 95% CI = +0.49 to +0.83; p = 0.0006) and stroke rate (Pooled OR = +0.62, 95% CI = +0.49 to +0.79; p < 0.001) in the MHCA group. MHCA was associated significantly with shorter CPB times, shorter duration in ICU, less pulmonary complications, and reduced rates of sepsis. There was no statistical difference between the two groups in terms of circulatory arrest times, X-Clamp times, total operation duration, transfusion requirements, renal failure and post-op hospital stay.

    Conclusion: MHCA + ACP are associated with significantly better post-operative outcomes compared with DHCA for both mortality and stroke and majority of the secondary outcomes.

182. Karaolanis G, Moris D, **Georgakarakos E**, Donas K. Stroke after Thoracic Endovascular Aortic Aneurysm Repair: A Silent Enemy that Needs More Caution. Curr Pharm Des. 2022; 28(10):798-799.

    Άρθρο προς τη σύναξη (Editorial) που σχολιάζει τη συχνότητα εγκεφαλικών επεισοδίων μετά από ενδαγγειακή αποκατάσταση ανευρυσμάτων θωρακικής αορτής.

183. Karaolanis GI, Antonopoulos CN, Charbonneau P, **Georgakarakos E,** Moris D, Scali S, Kotelis D, Donas K. systematic review and meta-analysis of stroke rates in patients undergoing thoracic endovascular aortic repair for descending thoracic aortic aneurysm and type B dissection. J Vasc Surg. 2022; 76(1):292-301.e3.

    Objective: We performed a systematic review and meta-analysis to assess the stroke rates after thoracic endovascular aortic repair (TEVAR) for descending thoracic aortic aneurysms and/or dissections.

    Methods: A systematic search of all the literature reported until September 2021 was performed according to the PRISMA (preferred reporting items for systematic reviews and meta-analyses) guidelines. The pooled perioperative stroke rates and corresponding 95% confidence intervals (CIs) were estimated using fixed or random effect methods.

    Results: A total of 878 study titles were identified by the initial search strategy, of which 43 were considered eligible for inclusion in the meta-analysis. A total of 5764 patients (63.5% male) were identified among the eligible studies. The pooled any stroke rate was 4.4% (95% CI, 3.60%-5.28%). However, after procedures without left subclavian artery (LSA) ostial coverage (eg, TEVAR deployed within or distal to zone ≥3), the stroke rate was 3.15% (95% CI, 2.21%-4.22%). For the patients with LSA coverage, the pooled stroke rate was 2.8% (95% CI, 1.69%-4.14%) for patients receiving left subclavian artery revascularization. However, the patients without LSA revascularization had a pooled estimated stroke incidence of 11.8% (95% CI, 5.85%-19.12%).

    Conclusions: Stroke has been a common finding after TEVAR, especially with LSA coverage without revascularization, validating current clinical practice guidelines recommending routine revascularization, when feasible. Additional studies with larger patient numbers that provide separate data regarding the aortic pathology treated, the anatomic location of the stroke and their association with functional recovery and survival are needed.

184. **Georgakarakos E**, Karaolanis GI. Lack of Existing Structured Undergraduate Curriculum in Vascular Surgery: Time to Act. Ann Vasc Surg. 2022; 83:e5-e6.

    Γράμμα προς τη Σύνταξη όπου σχολιάζεται η έλλειψη και η ανάγκη διαμόρφωσης ενός προπτυχιακού προγράμματος αγγειοχειρουργικής.

185. **Georgakarakos E**, Koutsoumpelis A, Kostoglou P, Tasopoulou KM, Argyriou C. A Misdiagnosed Case of Endoleak Type-III Caused by Inadvertent Bilateral Limb Insertion in the Same Limb Gate of the Ovation Endograft. Aorta (Stamford). 2022; 10(1):35-37.

    We describe an infrequent case of endoleak Type-III due to an unrecognized, inadvertent bilateral limb deployment into the same limb gate of the Ovation aortic endograft, accompanied by thrombosis and acute ischemia. The following computed tomography angiography revealed the open limb gate with the characteristic of radio-opaque polymer in the sealing rings. Intraoperative angiographies via the brachial route identified the open limb gate and facilitated the successful use of an occluding plug to manage the Type-III endoleak.

186. Karaolanis GI, Antonopoulos CN, **Georgakarakos E**, Lianos GD, Mitsis M, Glantzounis GK, Giannoukas A, Kouvelos G. Colour Duplex and/or Contrast-Enhanced Ultrasound Compared with Computed Tomography Angiography for Endoleak Detection after Endovascular Abdominal Aortic Aneurysm Repair: A Systematic Review and Meta-Analysis. J Clin Med. 2022; 11(13):3628.

    This study aims to assess the role of Color Duplex Ultrasound with or without contrast media for surveillance following endovascular aortic aneurysm repair (EVAR). A systematic search of the literature published until April 2022 was performed according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The pooled rates of endoleak detection through Contrast-Enhanced or Color Duplex Ultrasound (CEUS or CDUS) and Computed Tomography Angiography (CTA) with 95% confidence intervals (CIs) were estimated using random-effect analysis. Thirty-eight studies were considered eligible for inclusion. The total number of patients in the included studies was 5214 between 1997 and 2021. The overall pooled rate of endoleak detection using CDUS and CTA was 82.59% and 97.22%, while the rates for CEUS and CTA were 96.67% and 92.82%, respectively. The findings of the present study support the use of the CEUS for endoleak detection. However, it should be integrated into institutional protocols for EVAR surveillance to further evaluate its clinical utility in the post-EVAR period before it can be recommended as the sole imaging modality after EVAR.

187. **Georgakarakos E**, Kapoulas K, Bekos C, Georgiadis GS. The Ovation Alto platform: extending endovascular treatment beyond short-necked abdominal aortic aneurysms. Expert Rev Med Devices. 2022; 19(6):463-467.

    Κείμενο προς τη Σύνταξη όπου αναλύονται και παρουσιάζονται τα τεχνικά χαρακτηριστικά ενός νέου αορτικού ενδομοσχεύματος σε απαιτητικές & δύσκολες ανατομίες.

188. **Georgakarakos E**, Papatheodorou N, Keskinis A, Karaolanis GI, Georgoulas P. Anterior Tibial to Dorsalis Pedis Bypass to Manage Acute Ischemia Attributed to Pilon Fracture. Vasc Endovascular Surg. 2023; 57(1):64-68.

    Pilon fractures of the distal tibia are usually the result of a high-energy trauma and can affect seriously the arterial vasculature carrying an increased risk of amputation at the malleolar level or higher. Such cases represent a challenge for the orthopedic surgeons and a multidisciplinary approach is mandatory in order to salvage the threatened limb. We present an unusual case of a closed pilon fracture with injury of all tibial vessels leading to acute limb threatening ischemia. The patient was treated successfully with external fixation and a short tibial-pedal bypass with use of an autologous reversed saphenous vein graft. This example dictates how a distal leg fracture can be dramatic and that awareness of vascular examination coupled with high suspicion of vascular damage can be limb-saving. Multidisciplinary approach is warranted since the topology and complexity of the ankle lesions necessitate staged orthopedic reconstructions with tibio-distal bypass and appropriate skin coverage of the distal anastomosis.

189. **Georgakarakos E**, Dimitriadis K, Tasopoulou KM, Koutsoumpelis A. Foam sclerotherapy of great saphenous vein: The need for further improvement and ill-defined issues. Vascular. 2022 Sep 1:17085381221124993. doi: 10.1177/17085381221124993.

    Foam sclerotherapy is considered an acceptable method to treat great saphenous vein (GSV) insufficiency, promoting occlusion of its trunk and eradicating reflux. Yet, certain technical points have not been standardized while issues regarding the ultrasonographic appearance of successful or acceptable GSV obliteration or the end-points of the method are not clearly defined. This article comments on the aforementioned using examples based on personal experience.

190. Papadopoulou M, **Georgakarakos E**, FIska A. The ambiguous role of isolated profundaplasty in critical limb ischemia: What lies beneath? Vascular. 2022 Sep 16:17085381221127745. doi: 10.1177/17085381221127745.

    Γράμμα προς τη Σύνταξη όπου σχολιάζεται η σημασία του παραπλεύρου δικτύου μεταξύ της εν τω βάθει μηριαίας αρτηρίας και των γονατιαίων παραπλεύρων στη διάσωση σκέλους μετά από ενδαρτηρεκτομή της εν τω βάθει μηριαίας αρτηρίας.

191. Dimitriadis K, Tasopoulou KM, **Georgakarakos E**. Palpable Distal Pulses Ensure Optimal Wound Healing of Large Ulcer Areas by Secondary Intention. Int J Low Extrem Wounds. 2022 Nov 15:15347346221139351. doi: 10.1177/15347346221139351.

    Γράμμα προς τη Σύνταξη όπου παρουσιάζονται χαρακτηριστικά περιστατικά επούλωσης τραυματικών επιφανειών και αναλύεται η σημασία της αποκατάστασης ψηλαφητών περιφερικών σφύξεων μετεγχειρητικά στην επούλωση.

192. **Georgakarakos E**, Dimitriadis K, Georgiadis GS. First case of relining an aortic bifurcated bypass graft with the Altura endograft to treat anastomotic aneurysms. Vascular. 2022 Nov 18:17085381221141119. doi: 10.1177/17085381221141119.

    Objective: Use of classic bifurcated endografts for relining of bifurcated aortic bypass grafts with aneurysms is usually precluded by the short distance between the lowermost renal artery and the aneurysmatic bifurcation, rendering their management challenging.

    Methods: We present the use of the Altura endograft in a case of a 75-year old male with large anastomotic aneurysms in the proximal and the left iliac amastomosis of a bifurcated aortic bypass graft. The Altura endograft consists of two separate components with a proximal D-shaped design. Its braided nitinol endoskeleton is attached only at the proximal and distal ends of the inner surface of the polyester fabric and results in adjustable lengths of the components according to the vessel diameters where they are deployed.

    Results: A 24 mm Altura sealed successfully at the native infarenal aortic segment covering the entire distance between the lowermost renal artery and the upper end of external iliac artery, providing

successful exclusion of the aneurysms. No iliac extensions were used. The completion angiography showed no endoleaks.

Conclusions: The unique design of Altura makes it ideal for treatment of anastomotic aneurysms of bifurcated bypass grafts, overcoming anatomic limitations. To the best of our knowledge, this is the first report addressing this crucial issue.

193. **Georgakarakos E**, Dimitriadis K. Guessing the sequence of multiple relinings with AFX and nitinol-based cuff: "A riddle, wrapped in a mystery, inside an enigma". Vascular. 2022 Nov 23:17085381221140952. doi: 10.1177/17085381221140952.

    Objective: Knowing the structural and technical features of both the older and newer aortic endografts is an essential tool to understand off-the-shelf combinations of different devices used to treat challenging abdominal aortic aneurysm (AAA) anatomies or failures of previous endovascular aneurysm repairs (EVAR).

    Methods: We present a case of a 72-year-old male with history of AAA and evidence of multiple past EVAR interventions who presented with abdominal pain. With no reliable surgical history, we attempted to delineate the types of different endograft parts implanted and the sequence of relining procedure based on plain X-ray projections and combined computed tomography along with intraoperative angiography.

    Results: A tubular endograft was presented with a distal fracture of its endoskeleton, and relined with the same type unibody bifurcate. The latter was extended proximally with an AFX extension of a characteristic radiopaque continuous rim. Angiographic findings intraoperatively excluded the latter as part of the initial procedure. Moreover, an extra nitinol-based cuff was identified centrally.

    Conclusion: In diagnostic challenges involving multiple relining attempts of different endograft parts, careful analysis of the imaging findings, based on knowledge of the structural and technical features of both the older and newer endografts is necessary for proper diagnosis, identification of potential problems and complications and intervention planning, if needed.

194. **Georgakarakos E**, Dimitriadis K, Memet Efenti G, Karaolanis GI, Argyriou C, Georgiadis GS. The Altura endograft system for endovascular aneurysm repair: presentation of its unique design with clinical implications. Expert Rev Med Devices. 2022; 19(12):941-948.

    Introduction: The Altura aortic endograft for the treatment of abdominal aortic aneurysms (AAA) consists of two separate components with a proximal double D-shaped design. The braided endoskeleton of the endograft is attached only at the proximal and distal ends of the inner surface of the fabric resulting in adjustable length of the Altura components. To ensure optimal orientation and sealing, the design of Altura permits collapse, readjustment, and deployment of the repositioned D-shaped endografts.

    Areas covered: Since this new endograft design by Lombard presents unique characteristics, the aim of this article is to present its unique structure and deployment method and discuss its applicability, indications and associated concerns.

    Expert opinion: The Altura endograft revolutionizes the mechanism of infrarenal sealing by containing no main body at all. This feature allows ideal treatment of AAA with considerable offset of the renal arteries and permits also relining in cases of failing endografts or in cases where the short length of existing structures precludes deployment of conventional bifurcated endografts.

195. **Georgakarakos E**, Fiska A. Dolichoarteriopathy of Common Carotid Artery: An Unusual Entity. Aorta (Stamford). 2022; 10(6):308-309.

    Dolichoarterial disease of the carotid arteries refers to elongated arteries with tortuous, coiling, and kinking anatomy. This morphology is usually met in the elderly and not associated with atherosclerotic risk factors. Current practice reserves surgical correction only in symptomatic patients. Significant tortuosity index may be associated with stroke and poses extra difficulties to the endovascular passage of guidewires and catheters for the treatment of extra- and intracranial vascular lesions. This article presents a typical case of bilateral dolichoarteriopathy of the common carotid artery and stresses the need for further categorization of the particular morphology based on modern angiography techniques and three-dimensional reconstruction software.

196. **Georgakarakos E**, Dimitriadis K, Tasopoulou KM, Doukas D, Argyriou C, Georgiadis GS. Customizing foam sclerotherapy of the great saphenous vein: A proposed algorithm to enhance technical efficacy. Vascular. 2023 Mar 8:17085381231161856. doi: 10.1177/17085381231161856.

Objectives: The catheter-directed foam sclerotherapy (FS) and the suggested perivenous tumescent application for great saphenous vein (GSV) diameter reduction are suggested to improve technical and clinical results; yet, their use is reported rather indiscriminately. Our aim is to introduce an algorithm categorising the use of technical modalities accompanying ultrasound-guided FS of the GSV and present the technical efficacy of FS through a 5 F × 11 cm sheath placed at the knee level.

Methods: Representative cases of GSV insufficiency were chosen to describe our methodology.

Results: Sole sheath-directed FS can achieve complete GSV occlusion proximally at a level comparable to the catheter-directed technique. We apply perivenous 4°C cold tumescent to GSV >6 mm even in the standing position to ensure diameter reduction of the proximal GSV as close to the saphenofemoral junction. We use long catheters only to overcome large varicosities above the knee level that could otherwise compromise the adequate foam infusion from the sheath tip. When GSV insufficiency extends along the entire limb and severe skin lesions preclude the antegrade distal catheterisation, the sheath-directed FS in the thigh can be concomitantly combined with retrograde FS from catheterisation just below the knee.

Conclusions: A topology-oriented methodology with sheath-directed FS is technically feasible and avoids indiscriminate use of more complex modalities.

197. **Georgakarakos E**, Dimitriadis K, Argyriou C, Efenti GM, Doukas D, Georgiadis GS. Technical characteristics of the Ovation Alto for the treatment of Abdominal Aortic Aneurysms: application to challenging anatomies. Aorta (Stamford). 2023 Mar 9. doi: 10.1055/a-2051-2520.

The Ovation Alto design repositions the maximum diameter of the proximal sealing ring at 7 mm below the lowermost renal artery. Although it has been introduced to address abdominal aortic aneurysms with short necks ≥7 mm, we present further applications of Alto in other neck irregularities, presenting four representative challenging cases with a short, wide and conical neck as well a juxtarenal aneurysm. At one month follow up, there was 100% technical and clinical success.

198. Georgakarakos E, Dimitriadis K. Sheath-Based Combined Foam Sclerotherapy to Promote Management of Extensive Insufficiency of the Great Saphenous Vein in Venous Ulcers. Vasc Endovascular Surg. 2023 Apr 20:15385744231171753. doi: 10.1177/15385744231171753.

Background: Foam sclerotherapy is considered an acceptable method to treat great saphenous vein (GSV) insufficiency, promoting occlusion of its trunk and eradicating reflux. Various modalities and techniques have been described, varying form foam infusion through multiple short cannulae along the GSV to catheter-directed techniques in order to facilitate complete proximal GSV occlusion and improve technical and clinical success.

Purpose: To present a modification of the sclerotherapy tehcnique where the presence of venous ulcers poses an extra challenge to the treatment of GSV treatment. Technique: We describe a technical proposal of single foam perfusion through a 11 cm 5F sheath placed at the knee level combined with simultaneous retrograde infusion below the knee. Perivenous tumescent segmental infiltration with cold normal saline at 4°C is applied initially to reduce the diameter in those GSV >6-7 mm.

Conclusions: This combination avoids multiple vein cannulation in the GSV along the thigh as well as the need for antegrade infusion when GSV cannulation at the lower tibia is prohibited by a large ulcer area.

199. Georgiadis GS, Schoretsanitis N, Argyriou C, Nikolopoulos E, Kapoulas K**, Georgakarakos EI**, Ktenidis K, Lazarides MK. Long-term outcomes of the EndurantTM endograft in patients undergoing endovascular abdominal aortic aneurysm repair. J Vasc Surg. 2023 May 2:S0741-5214(23)01140-0. doi: 10.1016/j.jvs.2023.04.033.

Introduction: To investigate the long-term outcomes after endovascular aneurysm repair (EVAR), in a real-world setting using the EndurantTM endograft (EG).

Methods: 184 EVAR candidates treated with the EndurantTM family EGs in a single vascular center were prospectively enrolled from January 2009 to December 2016. Kaplan-Meir estimates of long-term standardized primary and secondary outcome measures were performed Per protocol, subgroup comparison analysis was performed in 3 groups: patients treated within instructions for use (in-IFU) vs patients treated outside-IFU, EVAR in patients receiving Endurant proximal diameter 32 or 36 mm EG vs those receiving <32 mm diameter EG and EVAR with various EndurantTM EG versions.

Results: The mean follow-up was 75.09 ± 37.9 months (range: 4.1-172 months). The median age of the patients was 72.96 ± 7.03 years (range: 55-88 years). 177 patients were males (96.2%). Compliance with

IFU was followed in 107 patients (58.2%). Overall survival was 69.5 and 48% at 5 and 8 years respectively. Of the 102 all-cause deaths, seven (6.9%) were aneurysm related. Six of these post-implant deaths occurred in patients presented with aneurysm rupture from type Ia or/and type Ib endoleak. At 5/8/and 10 years of observation, freedom from aneurysm rupture, open surgical conversion (OSC), type I/III endoleak, any type of endoleak, aneurysm-related secondary intervention probabilities and neck-related events, were as follows: 98.1/95/and 89.4%, 95.1/91.2/and 85.7%, 93.6/87.3/and 83.9%, 83.4/74/and 70.9%, 89.8/76.7/and 72% and 96.3/90%/and 87.6% respectively. Corresponding clinical success was 90/77.4/and 68.4%. Patients treated outside-IFU had significantly higher risk of aneurysm rupture, OSC probability, occurrence of type I/III endoleak, and chance of reinterventions and lower clinical success probabilities compared to the in-IFU counterparts at 5 and 8 years. This statistical difference remained when type Ia endoleak or endoleak of any type was considered independently. Additionally, it was stronger in patients having extreme anatomical boundaries (>1 hostile anatomical condition), when aneurysm related death, aneurysm rupture and clinical success at 5 years were considered. Overall proximal migration and limb occlusion was recorded in 1.1 and 4,9% of the patients. Overall re-intervention rate was 17.4%. Increase in aneurysm sac diameter was observed in 12.5% of patients and was not related to IFU status. The EndurantTM version or the proximal EG diameter had no significant association with the chance of any complication or adverse event.

Conclusions: The data confirmed the durability of the Endurant EG, achieving promising long-term outcomes in a real-world setting. However, its positive performance must be interpreted with caution in patients treated off-label especially those with extreme anatomical boundaries. In this cohort, some of EVAR advantages might be lost in the late future. Further similar studies are warranted.

200. Christodoulou KC, Karangelis D, Efenti GM, et al. Current knowledge and contemporary management of non-A non-B aortic dissections. World J Cardiol. 2023;15(5):244-252.

Non-A non-B aortic dissection (AAD) is an infrequently documented condition, comprising of only a small proportion of all AADs. The unique anatomy of the aortic arch and the failure of the existing classifications to adequately define individuals with non-A non-B AAD, have led to an ongoing controversy around the topic. It seems that the clinical progression of acute non-A non-B AAD diverges from the typical type A and B dissections, frequently leading to serious complications and thus mandating early intervention. Currently, the available treatment methods in the surgical armamentarium are conventional open, endovascular techniques and combined hybrid methods. The optimum approach is tailored in every individual case and may be determined by the dissection's location, extent, the aortic diameter, the associated complications and the patient's status. The management of non-A non-B dissections still remains challenging and a unanimous consensus defining the gold standard treatment has yet to be reached. In an attempt to provide further insight into this perplexing entity, we performed a minireview of the literature, aiming to elucidate the epidemiology, clinical course and the optimal treatment modality.

201. Karaolanis GI, **Georgakarakos** E, Karakosta A, et al. Long-term outcomes of thoracic endovascular aortic repair for the treatment of descending thoracic aortic aneurysms: a systematic review and meta-analysis. J Cardiovasc Surg (Torino). 2024;65(2):139-146. Introduction: We undertook a systematic review of the currently published literature on TEVAR for DTAAs and we combined the eligible studies into a meta-analysis with the intention of evaluating the efficacy and the long-term durability of this treatment option.

Evidence acquisition: A systematic search of the literature from January 2015 up to December 2022 was performed according to the PRISMA (preferred reporting items for systematic reviews and meta-analyses) guidelines. For events during follow-up we calculated the incidence rates (IRs) with 95% confidence intervals (95% CIs) per 100 patient-years (p-ys) as the number of patients with outcome events occurring during the specific time period divided by the total number of p-ys.

Evidence synthesis: A total of 4127 study titles were identified by the initial search strategy, of which 12 were considered eligible for inclusion in the meta-analysis. A Total of 1976 patients (62% male) were identified among the eligible studies. One-year survival was 90.1% (95% CI 86.3% to 93.0%), 3-year survival was estimated at 80.5% (95% CI 69.2% to 88.4%) and the 5-year survival was estimated at 73.2% (95%CI 64.3% to 80.5%) with significant heterogeneity among studies regarding these outcomes. Regarding freedom from reintervention analysis for 1 year and 5 years was 96.5% (95% CI 94.5% to 97.8%) and 85.4% (95% CI 56.7% to 96.3%) respectively. The pooled late complications IR per 100 p-ys was 55.0 (95% CI 39.1 to 70.9), whereas the pooled IR for late reinterventions per 100 p-ys was 21.2 (95% CI 26.0 to 87.5). Late type I endoleak was reported with a pooled IR of 26.7 per 100 p-ys (95% CI 19.8 to 33.6) and late type III endoleak with a pooled IR of 7.6 per 100 p-ys (95% CI 5.5 to 9.7).

Conclusions: TEVAR presents a safe and feasible solution for the treatment of DTAA with sustained long-term effectivity. Current evidence supports a satisfactory 5-year survival with low rates of reinterventions.

202. **Georgakarakos E**, Papadopoulou M, Karangelis D, Fiska A. Teaching vascular anatomy: the anatomy we know, the anatomy we see or the anatomy we need? Surg Radiol Anat. 2023;45(9):1155-1164. Purpose: This article presents the evolution of the subject of vascular anatomy and discusses the associated clinical applicability.

Methods: Clinically driven surgical examples met in our everyday practice were used to depict characteristic anatomical paradoxes raised by the inconsistencies between classical anatomical perception, current imaging modalities and modern surgical techniques.

Results: Consequent anatomy-driven modifications of medical devices comprise a characteristic example of the vivid, modern and meaningful role that anatomy can have on clinical decision-making and improvement of technical and clinical success. Clinical experience provides a feedback that shifts the focus of anatomic research towards new fields of interest, such as the role of arterial collateral networks as therapeutic targets. The clinical feedback brings into light queries and issues where traditional anatomical answers may be vague and inadequate to apply, thereby necessitating further research, refinement and reevaluation.

Conclusion: While the traditional teaching of vascular anatomy is based on information and illustrations derived from dissection and prosection courses, the development of modern imaging technologies applied in large numbers of living patients and application of minimally invasive techniques challenge our understanding of what should be perceived as fixed and permanent. Moreover, the recently introduced evidence-based philosophy in anatomy elaborates more robust data which not only update, validate and enrich the existing knowledge of anatomical variations but also enable subgroup analyses with respect to race, age and sex, identifying specific anatomic features associated with a significant impact on patient treatment.

203. Stougiannou TM, Christodoulou KC, **Georgakarakos E**, Mikroulis D, Karangelis D. Promising Novel Therapies in the Treatment of Aortic and Visceral Aneurysms. J Clin Med. 2023;12(18):5878.

Aortic and visceral aneurysms affect large arterial vessels, including the thoracic and abdominal aorta, as well as visceral arterial branches, such as the splenic, hepatic, and mesenteric arteries, respectively. Although these clinical entities have not been equally researched, it seems that they might share certain common pathophysiological changes and molecular mechanisms. The yet limited published data, with regard to newly designed, novel therapies, could serve as a nidus for the evaluation and potential implementation of such treatments in large artery aneurysms. In both animal models and clinical trials, various novel treatments have been employed in an attempt to not only reduce the complications of the already implemented modalities, through manufacturing of more durable materials, but also to regenerate or replace affected tissues themselves. Cellular populations like stem and differentiated vascular cell types, large diameter tissue-engineered vascular grafts (TEVGs), and various molecules and biological factors that might target aspects of the pathophysiological process, including cell-adhesion stabilizers, metalloproteinase inhibitors, and miRNAs, could potentially contribute significantly to the treatment of these types of aneurysms. In this narrative review, we sought to collect and present relevant evidence in the literature, in an effort to unveil promising biological therapies, possibly applicable to the treatment of aortic aneurysms, both thoracic and abdominal, as well as visceral aneurysms.

204. Dimitriadis K, Karanikas M, Malafi ME, Parisidis S, **Georgakarakos E.** Open Management of an Asymptomatic 4.2 Cm Middle Colic Artery Aneurysm and Liteture Review. Vasc Endovascular Surg. 2024;58(3):338-342.

Background: Aneurysms of the middle colic artery (MCAA) and its branches are exceedingly rare accounting for <3% of total visceral aneurysms. Very few MCAA cases have been reported in the literature with only three cases accounting for a diameter >4 cm.

Method: We describe the successful open repair with ligation of a 4.2 cm asymptomatic MCAA in a female patient through the gastrohepatic ligament taking meticulous caution to avoid injury of the pancreas. The postoperative period was uneventful, and the patient was discharged from the hospital on the fifth postoperative day. At 1 month follow-up the postoperative computed tomographic angiography documented complete exclusion of the MCAA and absence of contrast agent in the sac both in the arterial and the venous phase.

Conclusion: While the endovascular treatment is the first-line option for visceral aneurysms, the open approach is still reserved for certain cases of hostile anatomy, challenging location and large size. Our

case highlights the irreplaceable role of open surgery and underlines the collaboration between surgical specialties.

205. Argyriou C, Lazarides MK, **Georgakarakos E**, Georgiadis GS. Role of Hemodynamic Assessment and Limitations in Ankle-Brachial Pressure Index, Toe- Brachial Pressure Index to Predict Wound Healing After Revascularization. Int J Low Extrem Wounds. 2024;23(1):7-11.

Chronic limb-threatening ischemia (CLTI) represents one of the most severe forms of peripheral arterial disease implying impaired wound healing and tissue loss at the same time posing a significant impact on the quality of life of patients and a serious economic burden on healthcare systems around the world. A major challenge in the management of patients with CLTI is the validity and role of non-invasive hemodynamic parameters in assessing their clinical status before and after revascularization. Traditionally, the diagnosis of CLTI is routinely based on clinical symptoms and confirmed by measurements of non-invasive limb hemodynamics including ankle-brachial pressure index (ABPI) and toe-brachial pressure index (TBPI). However, whether these indices alone can provide definitive treatment or be used as adjunctive tool along with the implementation of novel techniques to help guide revascularization for CLI patients still remains unclear.

206. **Georgakarakos E**, Karangelis D, Stylianou C, Karaolanis GI, Triantafyllou N, Fiska A. An asymptomatic double aortic arch with separate right vertebral artery and left subclavian artery originating from Kommerell diverticulum combined with congenital asplenia and absence of celiac trunk. Folia Morphol (Warsz). 2024;83(3):727-733.

This report describes the unique case of a completely patent Double Aortic Arch (DAA) combined with Kommerell diverticulum (KD), absence of celiac trunk, and congenital asplenia. The anatomical variants described were identified and assessed in a 51-year-old female from computed-tomography angiography (CTA) images with 3D-volume rendered reconstructions during her follow-up after hysterectomy. The reconstructed CTA images showed a DAA with the left common carotid artery stemming from the hypoplastic left aortic arch while the left subclavian artery originated from a KD in the descending thoracic aorta. A symmetric arrangement of the aortic arch branches was demonstrated, comprising a full vascular ring. Since the patient had been completely asymptomatic and with no symptoms of compression of the oesophagus or trachea, no surgical management was advised. The abdomen CTA imaging revealed absence of the celiac trunk with direct origin of the common hepatic and the left gastric artery from the superior mesenteric artery as well asplenia. The authors present a case of asymptomatic DAA of completely patent arches with the right vertebral artery branching separately of and the left SCA originating from KD in the descending aorta. The term KD can be identified also in arch anomalies other than the one originally described. Because anatomical anomalies can frequently be combined, thorough imaging inspection with CTA of both the thorax and abdomen is suggested.

207. **Georgakarakos E**, Dimitriadis K, Parisidis S, Triantafyllou N, Argyriou C, Georgiadis GS. Tips and Tricks to Facilitate the Combined Iliofemoral Endarterectomy with Stenting for Heavily Calcified Common Femoral Artery Atherosclerosis with Involvement of the External Iliac Artery. Vasc Endovascular Surg. 2024;58(5):571-576. Background: Management of a heavily calcified atherosclerotic occlusive disease involving the common femoral artery (CFA) and external iliac artery (EIA), poses a surgical challenge. Though the current guidelines recommend open surgical therapy for such lesions, this approach is neither easy nor represents the current real-life practice.

Purpose: To describe tips and tricks facilitating the hybrid technique for the management of distal iliofemoral atherosclerotic disease, where classic endarterectomy is inadequate or ill-performed.

Technique: A contralateraly inserted guidewire reaches the distal iliac artery via the crossover technique and is directly retrieved from the femoral arteriotomy immediately after removal of the anterior plaque segment. The retrieved and secured guidewire enables extensive retrograde CFA endarterectomy over the wire with avusion proximally to the inguinal ligement, followed by patch arterioplasty. Externalizing the guidewire from the patch enables traction on it and facilitates advancement of the stent through tortuous or stenosed iliac vessels as well as accurate stent deployment to cover the margin of the EIA residual plaque. Moreover, this manipulation enables ipsilateral placement of a sheath and passage of a second, retrograde guidewire to perform kissing stenting in the common iliac vessels. Chronic thrombotic lesions require covered stents to avoid thrombus propagation and meticulous flushing before completion of the femoral patching.

Conclusions: The combined iliofemoral endarterectomy with stenting does not require advanced endovascular skills and prevents complications associated with incomplete femoral endarterectomy.

Extensive avulsion endarterectomy proximal to the inguinal ligament is efficiently and safely performed over a retrieved crossover guidewire, enabling precise residual stenting above the flexion site.

208. Schoretsanitis N, Pitoulias G, Ktenidis K, Bontinis V, **Georgakarakos E.** The Anaconda One-LokTM stent graft for the treatment of infrarenal abdominal aortic aneurysms: clinical results, technical, and mechanical characteristics. Expert Rev Med Devices. 2024;21(11):1007-1013.

Introduction: The Anaconda aortic stent graft is a trimodular endovascular stent graft with an active infrarenal fixation suitable for the treatment of infrarenal abdominal aortic aneurysms with an infrarenal neck angulation ≤90°. A unique magnet-based mechanism facilitates the cannulation of the contralateral leg.

Areas covered: The present article provides a complete description of the third-generation Anaconda endograft, the Anaconda One-LokTM, its clinical performance and the related technical and mechanical characteristics as well as a brief comparison between itself and other similar endografts.

Expert opinion: The Anaconda One-Lok stent graft is particularly suitable for abdominal aortic aneurysms with an infrarenal aortic neck angulation up to 90°. Issues that need to be resolved concern the higher incidence of iliac limb occlusion and distal migration compared to other commercially available endografts and possibly the valley central migration with the risk of covering the renal ostia.

209. **Georgakarakos E**. The CHIVA in practice: Ready for a bold rebranding?. Phlebology. 2025;40(7):463-465.

XVI. ΣΥΓΚΕΝΤΡΩΤΙΚΟΣ ΠΙΝΑΚΑΣ ΔΗΜΟΣΙΕΥΣΕΩΝ

ΣΥΓΚΕΝΤΡΩΤΙΚΟΣ ΠΙΝΑΚΑΣ ΞΕΝΟΓΛΩΣΣΩΝ ΔΗΜΟΣΙΕΥΣΕΩΝ ΠΟΥ ΕΜΦΑΝΙΖΟΝΤΑΙ ΣΕ ΠΕΡΙΟΔΙΚΑ ΤΗΣ ΙΑΤΡΙΚΗΣ ΒΑΣΗΣ PUBMED & SCOPUS

Α/α¶	Περιοδικό	Impact factor**	Έτος δημοσίευσης	1ο όνομα	2ο όνομα	3ο όνομα	>3ης θέσης	Βιβλιογραφικές αναφορές (citations) - Scopus	Βιβλιογραφικές αναφορές – Google Scholar
1	Int Angiol	1.15	2009	√				47	65
2	J Vasc Surg	3.51	2009	√				1	2
3	Int Angiol	1.15	2009				√	16	-
4	Eur J Vasc Endovasc Surg	2.87	2010	√				88	138
5	Eur J Vasc Endovasc Surg	2.87	2010	√				14	25
6	Eur J Vasc Endovasc Surg	2.87	2010			√		3	6
7	Eur J Vasc Endovasc Surg	2.87	2010	√				5	-
8	J Vasc Surg	3.85	2010				√	60	123
9	Eur J Vasc Endovasc Surg	2.87	2010	√				0	-
10	Int Angiol	0,99	2010				√	33	43
11	J Vasc Surg	3.85	2010	√				0	-
12	J Vasc Access	1.09	2011	√				6	9
13	Angiology	1.51	2011	√				6	8
14	J Endovasc Ther	2.85	2011	√				35	63
15	Int Angiol	1.65	2011	√				5	**6**
16	J Endovasc Ther	2.85	2011				√	46	59
17	J Med Case Rep	-	2011	√				2	2
18	J Vasc Access	0,97	2012		√			4	7
19	J Vasc Access	0,97	2012	√				13	21
20	J Vasc Access	0,97	2012	√				1	3
21	Vasc Endovasc Surg	0.88	2012	√				3	7
22	Vasc Med	1.61	2012	√				23	31
23	Vascular	0.86	2012	√				1	1
24	Ann Vasc Surg	0.98	2012	√				0	-
25	Med Hypotheses	1.05	2012	√				9	11
26	Stroke	6,15	2012				√	22	31

27	Vasc Endovascular Surg	0.88	2012	√				0	1
28	J Vasc Access	0,97	2012	√				2	4
29	Perspect Vasc Surg Endovasc Ther	-	2012			√		7	16
30	J Endovasc Ther	2.69	2012	√				21	24
31	Vascular	1,00	2013	√				1	4
32	Angiology	2.37	2013	√				18	28
33	J Vasc Surg	2.98	2013			√		2	3
34	Int J Artif Organs	1.44	2013				√	4	7
35	ANZ J Surg	1.11	2013				√	17	19
36	J Endovasc Ther	3,59	2013	√				4	5
37	J Vasc Interv Radiol	2,14	2013			√		0	0
38	J Endovasc Ther	3.59	2013	√				12	14
39	J Vasc Access	1.01	2013	√				2	3
40	Int J Low Extrem Wounds	1.19	2013	√				24	32
41	Int J Low Extrem Wounds	1.19	2013	√				10	15
42	EJVES Extra	2.92	2013				√	3	4
43	Med Hypotheses	1.15	2013		√			7	8
44	J Vasc Interv Radiol	2,14	2013			√		20	25
45	Acad Med	3.46	2013	√				5	5
46	J Cardiothorac Vasc Anesth	1.48	2013			√		6	13
47	Int J Low Extrem Wounds	1,19	2013	√				6	6
48	J Vasc Surg	2,98	2013				√	66	98
49	JAMA Surg	3,93	2013			√		67	57
50	Theor Biol Med Model	1,26	2013				√	12	18
51	J Endovasc Ther	3,59	2013		√			15	20
52	J Cardiovasc Surg (Torino)	1.55	2014				√	1	2
53	Angiology	2,97	2014				√	5	5
54	Eur J Vasc Endovasc Surg	2,49	2014	√				28	32
55	Ann Vasc Surg	1,17	2014	√				2	**3**
56	J Endovasc Ther	3,35	2014				√	23	33
57	Ann Vasc Surg	1,17	2014	√				6	5
58	Ann Vasc Surg	1,17	2014	√*				10	27
59	J Vasc Surg	3,02	2014	√				0	0
60	Int J Artif Organs	0,96	2014			√		13	13
61	Int J Artif Organs	0,96	2014	√				6	6

62	J Vasc Surg	3,02	2014		√			42	49
63	Interact Cardiovasc Thorac Surg	1,15	2014		√			8	21
64	J Endovasc Ther	3,35	2014	√				14	16
65	Eur J Radiol	2,36	2014				√	23	29
66	J Vasc Access	0,84	2014		√			7	**5**
67	Cardiovasc Intervent Radiol	2,07	2014	√				2	2
68	Vasc Med	1,78	2014	√				0	0
69	Aorta	-	2014	√				0	0
70	J Endovasc Ther	3,35	2014	√				6	8
71	Int Angiol	0,83	2014	√				6	7
72	Cardiovasc Intervent Radiol	2,07	2014	√				24	27
73	J Endovasc Ther	3,35	2014	√				1	1
74	Cardiovasc J Afr	0,78	2014					3	3
75	Int Angiol	0,83	2014		√			3	2
76	J Endovasc Ther	3,35	2014				√	18	18
77	Ann Vasc Surg	1,04	2015	√				10	10
78	Ann Vasc Surg	1,04	2015				√	46	68
79	J Vasc Access	1,53	2015				√	8	10
80	Vasa	1,12	2015				√	0	0
81	Ann Vasc Surg	1,04	2015	√*				21	22
82	Eur J Vasc Endovasc Surg	2,91	2015				√	56	86
83	J Endovasc Ther	3,12	2015			√		3	3
84	Vascular	0,61	2015	√				4	5
85	J Endovasc Ther	3,12	2015	√				2	4
86	J Endovasc Ther	3,12	2015	√				7	13
87	J Endovasc Ther	3,12	2015	√				19	21
88	J Hand Microsurg	-	2015			√	√	-	**4**
89	J Vasc Access	1,53	2015			√		0	0
90	J Vasc Access	1,53	2015			√		14	20
91	Ann Vasc Surg	1,04	2015	√				4	6
92	J Endovasc Ther	3,12	2015			√		24	35
93	Hellenic J Cardiol	0,94	2015			√		6	8
94	Case Rep Vasc Med	-	2015		√			-	0
95	Vascular	0,61	2016	√				7	8
96	Front Surg	-	2016	√				2	4

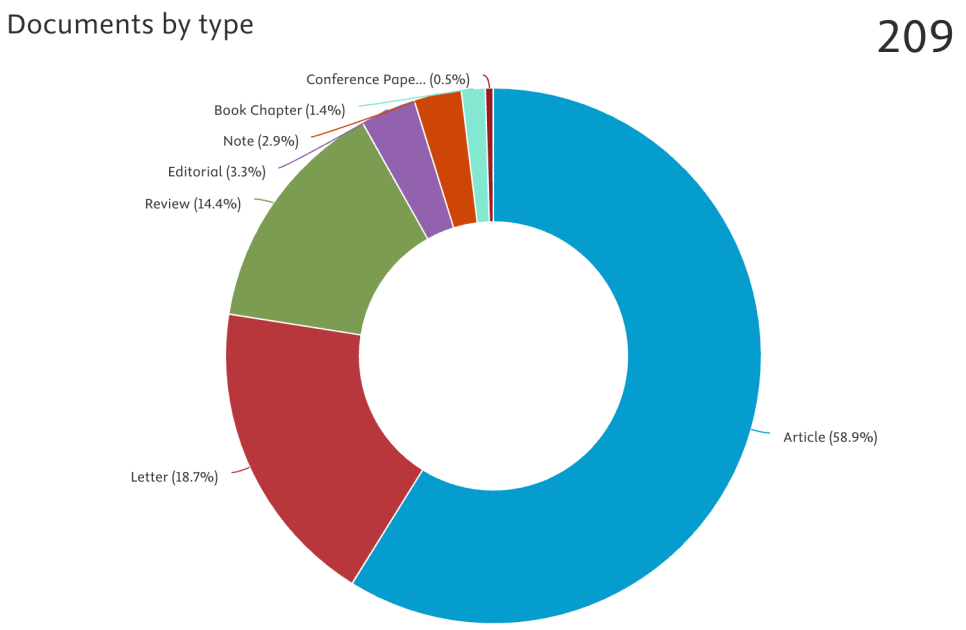
97	Expert Rev Med Devices	1,76	2016	√				26	26
98	Med Hypotheses	1,13	2016	√				3	3
99	World J Radiol	-	2016				√		26
100	Vasc Endovascular Surg	1,63	2016				√	9	10
101	J Cardiovasc Surg (Torino)	1,63	2016	√				1	3
102	Ann Vasc Surg	1,04	2016	√				10	10
103	Radiol Med	1,52	2016			√		3	3
104	Med Hypotheses	1,13	2016	√				7	6
105	Semin Vasc Surg	1,31	2016				√	11	13
106	Comput Methods Biomech Biomed Engin	1,85	2016			√		12	19
107	J Cardiovasc Surg (Torino)	0,78	2016				√	17	22
108	Hemodial Int	1,49	2016				√	0	0
109	Angiology	2,93	2017	√				3	4
110	Med Hypotheses	1,13	2017	√				0	0
111	J Endovasc Ther	3,05	2017	√				5	5
112	Ann Vasc Surg	1,36	2017	√				6	7
113	Ann Vasc Surg	1,36	2017	√				0	1
114	Ann Vasc Surg	1,36	2017		√			1	1
115	Ann Vasc Surg	1,36	2017	√				5	5
116	Radiol Med	2,00	2017		√			19	23
117	Int Angiol	1,15	2017				√	5	5
118	J Endovasc Ther	2,73	2017	√				9	11
119	J Endovasc Ther	2,73	2017	√			√	53	73
120	J Med Devices	-	2017					11	15
121	Phlebology	1,54	2018				√	10	19
122	Int Angiol	1,28	2018	√				4	7
123	Eur J Vasc Endovasc Surg	3,64	2018	√				0	0
124	Expert Rev Med Devices	2,21	2018	√				9	12
125	Ann Vasc Surg	1,18	2018				√	0	0
126	Ann Vasc Surg	1,18	2018	√				3	8
127	J Vasc Access	1,39	2018				√	8	13
128	J Endovasc Ther	2,98	2018	√				0	0
129	Diagn Interv Radiol	1,46	2018	√				1	0
130	Ann Vasc Surg	1,18	2018			√		7	10
131	Front Surg	-	2018	√				1	1

132	Eur J Vasc Endovasc Surg	3,64	2018	√				1	1
133	Ren Fail	1,68	2018				√	0	1
134	J Endovasc Ther	2,98	2018	√				1	1
135	Curr Pharm Des	2,41	2018				√	7	12
136	Ann Vasc Surg	1,18	2019	√				0	0
137	Expert Rev Med Devices	2,21	2019		√			7	9
138	J Endovasc Ther	2,98	2019	√				1	1
139	J Vasc Nurs	0,63	2019	√				2	2
140	Eur J Vasc Endovasc Surg	3,64	2019	√				0	0
141	Int J Low Extrem Wounds	1,27	2019	√				0	0
142	Vascular	1,17	2019		√			3	2
143	J Endovasc Ther	2,98	2019	√				1	1
144	Aorta		2019	√				5	5
145	J Surg Res	1,87	2020	√				1	1
146	Expert Rev Med Devices	2,2	2020	√				12	12
147	Eur J Vasc Endovasc Surg	3,64	2020	√				8	9
148	Ann Vasc Surg	1,17	2020	√				0	0
149	Ann Vasc Surg	1,17	2020			√		0	0
150	Ann Vasc Surg	1,17	2020	√				5	5
151	Ann Vasc Surg	1,17	2020			√		1	1
152	Eur J Vasc Endovasc Surg	3,64	2020	√			√	0	0
153	Expert Rev Med Devices	2,2	2020					10	11
154	Expert Rev Med Devices	2,2	2020	√				5	5
155	J Vasc Surg	3,4	2020	√				0	0
156	Aorta		2020	√				0	0
157	Hippokratia		2020	√*				0	1
158	Ann Vasc Surg	1,60	2021				√	6	6
159	Ann Vasc Surg	1,60	2021				√	3	6
160	Ann Vasc Surg	1,60	2021	√				0	0
161	J Vasc Access	1,22	2020	√				1	1
162	Eur J Vasc Endovasc Surg	5,32	2021				√	9	16
163	Ann Vasc Surg	1,60	2021	√				0	0
164	J Vasc Surg	4,73	2021				√	4	7
165	Ann Vasc Surg	1,60	2021	√				3	4
166	Ann Vasc Surg	1,60	2021	√				0	0
167	Vasc Endovascular Surg	1,04	2021	√				0	1

168	Ann Vasc Surg	1,60	2021		√			2	2
169	Ann Vasc Surg	1,60	2021				√	0	2
170	Ann Vasc Surg	1,60	2021	√				2	2
171	Int J Low Extrem Wounds	1,61	2021	√				0	0
172	Vasc Endovascular Surg	1,04	2021	√				1	2
173	J Vasc Surg	4,73	2021			√		0	0
174	Anat Sci Educ	6,65	2022	√				1	0
175	J Vasc Access	2,32	2022	√				0	0
176	J Vasc Access	2,32	2022	√				0	0
177	Int J Low Extrem Wounds	1,92	2022			√		1	2
178	Expert Rev Med Devices	3,43	2022	√				1	4
179	Expert Rev Med Devices	3,43	2022		√			0	0
180	Ann Vasc Surg	1,60	2022				√	0	0
181	Asian Cardiovasc Thorac Ann	0,50	2022				√	0	0
182	Curr Pharm Des	3,3	2022				√	0	0
183	J Vasc Surg	4,73	2022				√	4	6
184	Ann Vasc Surg	1,60	2022	√				0	0
185	Aorta (Stamford)	0,43	2022	√				0	0
186	J Clin Med	4,96	2022			√		1	1
187	Expert Rev Med Devices	3,43	2022	√				0	0
188	Vasc Endovascular Surg.	1,04	2023	√				0	0
189	Vascular	1,10	2023	√				0	0
190	Vascular	1,10	2023		√	√		0	0
191	Int J Low Extrem Wounds	1,92	2022					0	0
192	Vascular	1,10	2022	√				1	1
193	Vascular	1,10	2022	√				0	0
194	Expert Rev Med Devices	3,43	2022	√				1	1
195	Aorta (Stamford)	0,43	2022	√				0	0
196	Vascular	1,10	2023	√				0	0
197	Aorta (Stamford)	0,43	2023	√				0	0
198	Vasc Endovascular Surg.	1,04	2023	√				0	0
199	J Vasc Surg	4,86	2023				√	0	0
	Σύνολο:	380,4		118	15	23	43	***1628	***2230
	h- index:							21	25

¶: Α/α, όπως αναγράφεται στην ενότητα Α του κεφαλαίου XIII «*πλήρεις δημοσιεύσεις σε ξενόγλωσσα περιοδικά*».
* Ισότιμη συμμετοχή στη θέση του α' συγγραφέα.
** κατά τη χρονολογία δημοσίευσης του κάθε άρθρου.
*** μέχρι 05/05/2023
Οι δημοσιεύσεις #42 & 120 δεν περιλαμβάνονται στο Pubmed. Οι δημοσιεύσεις #88,94 δεν περιλαμβάνονται στο Scopus.

ΠΑΡΟΥΣΙΑΣΗ ΞΕΝΟΓΛΩΣΣΩΝ ΔΗΜΟΣΙΕΥΣΕΩΝ ΑΝΑ ΕΙΔΟΣ ΣΥΜΦΩΝΑ ΜΕ ΤΟ SCOPUS



(μέχρι και Οκτώβριος 2025)

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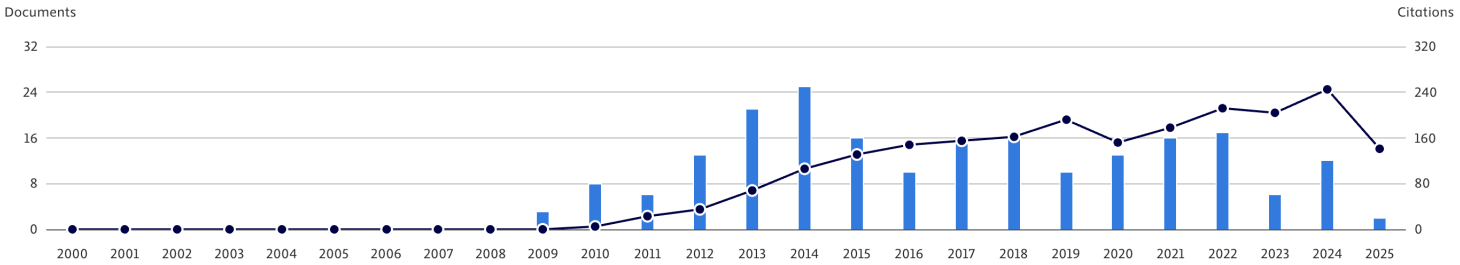

(μέχρι και Οκτώβριος 2025)