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ΒΙΟΓΡΑΦΙΚΟ ΣΗΜΕΙΩΜΑ

ΚΑΙ

ΥΠΟΜΝΗΜΑ ΕΠΙΣΤΗΜΟΝΙΚΩΝ ΔΗΜΟΣΙΕΥΣΕΩΝ

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ΠΕΡΙΕΧΟΜΕΝΑ

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ΣΥΝΤΟΜΟ ΒΙΟΓΡΑΦΙΚΟ ΣΗΜΕΙΩΜΑ

Θεόδωρος Τόκας MD, PhD, FEBU

Χειρουργός Ουρολόγος

Oberarzt LKH Hall in Tirol, Hall in Tirol, Αυστρία

Ο Θεόδωρος Τόκας είναι απόφοιτος της Ιατρικής Σχολής του Πανεπιστημίου Ιατρικής του Pecs Ουγγαρίας. Μετά την ολοκλήρωση της εκπαίδευσής του ως ειδικευόμενος στην Ά Πανεπιστημιακή Ουρολογική Κλινική Αθηνών του Νοσοκομείου «Λαϊκό», απέκτησε τον Τίτλο Ιατρικής Ειδικότητας Ουρολογίας στην Ελλάδα (2011) και τον αντίστοιχο Ευρωπαϊκό Τίτλο (Fellow of the European Board of Urology – FEBU) από το Ευρωπαϊκό Συμβούλιο Ουρολογίας (European Board of Urology, EBU) το ίδιο έτος.

Είναι κάτοχος Διδακτορικής Διατριβής (PhD) στην Ουρολογία με τίτλο «Κλινική αξιολόγηση της καλλικερϊνης 13 (KLK13) στον καρκίνο της ουροδόχου κύστης», Ιατρική Σχολή, Εθνικού και Καποδιστριακού Πανεπιστημίου Αθηνών (ΕΚΠΑ) - βαθμός «Άριστα».

Από τον Μάρτιο του 2012 έως τον Μάρτιο του 2013 και από τον Μάρτιο του 2014 έως το Μάρτιο του 2015 εργάστηκε ως μετεκπαιδευόμενος κλινικός συνεργάτης (Clinical Fellow) στην Ουρολογική Κλινική SLK Kliniken, Klinikum Heilbronn, Heilbronn, Γερμανία και ολοκλήρωσε Πρόγραμμα Μετεκπαίδευσης (1-year Clinical Fellowship) στην Λαπαροσκοπική και Ρομποτική Ουρολογία αναγνωρισμένο από το Τμήμα Ουροτεχνολογίας της Ευρωπαϊκής Ουρολογικής Εταιρείας (European Association of Urology - EAU, Section of Uro-Technology (ESUT)). Από το Μάρτιο του 2013 έως τον Ιούνιο του 2013 εργάστηκε ως μετεκπαιδευόμενος κλινικός συνεργάτης (Clinical Fellow) στην κατευθυνόμενη βιοψία προστάτη (Computerized Transrectal Ultrasound of Prostate with Artificial Neural Network Analysis-ANNA/CTRUS) στην Ουρολογική Κλινική Diakonissenkrankenhaus Flensburg, Flensburg, Γερμανία.

Από τον Νοέμβριο του 2013 έως τον Απρίλιο του 2015 εργάστηκε στην Ουρολογική Κλινική Diakonissenkrankenhaus Flensburg, Flensburg, Γερμανία, ως Επιμελητής σε έμμισθη θέση (Facharzt Urologie). Ως Επιμελητής (Facharzt), μεταξύ άλλων είχε τα ακόλουθα καθήκοντα/ αρμοδιότητες: α) ενεργός συμμετοχή στις γενικές/εσωτερικές εφημερίες της Κλινικής (διαχείριση εισαγωγών/επείγουσα αντιμετώπιση), β) ενεργός συμμετοχή στο πρόγραμμα χειρουργείων της Κλινικής, γ) πραγματοποίηση επισκέψεων στους θαλάμους/ρύθμιση αγωγών των νοσηλευόμενων, δ) ενεργός συμμετοχή στο τακτικό πρόγραμμα των εξωτερικών ιατρείων και παρακολούθηση ασθενών. Από τον Ιούνιο του 2015 έως και σήμερα εργάζεται στην Ουρολογική Κλινική του νοσοκομείου LKH Hall in Tirol, Hall in Tirol, Αυστρία, ως Επιμελητής σε έμμισθη θέση (Oberarzt Urologie). Ως Επιμελητής (Oberarzt) έχει τα ακόλουθα καθήκοντα/αρμοδιότητες: α) υπεύθυνος Ουρολογικής Κλινικής σε γενικές/ εσωτερικές

εφημερίες της Κλινικής (διαχείριση εισαγωγών/επείγουσα αντιμετώπιση), β) υπεύθυνος Επιμελητής για τον καρκίνο του προστάτη σε διαγνωστικό και θεραπευτικό επίπεδο: Υπεύθυνος μονάδας Βιοψίας Προστάτη με τη μέθοδο σύντηξης εικόνων (MRI/US fusion prostate biopsy)/υπεύθυνος εκπαίδευσης των ειδικευομένων, αποκλειστικά υπεύθυνος της χειρουργικής αντιμετώπισης του καρκίνου του προστάτη (πραγματοποίηση μεγάλου αριθμού λαπαροσκοπικών επεμβάσεων), υπεύθυνος εκπαίδευσης στις επεμβάσεις αυτές, γ) ενεργός συμμετοχή στο γενικό πρόγραμμα χειρουργείων (πραγματοποιεί επιπλέον των λαπαροσκοπικών ουρολογικών επεμβάσεων, μεγάλο αριθμό ενδοσκοπικών επεμβάσεων ανώτερου-κατώτερου ουροποιητικού), δ) συντονισμός και ενεργός συμμετοχή στο τακτικό πρόγραμμα των εξωτερικών ιατρείων και παρακολούθηση των ασθενών, ε) υπεύθυνος Επιμελητής θαλάμων (πραγματοποίηση επισκέψεων, έλεγχος αγωγών/διαγνωστικών εξετάσεων, συντονισμός ειδικευομένων ιατρών), στ) ενεργός συμμετοχή στις συνεδριάσεις του ογκολογικού συμβουλίου, ζ) υπεύθυνος εκπαιδευτικού και ακαδημαϊκού έργου της Κλινικής (συντονισμός ερευνητικών έργων/δημοσιεύσεων, ορισμός και συντονισμός αρμοδιοτήτων των συμμετεχόντων, κατάθεση πρωτοκόλλων προς έγκριση στην Επιτροπή Ηθικής και Δεοντολογίας (Principal Investigator) του Πανεπιστημίου του Ίνσμπρουκ, συμμετοχή ως προσκεκλημένος ομιλητής και εκπαιδευτής Ενδοουρολογίας/Λαπαροσκοπικής Ουρολογίας σε μεγάλο αριθμό διεθνών συνεδρίων/εκπαιδευτικών μαθημάτων). Από τον Ιανουάριο του 2021 έως και σήμερα εργάζεται παράλληλα ως ιδιώτης χειρουργός ουρολόγος στο Μαρούσι Αττικής. Στο πλαίσιο της δραστηριότητας του αυτής διατηρεί ιδιωτικό ιατρείο, όπου δέχεται ασθενείς, πραγματοποιεί υπερηχογραφήματα του ουροποιητικού συστήματος, και εύκαμπτες κυστεοσκοπήσεις. Το ιατρείο του είναι το μόνο σε πανελλαδικό επίπεδο όπου πραγματοποιούνται MRI/US στοχευμένες (Fusion) βιοψίες προστάτη με το σύστημα BiopSee. Επιπλέον πραγματοποιεί σε ιδιωτικές κλινικές πληθώρα ενδοσκοπικών, λαπαροσκοπικών και ρομποτικά υποβοηθούμενων επεμβάσεων.

Έχει τιμηθεί με επαίνους - διακρίσεις από την Ελληνική Ουρολογική Εταιρεία (EOE, 2012) - και την EAU (European Urological Scholarship Programme - EUSP, 2013). Έχει διατελέσει μέλος πολλών επιστημονικών εταιρειών όπως η Ευρωπαϊκή Ουρολογική Εταιρεία (European Association of Urology-EAU), η Αμερικανική Ουρολογική εταιρεία (American Urological Association-AUA), η Ενδοουρολογική εταιρεία (Endourological Society) και η Societe Internationale d'Urologie (SIU), έχοντας συνεισφέρει ενεργά στις δραστηριότητές τους (οργανωτικές επιτροπές, προσκεκλημένες ομιλίες κ.α.).

Το ιδιαίτερο ενδιαφέρον του επικεντρώνεται στην Ενδοουρολογία/Λαπαροσκοπική Ουρολογία, στις καινοτόμες τεχνικές βιοψίας προστάτη, στη χειρουργική εργονομία και στην

εκπαίδευση ουρολόγων. Το επαγγελματικό του έργο στο εξωτερικό κατά τα τελευταία 9 έτη εστιαζόμενο στους παραπάνω τομείς είναι αναγνωρισμένο στην Ελλάδα και διεθνώς, όπως προκύπτει από την δραστηριότητά του κατά την περίοδο αυτή σε κλινικό, διδακτικό και ερευνητικό επίπεδο (πολυάριθμες διεθνείς και εθνικές προσκλήσεις ως εκπαιδευτής τεχνικών στα σχετικά επιστημονικά πεδία και δημοσιεύσεις). Συγκεκριμένα, είναι μέλος (Associate Member) του Τμήματος Ουρολογικής Απεικόνισης (ESUI) και Ουροτεχνολογίας (ESUT - τμήμα εκπαίδευσης) της Ευρωπαϊκής Ουρολογικής εταιρείας (EAU). Επιπλέον, είναι μέλος (Vice-Chair) της Ομάδας Εργασίας για την εκπαίδευση στην ανοικτή χειρουργική στην Ουρολογία (Working Group in Training in Open Surgery) της Ευρωπαϊκής Ουρολογικής Εταιρείας (EAU) και τακτικό μέλος της Αυστριακής Ομάδας Εργασίας Εκπαίδευσης στη λαπαροσκοπική και ρομποτική Ουρολογία. Έχει διατελέσει εκπαιδευτής ενδοουρολογίας του Ευρωπαϊκού Προγράμματος Εκπαίδευσης Ειδικευομένων της Ευρωπαϊκής Ουρολογικής Εταιρείας (EUREP) επί σειρά επτά συναπτών ετών (2016 – 2022) και έχει συμμετάσχει ως εκπαιδευτής του Ευρωπαϊκού Σχολείου Ουρολογίας (ESU) και του Open Medical Institute-American Austrian Foundation (OMI-AAF) στη Λαπαροσκοπική Ουρολογία και Ενδοουρολογία σε περισσότερα από 40 διεθνή συνέδρια και συναντήσεις. Έχει διατελέσει κριτής σε 23 διεθνή επιστημονικά περιοδικά. Είναι συγγραφέας πρωτότυπων/αυτοδύναμων δημοσιεύσεων σε επιστημονικά περιοδικά αναγνωρισμένου κύρους και κεφαλαίων βιβλίων. Από το συγγραφικό του έργο, 63 εργασίες έχουν δημοσιευθεί σε 29 PubMed- indexed επιστημονικά περιοδικά (Scopus; citations: 729, h-index: 15- ISI: citations: 651, h-index: 14; Google Scholar; citations: 1097, h-index: 18).

1. ΠΡΟΣΩΠΙΚΕΣ ΠΛΗΡΟΦΟΡΙΕΣ



Όνομα	Θεόδωρος Ι. Τόκας
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2. ΠΡΟΠΤΥΧΙΑΚΕΣ-ΜΕΤΑΠΤΥΧΙΑΚΕΣ ΣΠΟΥΔΕΣ-ΠΤΥΧΙΑ

I. Βασική Εκπαίδευση-Ξένες Γλώσσες

- Σεπτέμβριος 87 - Ιούλιος 93: Κλασικό Γυμνάσιο και Επιστημονικό Λύκειο, Pierce College, The American College of Greece, Athens, Greece. Απολυτήριο με επαίνους
- Ξένες Γλώσσες:

Αγγλικά: Αποφοίτηση από το Αμερικάνικο Κολλέγιο Ελλάδος (Αγία Παρασκευή).

Σπουδές Ιατρικής στην Αγγλική γλώσσα

Γερμανικά: Zeugnis Zertifikat (B2) – Ινστιτούτο Goethe

Ουγγρικά: Αποφοίτηση Πανεπιστημίου Ιατρικής Pecs Ουγγαρίας

II. Προπτυχιακές Σπουδές

- Αύγουστος 93 - Σεπτέμβριος 99: Πτυχίο Ιατρικής, Medical School, English Program, National University of Pecs, Hungary. Medicine in English, βαθμός «Rite»
- Ιούνιος 99: Πτυχιακή Εργασία (Thesis), Τίτλος «Retroperitoneal tumors; a trap for the surgeon». Πανεπιστήμιο Ιατρικής, Pecs, Ουγγαρία. Επιβλέπων: Dr. L. Halmos, Υπεράσπιση : 01.06.1999, Βαθμός : Άριστα (5)
- Σεπτέμβριος 02: Διαπανεπιστημιακό Κέντρο Αναγνώρισεως Τίτλων Σπουδών της Αλλοδαπής (ΔΙ.Κ.Α.Τ.Σ.Α.). Πιστοποιητικό Προέδρου Διοικητικού Συμβουλίου. Αναλογία Βαθμού στην Ελληνική Κλίμακα 6.92/10

III. Μεταπτυχιακές σπουδές - Πτυχία

1. Εξειδίκευση στην Ουρολογία

- Δεκέμβριος 11: Τίτλος Ειδικότητας Ουρολογίας; Απόφαση: 5359/20-01-2012
- Μάιος 13: Αναγνώριση Πτυχίου Ιατρικής (Approbation als Arzt), Kiel, Schleswig-Holstein, Γερμανία
- Ιούλιος 13: Αναγνώριση Τίτλου Ειδικότητας Ουρολογίας (Facharzt für Urologie), Ιατρικός Σύλλογος Schleswig-Holstein, Bad Segeberg, Schleswig-Holstein, Γερμανία
- Μάιος 15: Εγγραφή στη Λίστα Ιατρών, Ιατρικός Σύλλογος Innsbruck, Tirol, Αυστρία

- Οκτώβριος 16: Αναγνώριση Πτυχίου Ιατρικής και Τίτλου Ειδικότητας Ουρολογίας, Medizinalberufekommission MEBEKO (PID: GLN7601003858228),

2. Διδακτορική Διατριβή (PhD) στην Ουρολογία

Ιατρική Σχολή, Εθνικού και Καποδιστριακού Πανεπιστημίου Αθηνών (ΕΚΠΑ)

Θέμα: «Κλινική αξιολόγηση της καλλικερϊνης 13 (KLK13) στον καρκίνο της ουροδόχου κύστης» (31-10-2017)

3. Fellow of the European Board of Urology (FEBU; 06-2011)

4. Μετεκπαιδευόμενος κλινικός συνεργάτης (Clinical Fellow) στην

Λαπαροσκοπική και Ρομποτική Ουρολογία και την Ενδοουρολογία. Ίδρυμα:

Ουρολογική Κλινική SLK Kliniken, Klinikum Heilbronn, Heilbronn, Γερμανία,

Επιβλέπων-Διευθυντής Προγράμματος: Prof. Dr. Med. JJ Rassweiler, Ακαδημαϊκή

Περίοδος: 03.2012 – 03.2013

5. Μετεκπαιδευόμενος κλινικός συνεργάτης (Clinical Fellow) στην

κατευθυνόμενη βιοψία προστάτη (Computerized Transrectal Ultrasound of

Prostate with Artificial Neural Network Analysis-ANNA/CTRUS). Ίδρυμα:

Ουρολογική Κλινική Diakonissenkrankenhaus Flensburg, Flensburg, Γερμανία.

Επιβλέπων-Διευθυντής Προγράμματος: Prof. Dr. Med. T. Loch, Ακαδημαϊκή

Περίοδος: 03.2013 – 06.2013

6. Μετεκπαιδευόμενος κλινικός συνεργάτης (Clinical Fellow) στην

Λαπαροσκοπική και Ρομποτική Ουρολογία και την Ενδοουρολογία.

Πρόγραμμα Μετεκπαίδευσης (1-year Clinical Fellowship) στην Λαπαροσκοπική

και Ρομποτική Ουρολογία αναγνωρισμένο από το Τμήμα Ουροτεχνολογίας της

Ευρωπαϊκής Ουρολογικής Εταιρείας (European Association of Urology (EAU,

Section of Uro-Technology (ESUT)). Ίδρυμα: Ουρολογική Κλινική SLK Kliniken,

Klinikum Heilbronn, Heilbronn, Γερμανία, Επιβλέπων-Διευθυντής

Προγράμματος: Prof. Dr. Med. JJ Rassweiler, Ακαδημαϊκή Περίοδος: 03.2014 –

03.2015

7. Principal Investigator (PI) Course και πιστοποίηση για διεκπεραίωση

κλινικών μελετών (Clinical Trials) μετά από επιτυχείς εξετάσεις. Περίοδος

13.09.2018 - 14.12.2018. Μετεκπαιδευτικό πρόγραμμα για τη διεκπεραίωση

κλινικών ερευνών και κατάθεση πρωτοκόλλων προς έγκριση στην Επιτροπή

Ηθικής και Δεοντολογίας. Koordinierungszentrum für Klinische Studien (KKS) – Medizinische Universität Innsbruck – Ärztekammer Tirol, Innsbruck, Αυστρία

3. ΙΑΤΡΙΚΗ ΕΜΠΕΙΡΙΑ

- **Αγροτικός Ιατρός.** Γενικό Νομαρχιακό Νοσοκομείο Γρεβενών – Κέντρο Υγείας Δεσκάτης, Γρεβενά, Ελλάδα. Περίοδος: 05.2013 – 05.2014
- **Τρίμηνη εκπαίδευση και συμμετοχή στις γενικές εφημερίες Παθολογίας.** Γενικό Νομαρχιακό Νοσοκομείο Γρεβενών, Γρεβενά, Ελλάδα. Περίοδος: 02.2003 – 05.2003
- **Τρίμηνη εκπαίδευση και συμμετοχή στις γενικές εφημερίες Χειρουργικής.** Γενικό Νομαρχιακό Νοσοκομείο Γρεβενών, Γρεβενά, Ελλάδα. Περίοδος: 08.2003 – 01.2004
- **Ειδικευόμενος Γενικής Χειρουργικής.** Γενικό Νοσοκομείο Αθηνών «Σισμανόγλειο», Αθήνα, Ελλάδα. Περίοδος: 09.2004 – 06.2005
- **Γενικός Ιατρός.** Τουριστικό Ιατρείο «Δρ. Βιτωράκης». Χανιά, Ελλάδα. Περίοδος: 05.2006 – 06.2007
- **Ειδικευόμενος Ουρολογίας.** Ά Πανεπιστημιακή Ουρολογική Κλινική Αθηνών (ΕΚΠΑ), Γενικό Νοσοκομείο Αθηνών «Λαϊκό» Περίοδος: 10.2007 – 12.2011. Την περίοδο αυτή παρακολούθησε το πρόγραμμα της Γυναικολογικής Κλινικής του ΓΝΑ «Λαϊκό» (21.07.2010 – 21.01.2011) και το πρόγραμμα του Τμήματος Πλαστικής Χειρουργικής του Νοσοκομείου «Άγιος Σάββας» (10.03.2011 – 09.09.2011).
- **Συμμετοχή στο κλινικό και χειρουργικό πρόγραμμα Ουρολογικής (7 ημέρες).** Krankenhaus Nordwest, Frankfurt, Γερμανία. (02.2011)
- **Μετεκπαιδευόμενος κλινικός συνεργάτης (Clinical Fellow) στην Λαπαροσκοπική και Ρομποτική Ουρολογία και την Ενδοουρολογία.** Ουρολογική Κλινική SLK Kliniken, Klinikum Heilbronn, Heilbronn, Γερμανία (03.2012 – 03.2013).

- **Μετεκπαιδευόμενος κλινικός συνεργάτης (Clinical Fellow) στην κατευθυνόμενη βιοψία προστάτη** (Computerized Transrectal Ultrasound of Prostate with Artificial Neural Network Analysis-ANNA/CTRUS). Ουρολογική Κλινική Diakonissenkrankenhaus Flensburg, Flensburg, Γερμανία (03.2013 – 06.2013).
- **Μετεκπαιδευόμενος κλινικός συνεργάτης (Clinical Fellow) στην Λαπαροσκοπική και Ρομποτική Ουρολογία και την Ενδοουρολογία.** Ουρολογική Κλινική SLK Kliniken, Klinikum Heilbronn, Heilbronn, Γερμανία (03.2014 – 03.2015).
- **Επιμελητής Ουρολογίας (Facharzt Urologie).** Ουρολογική Κλινική Diakonissenkrankenhaus Flensburg, Flensburg, Γερμανία (11.2013 – 04.2015)
- **Επιμελητής Ουρολογίας (Facharzt Urologie).** Ουρολογική Κλινική LKH Hall in Tirol, Hall in Tirol, Αυστρία (06.2015 – 01.2016)
- **Επιμελητής Ουρολογίας (Oberarzt Urologie).** Ουρολογική Κλινική LKH Hall in Tirol, Hall in Tirol, Αυστρία (01.2016 – σήμερα)
- **Ιδιώτης Χειρουργός Ουρολόγος.** Αθήνα, Ελλάδα (01.2021 – σήμερα)

4. ΚΛΙΝΙΚΗ ΔΡΑΣΤΗΡΙΟΤΗΤΑ ΣΤΗΝ ΟΥΡΟΛΟΓΙΑ

- **Ειδικευόμενος Ουρολογίας.** Ά Πανεπιστημιακή Ουρολογική Κλινική Αθηνών (ΕΚΠΑ), Γενικό Νοσοκομείο Αθηνών «Λαϊκό» (10.2007 – 12.2011). Αυτή η περίοδος 4 ετών περιλαμβάνει την ανώτερη εξειδικευμένη του εκπαίδευση στην Ουρολογία. Αυτή την περίοδο είχε την ευκαιρία να εργαστεί σε ένα από τα μεγαλύτερα ακαδημαϊκά τμήματα Ουρολογίας στην Ελλάδα. Είναι εξοπλισμένο με ουροδυναμικό εργαστήριο, δωμάτιο διορθικού υπερήχου και βιοψίας προστάτη, ερευνητικό εργαστήριο. Περιλαμβάνει επίσης ιατρείο ημέρας (Day Case), χειρουργική αίθουσα ενδοσκοπήσεων ανώτερου και κατώτερου ουροποιητικού, εξωτερικό ιατρείο καλοήθους υπερπλασίας προστάτη και προστατίτιδας, εξωτερικό ιατρείο ανδρολογίας

και υπογονιμότητας, εξωτερικό ιατρείο ακράτειας ούρων, εξωτερικό ιατρείο λιθίασης ουροποιητικού. Εκείνη την περίοδο, ήταν και το μοναδικό Ακαδημαϊκό Τμήμα στην Ελλάδα εξοπλισμένο με ρομποτικό σύστημα da Vinci. Για κάθε εκπαιδευόμενο υπήρχε εκ περιτροπής πρόγραμμα για όλες τις παραπάνω εγκαταστάσεις. Το εκπαιδευτικό πρόγραμμα περιελάμβανε επίσης εκ περιτροπής μετακίνηση σε άλλα νοσοκομεία και ειδικότητες όπως η ουρογυναικολογία για έξι μήνες και η πλαστική χειρουργική για έξι μήνες. Σε αυτό το διάστημα έμαθε πώς να χειρίζεται την πλειονότητα των επειγόντων περιστατικών Ουρολογίας και των δύσκολων κλινικών περιπτώσεων. Απέκτησε επίσης σημαντική εμπειρία στις περισσότερες από τις ενδοουρολογικές επεμβάσεις, πραγματοποιώντας στο τέλος της εκπαίδευσής μου χωρίς επίβλεψη TURBT, TURP, ουρητηροσκοπήσεις, και τοποθέτηση stent ουρητήρα. Η εμπειρία του επεκτάθηκε στην ανοιχτή ριζική νεφρεκτομή, ριζική προστατεκτομή, ριζική κυστεκτομή, καθώς και ουρητηρολιθοτομή, νεφρολιθοτομή, πυελολιθοτομή και ανοιχτή διακυστική προστατεκτομή. Εκπαιδεύτηκε επίσης στο υπερηχογράφημα ουροποιητικού συστήματος. Τέλος, είχε την ευκαιρία να βοηθήσει σε ποικιλία ρομποτικών ουρολογικών επεμβάσεων όπως η διαπεριτοναϊκή ρομποτική ριζική προστατεκτομή, και η διαπεριτοναϊκή ρομποτική μερική και η ριζική νεφρεκτομή.

- **Μετεκπαιδευόμενος κλινικός συνεργάτης (Clinical Fellow) στην Λαπαροσκοπική και Ρομποτική Ουρολογία και την Ενδοουρολογία.** Ουρολογική Κλινική SLK Kliniken, Klinikum Heilbronn, Heilbronn, Γερμανία (03.2012 – 03.2013). Αναγνωρισμένη από την Ενδοουρολογική Εταιρεία (Endourological Society). Η υποτροφία περιελάμβανε εκπαίδευση αιχμής σε λαπαροσκοπικές και ρομποτικές επεμβάσεις όπως da Vinci εξωπεριτοναϊκή ριζική προστατεκτομή, λαπαροσκοπική εξωπεριτοναϊκή ριζική προστατεκτομή, λαπαροσκοπική πυελική λεμφαδενεκτομή, da Vinci και λαπαροσκοπική ιεροκολποπηξία, λαπαροσκοπική οπισθοπεριτοναϊκή

νεφρεκτομή και μερική νεφρεκτομή, da Vinci και λαπαροσκοπική πυελοπλαστική, da Vinci και λαπαροσκοπική μετεμφύτευση ουρητήρα. Κατά τη διάρκεια αυτής της εκπαίδευσης, απέκτησε σημαντική εμπειρία στη διενέργεια λαπαροσκοπικών οπισθοπεριτοναϊκών επεμβάσεων του ανώτερου ουροποιητικού συστήματος και λαπαροσκοπικών πυελικών λεμφαδενεκτομών, ενώ συμμετείχε ως πρώτος βοηθός σε πληθώρα ρομποτικά υποβοηθούμενων εξωπεριτοναϊκών ριζικών προστατεκτομών.

- **Μετεκπαιδευόμενος κλινικός συνεργάτης (Clinical Fellow) στην κατευθυνόμενη βιοψία προστάτη.** Ουρολογική Κλινική Diakonissenkrankenhaus Flensburg, Flensburg, Γερμανία (03.2013 – 06.2013). Το χρονικό αυτό διάστημα περιελάμβανε εκπαίδευση αιχμής στην κατευθυνόμενη βιοψία προστάτη (Computerized Transrectal Ultrasound of Prostate with Artificial Neural Network Analysis-ANNA/CTRUS). Περιλάμβανε επίσης εκπαίδευση σε ανοιχτές ουρολογικές επεμβάσεις όπως ριζικές οπισθοθηβικές προστατεκτομές και ριζικές κυστεκτομές, λαπαροσκοπικές επεμβάσεις όπως λαπαροσκοπικές διαπεριτοναϊκές νεφρεκτομές, μερικές νεφρεκτομές και πυελοπλαστικές.
- **Επιμελητής Ουρολογίας (Facharzt Urologie).** Ουρολογική Κλινική Diakonissenkrankenhaus Flensburg, Flensburg, Γερμανία (11.2013 – 04.2015). Staff member. Ενεργή συμμετοχή και πραγματοποίηση κατευθυνόμενων βιοψιών προστάτη (Computerized Transrectal Ultrasound of Prostate with Artificial Neural Network Analysis-ANNA/CTRUS). Συμμετοχή σε πολλαπλές λαπαροσκοπικές επεμβάσεις όπως λαπαροσκοπικές διαπεριτοναϊκές νεφρεκτομές, μερικές νεφρεκτομές, νεφροουρητηρεκτομές, πυελοπλαστικές και πραγματοποίηση πληθώρας ενδοουρολογικών επεμβάσεων όπως TURB, TURPs και URS. Επιπλέον συμμετοχή σε γενικές και εσωτερικές εφημερίες της Κλινικής, συμμετοχή στο πρόγραμμα

εξωτερικών ιατρείων γενικής Ουρολογίας, και συμμετοχή στις συνεδριάσεις ογκολογικού συμβουλίου.

- **Επιμελητής Ουρολογίας (Facharzt- Oberarzt Urologie).** Ουρολογική Κλινική LKH Hall in Tirol, Hall in Tirol, Αυστρία (06.2015 – σήμερα). Staff member. Λαπαροσκοπική Ουρολογία, Ενδοουρολογία, κατευθυνόμενη βιοψία προστάτη. Είναι υπεύθυνος Επιμελητής για τον καρκίνο του προστάτη σε διαγνωστικό και θεραπευτικό επίπεδο: Υπεύθυνος μονάδας Βιοψίας Προστάτη με τη μέθοδο σύντηξης εικόνων (MRI/US fusion prostate biopsy)/υπεύθυνος εκπαίδευσης των ειδικευομένων, αποκλειστικά υπεύθυνος της χειρουργικής αντιμετώπισης του καρκίνου του προστάτη (πραγματοποίηση μεγάλου αριθμού λαπαροσκοπικών επεμβάσεων), υπεύθυνος εκπαίδευσης στις επεμβάσεις αυτές. Πραγματοποιεί επιπλέον μεγάλο αριθμό ενδοσκοπικών επεμβάσεων ανώτερου-κατώτερου ουροποιητικού.

Επιπλέον συμμετοχή σε γενικές και εσωτερικές εφημερίες της Κλινικής, συμμετοχή στο πρόγραμμα εξωτερικών ιατρείων γενικής Ουρολογίας, υπεύθυνος Ιατρείου Καρκίνου του Προστάτη, και συμμετοχή στις συνεδριάσεις ογκολογικού συμβουλίου.

- **Ιδιώτης Χειρουργός Ουρολόγος. Μαρούσι – Αθήνα, Ελλάδα (01.2021 – σήμερα).** Στο πλαίσιο της δραστηριότητας του αυτής διατηρεί ιδιωτικό ιατρείο, όπου δέχεται ασθενείς, πραγματοποιεί υπερηχογραφήματα του ουροποιητικού συστήματος, και εύκαμπτες κυστεοσκοπήσεις. Το ιατρείο του είναι το μόνο σε πανελλαδικό επίπεδο όπου πραγματοποιούνται MRI/US στοχευμένες (Fusion) βιοψίες προστάτη με το σύστημα BiopSee. Επιπλέον πραγματοποιεί σε ιδιωτικές κλινικές πληθώρα ενδοσκοπικών, λαπαροσκοπικών και ρομποτικά υποβοηθούμενων επεμβάσεων.

5. ΔΙΔΑΚΤΙΚΗ ΕΜΠΕΙΡΙΑ

- **Ειδικευόμενοι Ουρολογίας:** Είναι υπεύθυνος για την καθοδήγηση, επίβλεψη/αξιολόγηση θεωρητικής εκπαίδευσης (ετήσιο πρόγραμμα ενδοκλινικών μαθημάτων), κλινική εκπαίδευση (ενδοουρολογικές και λαπαροσκοπικές επεμβάσεις, κατευθυνόμενες βιοψίες προστάτη) και ακαδημαϊκές δραστηριότητες των ειδικευόμενων της Κλινικής. Επιπλέον, έχει συμμετάσχει στην εκπαίδευση ειδικευόμενων σε διεθνές επίπεδο, σε συνεργασία με τους υπεύθυνους Καθηγητές, ως εξεταστής, εκπαιδευτής ή προσκεκλημένος ομιλητής.
- **Ειδικευόμενοι / ειδικευμένοι Ουρολογίας**
 - 1) Προσκεκλημένος εκπαιδευτής εκπαιδευτικών σεμιναρίων και εκπαίδευσης σε προσομοιωτές (Hands-on training) ρομποτικής, λαπαροσκοπικής Ουρολογίας, Ενδοουρολογίας, και MRI/US Fusion βιοψίας προστάτη που οργανώνονται από την Ελληνική Ουρολογική Εταιρεία
 - 2) Εκπαιδευτής ενδοουρολογίας (Hands-on training) του Ευρωπαϊκού Προγράμματος Εκπαίδευσης Ειδικευομένων της Ευρωπαϊκής Ουρολογικής Εταιρείας (EUREP) επί σειρά επτά συναπτών ετών (2016 – 2022)
 - 3) Εκπαιδευτής του Ευρωπαϊκού Σχολείου Ουρολογίας (ESU) και του Open Medical Institute-American Austrian Foundation (OMI-AAF) στη Λαπαροσκοπική Ουρολογία και Ενδοουρολογία (Hands-on training) σε περισσότερα από 40 διεθνή συνέδρια και συναντήσεις.
 - 4) Προσκεκλημένος ομιλητής στα σεμινάρια που πραγματοποιούνται κατά τη διάρκεια των ετήσιων εβδομάδων εκπαίδευσης Ελλήνων ειδικευομένων που διοργανώνει η HUA
 - 5) Προσκεκλημένος ομιλητής σε μεγάλο αριθμό εθνικών/διεθνών συνεδρίων και εκπαιδευτικών courses που διοργανώνονται από το διάφορα τμήματα της Ευρωπαϊκής Ουρολογικής Εταιρείας (ESU, ESUI, ESUT).

6. ΔΙΟΙΚΗΤΙΚΗ ΕΜΠΕΙΡΙΑ

- 1) Ανέλαβε ολόκληρη τη διαχείριση για την εισαγωγή των στοχευμένων βιοψιών προστάτη μέσω σύντηξης εικόνων μαγνητικής τομογραφίας/υπερήχων (MRI/US fusion biopsy) στην Ουρολογική Κλινική του LKH Hall in Tirol, ξεκινώντας με τον έλεγχο της προσφοράς της αγοράς και των επιστημονικών αποτελεσμάτων των διαθέσιμων συστημάτων, αναφορικά με τη λήψη προσφορών και την οργάνωση της απόκτησης των συσκευών με το Οικονομικό Τμήμα του νοσοκομείου, καθώς και με παρακολουθήσεις εργασίας σε νοσοκομεία του εξωτερικού για την εκμάθηση της τεχνικής, μέχρι την υλοποίηση της βιοψίας του προστάτη με σύντηξη εικόνων μαγνητικής τομογραφίας/υπερήχων (BiopSee©) στη ρουτίνα του Τμήματος.

7. ΒΡΑΒΕΙΑ / ΔΙΑΚΡΙΣΕΙΣ

- **10.2010:** 3ο βραβείο αναρτημένης παρουσίασης με τίτλο «Σύγκριση της αποτελεσματικότητας της επισκληρίδιου και της γενικής αναισθησίας στη διαχείριση μετεγχειρητικού πόνου κατά τη διάρκεια διουρηθρικών επεμβάσεων. 20ο Ετήσιο Συνέδριο Ελληνικής Ουρολογικής Εταιρείας. Λεμεσός.
- **04-2012:** Υποτροφία Ενδοουρολογικού, Λαπαροσκοπικού Ουρολογικού και Ουρο-Τεχνολογικού Τομέα της Ελληνικής Ουρολογικής Εταιρείας. Μετά από γραπτό διαγωνισμό, απονομή βραβείου συμμετοχής στο 5ήμερο εντατικό εκπαιδευτικό πρόγραμμα λαπαροσκοπικής ουρολογίας που διοργάνωσε το Ινστιτούτο IRCAD/EITS στο Στρασβούργο της Γαλλίας.

- **12-2012:** University Diploma (Στρασβούργο Γαλλία). Λήψη μετά την ολοκλήρωση εντατικού Course λαπαροσκοπικής ουρολογίας επιτυχημένου τεστ επάρκειας.
- **06-2013:** Πρώτο βραβείο αναρτημένης παρουσίασης «Computer-assisted analysis of transrectal ultrasound (C-TRUS/ANNA) guided biopsies of the prostate: evolution from stand-alone device to an online-function module in a real-time biopsy setting». 15ο Συμπόσιο GDGU της Ελληνογερμανικής Ουρολογικής Εταιρείας, Θεσσαλονίκη, Ελλάδα.
- **02-2014:** υπότροφος EUSP (από την Ευρωπαϊκή Ουρολογική Εταιρεία). Μετά την επιτυχή παρουσίαση μιας ερευνητικής ιδέας με τίτλο «Improving vision, surgeon's posture, and instrumentation in Laparoscopy can create an optimal ergonomic environment, with comparable results and lower costs, in comparison to robotic surgery» κατά την ετήσια συνάντηση του EUSP στο Moerwijk της Ολλανδίας, χορήγηση της ετήσιας κλινική υποτροφία EUSP.

8. ΔΗΜΟΣΙΕΥΣΕΙΣ ΚΑΙ ΠΑΡΟΥΣΙΑΣΕΙΣ

8.1. Citations – h-index (05 Οκτωβρίου 2022)

Έχει δημοσιεύσει 63 επιστημονικά άρθρα σε 29 διεθνή περιοδικά. (PubMed-indexed), λαμβάνοντας αρκετές αναφορές μέχρι σήμερα (Scopus; citations: 729, h-index: 15- ISI: citations: 651, h-index: 14; Google Scholar; citations: 1097, h-index: 18). Είναι πρώτος/corresponding συγγραφέας σε 15, δεύτερος συγγραφέας σε 13 και τελευταίος/corresponding συγγραφέας σε 9 δημοσιεύσεις. Ο ολικός παράγοντας επιρροής (impact factor) είναι 265.569 (Appendix; Table 1).

8.2. Δημοσιεύσεις σε διεθνή επιστημονικά περιοδικά (PubMed Indexed)

63. Ripa F, Tokas T, Griffin S, Ferreti S, Tur AB, Somani BK. **Pediatric Ureteral Access Sheath and Outcomes Related to Flexible Ureteroscopy and Laser Stone Fragmentation: A Systematic Review of Literature.** *European Urology Open Science* 2022;45:90–98
62. Tokas T, Rice P, Seitz C, Gauhar V, Somani B. **Temperature change during laser upper-tract endourological procedures: current evidence and future perspective.** *Curr Opin Urol.* 2022 Oct 14. doi: 10.1097/MOU.0000000000001048. Online ahead of print.
61. Gkolezakis V, Rice P, Somani BK, Tokas T. **Thulium Fiber Laser Behavior on Tissue During Upper- and Lower-Tract Endourology.** *Curr Urol Rep.* 2022 Sep 30. doi:10.1007/s11934-022-01117-6. Online ahead of print.
60. Güven S, Sönmez MG, Somani BK, Gözen AS, Sarica K, Rivas JG, Nagele U, Tokas T. **Current management of renal colic across Europe and its compliance to the European Association of Urology Guidelines on Urolithiasis: a survey from the European Section of Uro-technology, European Section of Urolithiasis, Young Academic Urologists study groups.** *Cent European J Urol.* 2022;75(2):182-190.
59. Naik N, Tokas T, Shetty DK, Hameed BMZ, Shastri S, Shah MJ, Ibrahim S, Rai BP, Chłosta P, Somani BK. **Role of Deep Learning in Prostate Cancer Management: Past, Present and Future Based on a Comprehensive Literature Review.** *J Clin Med.* 2022 Jun 21;11(13):3575.
58. Rice P, Somani BK, Nagele U, Herrmann TRW, Tokas T. **Generated temperatures and thermal laser damage during upper tract endourological procedures using the holmium: yttrium-aluminum-garnet (Ho:YAG) laser: a**

systematic review of experimental studies. World J Urol. 2022 Aug;40(8):1981-1992.

57. Belgi S, Tokas T, Rice P, Somani BK. The role of music in outpatient prostate biopsy: A comprehensive literature review. Turk J Urol. 2022 Jan;48(1):41-48.

56. Kallidonis P, Peteinaris A, Ortner G, Somani BK, Veneziano D, Tunc L, Gözen AS, Liatsikos E, Tokas T. Simulation models and training curricula for training in endoscopic enucleation of the prostate: A systematic review from ESUT. Turk J Urol. 2021 Jul;47(4):250-259.

55. Tokas T, Ortner G, Peteinaris A, Somani BK, Herrmann T, Nagele U, Veneziano D, Gözen AS, Kallidonis P. Simulation training in transurethral resection/laser vaporization of the prostate; evidence from a systematic review by the European Section of Uro-Technology. World J Urol. 2022 May;40(5):1091-1110.

54. Tokas T, Tzanaki E, Nagele U, Somani BK. Role of Intrarenal Pressure in Modern Day Endourology (Mini-PCNL and Flexible URS): a Systematic Review of Literature. Curr Urol Rep. 2021 Oct 8;22(10):52.

53. Ortner G, Nagele U, Herrmann TRW, Tokas T. Irrigation fluid absorption during transurethral bipolar and laser prostate surgery: a systematic review. World J Urol. 2022 Mar;40(3):697-708.

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8.3. Δημοσιεύσεις σε διεθνή επιστημονικά περιοδικά (not indexed in PubMed)

1. **Minimally Invasive Percutaneous (MIP) Stone Workshop; ESUT joins comprehensive course in Hall, Tirol, Austria.** T. Tokas, U. Nagele. *Europ Urol Today.* 2015;27(5):38

8.4. Δημοσιεύσεις σε ελληνικά επιστημονικά περιοδικά

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2. First use of an acellular, human dermis tissue graft for the surgical management of Peyronie's disease. I. Adamakis, S. I. Tyritzis, K. G. Stravodimos, V. Migdalis, D. Mitropoulos, Ch. Alamanis, T. Tokas, C.A. Constantinides. **Hel Urol.** 2011;23(2):138-147

3. Comparison of the efficacy of epidural and general anaesthesia in post – operative pain management during transurethral procedures. K. Stravodimos, S. Tyritzis, A. Alevizopoulos, T. Tokas, I. Leotsakos, G. Koritsiadis, D. Mitropoulos, C.A. Constantinides. **Hel Urol.** 2011;23(2):138-147

4. Review of the data on acute renal colic and symptomatic urolithiasis. K. Stravodimos, T. Tokas. **Archives of Hellenic Medicine.** 2011, 28(2):166-174

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6. Transperitoneal laparoscopic repair of pelvi-ureteric junction obstruction: initial experience in 6 cases. K. Stravodimos, G. Koutalellis, T. Tokas, G. Koritsiadis, A. Giannopoulou, I. Anastasiou, C.A. Constantinides. **Hel J Surg.** 2008;80(6):365-371

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8.5. Παράγραφοι σε διεθνή συγγράμματα

3. Theodoros Tokas, Chandra Shekhar Biyani, and Ali Serdar Gözen. **Chapter 7: Procedural Training Simulators. Book: Practical Simulation in Urology** (Springer 2022, ISBN 978-3-030-88788-9, Editors: Chandra Shekhar Biyani, Ben Van Cleynenbreugel, Alexandre Mottrie)
2. Theodoros Tokas, Udo Nagele. Chapter 14: **Intrarenal Pressure, Fluid Management, and Hydrodynamic Stone Retrieval in Mini-PCNL. Book: Minimally Invasive Percutaneous Nephrolithotomy** (Springer 2022, ISBN 978-981-16-6000-9, Editors: Madhu S. Agrawal, Dilip K. Mishra, Bhaskar Somani)
3. Theodoros Tokas, Ali Serdar Gözen, Jan Klein, Alexandra Tschada, Thomas Frede, Dogu Teber, and Jens Rassweiler. Chapter 6: **Laparoscopy Versus Robotics: Ergonomics—Does It Matter? Book: Robotics in Genitourinary Surgery** (Springer 2018, ISBN 978-3-319-20644-8, Editors: Ashok K. Hemal, Mani Menon)

8.6. Παρουσιάσεις σε συνέδρια

Έχει συνεισφέρει στην παρουσίαση 59 περιλήψεων σε διεθνή επιστημονικά συνέδρια; 29 περιλήψεις έχουν δημοσιευθεί σε supplements PubMed-indexed επιστημονικών περιοδικών (see 7.6.1. and Appendix; Table 2). Έχει επίσης συνεισφέρει στην παρουσίαση 7 περιλήψεων σε ελληνικά επιστημονικά συνέδρια; (see 8.7.3. and Appendix B).

8.6.1. Παρουσιάσεις περιλήψεων σε διεθνή επιστημονικά συνέδρια. Προφορικές ανακοινώσεις (P) / Αναρτημένες ανακοινώσεις (p) / Videos (V)

1. **Current management of renal colic across Europe and its compliance to the EAU Guidelines on Urolithiasis: A survey from the ESUT, EULIS, YAU study groups.**
S. Guven, BK. Somani, AS. Gözen, K. Sarica, JG. Rivas, MG. Sonmez, U. Nagele, T. Tokas. 37th Annual EAU Congress, Amsterdam, 03/22
2. **The novel HoLEP technique Omega Sign improves continence outcomes of surgery (p).** L. Tunc, S. Yalcin, E. Kaya, E. Gazel, S. Yilmaz, AC. Aybal, M. Yilmaz, T. Tokas. 35th Annual EAU Congress, Virtual, 07/20
3. **Adding construct validity to the Endoscopic Stone Treatment step-1 (EST s1): a novel training and assessment tool from collaboration of ESU, EULIS, ESUT and EUREP.** D. Veneziano, A. Ploumidis, S. Proietti, T. Tokas, G. Kamphuis, B. Van Cleynenbreugel, AS. Gözen, A. Breda, J. Palou, K. Sarica, E. Liatsikos, K. Ahmed, BK. Somani. AUA Annual meeting 2019
4. **CT-controlled stone-free-rate after minimal-invasive percutaneous nephrolitholapaxy (MIP) in correlation with instrument-size (p).** JR. Schachtner, T. Tokas, G. Kitzbichler, M. Habicher, U. Nagele. 32nd Annual EAU Congress, London, 03/17
5. **Combining the ETHOS operating ergonomic platform, the 3D laparoscopic camera, and the Radius Surgical System (RSS) manipulators to improve ergonomic in laparoscopy (p).** A. Tschada, T. Tokas, A.S. Gözen, M. Avgeris, M. Hruza, J. Klein, J. Rassweiler. 5th ESUT Annual Meeting. Athens, 07/16
6. **Ten-year active monitoring in patients with high risk of prostate cancer by ANNA/C-TRUS imaging (p).** T. Tokas, B. Grabski, A. Loch, K. Korte, A. Ramankulov, P. Berg, L. Baeurle, U. Paul, T. Loch. AUA Annual Meeting. San Diego, 05/16

7. **Laparoscopic single-incision triangulated umbilical surgery (SITUS) pyeloplasty: A description of our first 30 cases (p).** J.R. Schachtner, M. Habicher, T. Tokas, U. Nagele. 31st Annual EAU Congress, Munich, 03/16
8. **Direct comparison of an ergonomic laparoscopic system with robotic surgery, in terms of operating speed, in an inanimate experimental laparoscopic radical prostatectomy setting (p).** T.Tokas, A.S. Gözen, M. Avgeris, A. Tschada, J. Rassweiler. 31st Annual EAU Congress, Munich, 03/16
9. **Flexible 3D laparoscopic segmental ureterectomy and end-to-end ureteral anastomosis for benign disease (V).** I Leotsakos, U Paul, T Tokas, L Bäurle, T Loch. 33rd World Congress of Endourology and SWL. London, 10/15
10. **Flexible 3D laparoscopic repair of iatrogenic vesicovaginal fistulas (p).** I Leotsakos, U Paul, T Tokas, L Bäurle, T Loch. 33rd World Congress of Endourology and SWL. London, 10/15
11. **Direct comparison of an ergonomic laparoscopic combination with robotic surgery in an inanimate experimental laparoscopic radical prostatectomy setting; times and ergonomy (p).** T Tokas, AS Gözen, A Tschada, J Rassweiler. 33rd World Congress of Endourology and SWL. London, 10/15
12. **Vorhersage des radikalen Prostatektomie Index- Gleason durch gezielte transrektale Prostatabiopsie nach computergestützter Analyse.** T. Tokas, B. Grabski, U. Paul, T. Loch, M. Pechoel, M. Burchardt, M. Kuczyk, I. Peters. 67. DGU Kongress. Hamburg, 09/15
13. **Bilateraler Nierentumor eines primären papillären Schilddrüsenkarzinoms.** P. Berg , K. Korte , T. Tokas, A. Probst , U. Paul , T. Loch. 9. Nordkongress Urologie. Hannover, 06/15
14. **10 Jahresergebnisse: Gezielte urologische Prostatakarzinomdiagnostik mit**

- computergestütztem transrektalen Ultraschall.** B. Grabski , T. Tokas, A. Loch , A. Ramankulov , T. Loch. 9. Nordkongress Urologie. Hannover, 06/15
15. **Vorhersage des radikalen Prostatektomie Index-Gleason durch ANNAcTRUS gezielte transrektale Prostatabiopsie: Multicenterstudie.** I. Peters, T. Loch, B. Grabski, M. A. Kuczyk, M. Burchardt, M. Pechoel, T. Tokas. 9. Nordkongress Urologie. Hannover, 06/15
16. **3-D endoskopisch offene nerverhaltende retropubische Prostatektomie (3D-RRP): Fusion von optimaler Sicht und Tastgefühl.** T. Loch , T. Tokas, U. Paul , L. Baeurle , I. Leotsakos. 9. Nordkongress Urologie. Hannover, 06/15
17. **A laparoscopic combination with comparable ergonomic results to robotic surgery, tested in an experimental laparoscopic radical prostatectomy setting.** T. Tokas, AS Gözen, A Tschada, J Rassweiler. AUA Annual Meeting. N. Orleans, 05/15
18. **Computerized transrectal ultrasound targeted biopsies: Preoperative prediction of the radical prostatectomy gleason grade.** T. Loch, A. Loch, B. Grabski, L. Bäurle, U. Paul, T. Tokas. AUA Annual Meeting. Orlando, 05/14
19. **Multi-center results of computerized transrectal ultrasound (ANNA/C-TRUS) targeted prostate biopsies in 2356 cases.** T. Tokas, B. Grabski, I. Peters, M. Pechoel, M.A. Kuczyk, M. Burchardt, T. Loch. 30th Annual EAU Congress, Madrid, 03/15
20. **Direct comparison of the different conventional laparoscopic positions with the ETHOS surgical platform in a laparoscopic pelvic surgery simulation setting (p).** AS. Gözen, T. Tokas, A. Tschada, A. Jalal, J. Klein, J. Rassweiler. 23rd national Turkish urological congress. Antalya, 10/14
21. **Computer-assisted analysis of transrectal ultrasound (ANNA/C-TRUS) guided biopsies of the prostate: Stand-alone device (p).** T. Tokas, Björn Grabski, Azizbek Ramankulov, Tillmann Loch. 23rd national Turkish urological congress. Antalya, 10/14

22. **Computerized transrectal ultrasound (ANNA/C-TRUS) in the detection of prostate cancer: 9 year follow up data (p).** T.Tokas, Björn Grabski, Azizbek Ramankulov, Tillmann Loch. 23rd national Turkish urological congress. Antalya, 10/14
23. **Computer-assisted analysis of transrectal ultrasound (ANNA/C-TRUS) guided biopsies of the prostate: evolution from a stand-alone device to an online-function module in a real-time biopsy setting (p).** T.Tokas, Björn Grabski, Azizbek Ramankulov, Tillmann Loch. 23rd national Turkish urological congress. Antalya, 10/14
24. **Uncovering the dual clinical value of miR-143/145 cluster in bladder cancer epithelium and patients survival outcome (P).** M Avgeris, T.Tokas, K. Stravodimos, E.G. Fragoulis, A.Scorilas. FEBS-EMBO 20014. Paris, 09/14
25. **Intracorporeal robot - assisted bilateral vasovasostomy, after bilateral vasectomy (V).** T.Tokas, R. Leon Mar, O. Özkapta, I. Abdallah, J. Rassweiler, AS. Gözen. Videourology. Sofia, 07/2014
26. **3-D endoskopisch assistierte nerverhaltende retropubische Prostatektomie (3D-RRP): Eine Operation mit allen Sinnen durch die Fusion von optimaler Sicht und Tastgefühl (P).** T. Loch, T. Tokas, B. Grabski, L. Bäurle, U. Paul. 8. Nordkongress urologie. Cottbus, 06/14
27. **Computergestützter transrektaler Ultraschall: Vorhersage des radikalen Prostatektomie-Gleason-Grades durch gezielte Biopsien (P).** T. Loch, T. Tokas, B. Grabski. 8. Nordkongress urologie. Cottbus, 06/14
28. **Multizentrische Untersuchung: Gezielte Prostatabiopsien mit ANNA / C-TRUS nach negativen systematischen Vorbiopsien (P).** B. Grabski, T. Tokas, I. Peters, M. Pechoel, A. Ramankulov, M. Burchardt, M. A. Kuczyk, T. Loch. Nordkongress urologie. Cottbus, 06/14

29. **Computerized transrectal ultrasound targeted biopsies: Preoperative prediction of the radical prostatectomy gleason grade (P).** T. Loch, A. Loch, B. Grabski, L. Baeurle, U. Paul, T. Tokas. AUA Annual Meeting. Orlando, 05/14
30. **Iatrogenic direct rectal injury: An unusual complication during suprapubic cystostomy insertion and its laparoscopic management (V).** T. Tokas, AS. Gözen, R. Rajmohan, B. Aguilar-Davidov, J. Rassweiler. 31st World Congress of Endourology and SWL. N. Orleans, 10/13
31. **Does simultaneous extraperitoneal laparoscopic hernia repair influence morbidity and pain levels after extraperitoneal laparoscopic radical prostatectomy? (p).** AS. Gözen, T. Tokas, G. Atis, M. Hruza, J. Rassweiler. 31st World Congress of Endourology and SWL. N. Orleans, 10/13
32. **Robotically assisted bilateral vasovasostomy, after a successful bilateral vasectomy.** T. Tokas, AS. Gözen, J. Rassweiler. 31st World Congress of Endourology and SWL. N. Orleans, 10/13
33. **Medium term results of mini laparoscopic pyeloplasty using the small incision access retroperitoneoscopic technique in adults.** M. Al Nasser, AS. Gözen, T. Tokas, G. Pini, M. Hruza, J. Rassweiler. 31st World Congress of Endourology and SWL. N. Orleans, 10/13
34. **Computer-assisted analysis of transrectal ultrasound (C-TRUS/ANNA) guided biopsies of the prostate: evolution from stand-alone device to an online-function module in a real-time biopsy setting (p).** T. Tokas, B Grabski, A. Ramankulov, T. Loch. **1st award.** 15th GDGU Symposium of the Greek – German Urological Club. Thessaloniki, 06/13.
35. **Computer-assisted analysis of transrectal ultrasound (C-TRUS/ANNA) guided biopsies of the prostate: stand-alone device (p).** T. Tokas, B Grabski, A. Ramankulov,

- T. Loch. 15th GDGU Symposium of the Greek – German Urological Club. Thessaloniki, 06/13.
36. **Evaluation of a new operating platform (ETHOS) for laparoscopic surgery in a training room setting (p).** AS Gözen, O Plekhanova, A Jalal, T.Tokas, JT Klein, J Rassweiler. 28th Annual EAU Congress, Milan, 03/13
37. **Laparoscopic pyeloplasty and flexible nephrolithotripsy in patients with ureteropelvic junction obstruction and concomitant lithiasis (p).** K Stravodimos, I. Leotsakos, A. Alevizopoulos, T.Tokas, I. Katafygiotis, V. Mygdalis, I. Anastasiou, C.A. Constantinides. EAU 8th South Eastern European Meeting (SEEM), Sofia 10/12
38. **Kallikrein-related peptidase 13 (KLK 13) gene expression in urinary bladder cancer: clinical evaluation and preliminary results (p).** T.Tokas, K. Stravodimos, M. Avgeris, I. Leotsakos, E. Fragkiadis, C. Alamanis, A. Scorilas, C.A. Constantinides. EAU 8th South Eastern European Meeting (SEEM), Sofia 10/12
39. **Clinical evaluation of Kallikrein peptidase 13 (KLK 13) in bladder cancer (p).** T.Tokas, K. Stravodimos, M. Avgeris, I. Leotsakos, E. Fragkiadis, C. Alamanis, A. Scorilas, C.A. Constantinides. 21st Annual Congress of the Hellenic Association of Urology. Athens 10/12
40. **Percutaneous nephrolithotripsy in transplanted kidney (V).** K. Stravodimos, E. Frangiadis, A. Alevizopoulos, T. Tokas, G Kousournas, V. Mygdalis, C.A. Constantinides. 30th World Congress of Endourology and SWL. Istambul 09/12
41. **Laparoscopic pyeloplasty with flexible nephrolithotripsy (V).** K. Stravodimos, I. Leotsakos, A. Alevizopoulos, T. Tokas, I. Katafygiotis, V. Mygdalis, I. Anastasiou, C.A.Constantinides. 30th World Congress of Endourology and SWL. Istambul 09/12

42. **Evaluation of a new operating platform (ETHOS) for laparoscopic surgery in a training room setting.** A.S. Gözen, O. Plekhanova, A. Jalal, T. Tokas, J. Klein, J. Rassweiler. 28th Annual EAU Congress, Milan, 03/13
43. **Molecular markers of bladder wall remodelling in LUTS/BPH patients undergoing surgery (p).** A. Mihalakis, K. Pavlakis, G. Agrogiannis, C.A. Constantinides, T. Tokas, D. Mitropoulos. 27th Annual EAU Congress, Paris, 02/12
44. **Clinical efficacy of distigmine bromide in the treatment of patients with underactive detrusor (p).** T. Tokas, A. Alevizopoulos, V. Manolas, I. Adamakis, D. A. Bougas. 4th Meeting of the Urodynamics, Neurourology, and Female Urology Section (UNUFU) of the Hellenic Urological Association, Ioannina, 09/11.
45. **Interesting case: Aseptic meningitis followed by urinary retention (p).** A. Alevizopoulos, V. Manolas, T. Tokas, I. Anastasiou, D.A. Bougas. 4th Meeting of the Urodynamics, Neurourology, and Female Urology Section (UNUFU) of the Hellenic Urological Association, Ioannina, 09/11.
46. **Quantitative expression analysis of Kallikrein-related peptidase 13 gene (*KLK13*) in bladder cancer (p).** T. Tokas, M. Avgeris, K. Sravodimos, C.A. Constantinides, A. Scorilas. 4th International Symposium on Kallikreins and Kallikrein-Related Peptidases (ISK2011). Rhodes, 09/11.
47. **Laparoscopic pyeloplasty and contemporaneous flexible nephrolithotripsy (p).** K. Sravodimos, A. Alevizopoulos, I. Anastasiou, S. Papadoukakis, I. Adamakis, S. Tyrizis, T. Tokas, C.A. Konstantinides. 14th GDGU Symposium of the Greek – German Urological Club. Athens, 07/11.
48. **Robotic assisted laparoscopic radical prostatectomy. The experience of the 1st Department of Urology of the University of Athens (P).** I. Anastasiou,

- S. Papadoukakis, S. Tyritzis, T. Tokas, A. Alevizopoulos, K. Stravodimos. C. A. Constantinides. 10th Greek Laparoendoscopic Congress. Athens, 05/11.
49. **Transperitoneal laparoscopic pyeloplasty: Initial experience (p).** K. Stravodimos, T. Tokas, I. Anastasiou, S. Papadoukakis, S. Tyritzis, E. Frangiadis, C.A. Constantinides. 10th Greek Laparoendoscopic Congress. Athens, 05/11.
50. **Laparoscopic radical prostatectomy. The experience of the 1st Department of Urology of the University of Athens (P).** I Anastasiou, S. Papadoukakis, T. Tokas, S. Tyritzis, A. Alevizopoulos, K. Stravodimos, C.A> Constantinides. 10th Greek Laparoendoscopic Congress. Athens, 05/11.
51. **Laparoscopic pyeloplasty and contemporaneous flexible nephrolithotripsy (p).** K. Stravodimos, A. Alevizopoulos, I. Anastasiou, S. Papadoukakis, I. Adamakis, S. Tyritzis, T. Tokas, C.A. Konstantinides. 10th Greek Laparoendoscopic Congress. Athens, 05/11.
52. **Laparoscopic nephrectomy and laparoscopic nephroureterectomy. The experience of the 1st Department of Urology of the University of Athens (P).** K. Stravodimos, T. Tokas, S. Tyritzis, I. Leotsakos, I. Anastasiou, S. Papadoukakis, C.A. Constantinides. 10th Greek Laparoendoscopic Congress. Athens, 05/11.
53. **Infected penile implantation removal (v).** S. Tyritzis, I. Adamakis, I. Leotsakos, E. Frangiadis, K. Sfetsas, T. Tokas, Ch. Alamanis, C.A. Constantinides. 20th Annual Congress of the Hellenic Association of Urology. Limassol, 10/10.
54. **Transperitoneal approach with right subcostal incision in patients with large tumours of the right kidney. (P).** T. Tokas, I. Anastasiou, E. Felekouras, G. Koutalellis, E. Frangiadis, D. Mitropoulos, C.A. Constantinides. 20th Annual Congress of the Hellenic Association of Urology. Limassol, 10/10.

- 55. First use of an acellular, human dermis tissue graft for the surgical management of Peyronie's disease. (P).** I. Adamakis, S. Tyritzis, K. Stravodimos, V. Mygdalis, D. Mitropoulos, Ch. Alamanis, T. Tokas, C.A. Constantinides. 20th Annual Congress of the Hellenic Association of Urology. Limassol, 10/10.
- 56. Early Removal of Nasogastric Tube is Beneficial for Patients Undergoing Radical Cystectomy with Urinary Diversion (P).** T. Tokas, I. Adamakis, S. Tyritzis, G. Koutalellis, I. Leotsakos, K. Stravodimos, D. Mitropoulos, C.A. Constantinides. 20th Annual Congress of the Hellenic Association of Urology. Limassol, 10/10.
- 57. A comparative study of succinylcholine or remifentanil for achievement of ideal conditions of tracheal intubation before transurethral operations. (p).** I. Vasileiou, G. Fotopoulou, S. Tyritzis, K. Dre, A. Zerva, T. Tokas, I. Leotsakos, K. Tsinari, C.A. Constantinides. 20th Annual Congress of the Hellenic Association of Urology. Limassol, 10/10.
- 58. Comparison of the efficacy of epidural and general anaesthesia in post –operative pain management during transurethral procedures.(P).** K. Stravodimos, S. Tyritzis, A. Alevizopoulos, T. Tokas, I. Leotsakos, G. Koritsiadis, D. Mitropoulos, C.A. Constantinides. **3rd Award.** 20th Annual Congress of the Hellenic Association of Urology. Limassol, 10/10.
- 59. Testicular parenchyma and erectile dysfunction (p).** G. Koritsiadis, Ch. Alamanis, D. Kyrgiaki, S Papaspyrou, S Loumos, T. Tokas, A. Zervas. 8th Hellenic Congress of Andrology. 09/08

8.6.2. Δημοσιεύσεις περιλήψεων σε supplements PubMed-indexed επιστημονικών περιοδικών

- 1. Current management of renal colic across Europe and its compliance to the EAU Guidelines on Urolithiasis: A survey from the ESUT, EULIS, YAU study groups.** S. Güven, BK. Somani, AS. Gözen, K. Sarica, JG. Rivas, MG. Sönmez, U. Nagele, T. Tokas. European Urology Open Science. 2020; 39:S114
- 2. Predictors and strategies to avoid mortality following ureteroscopy for stone disease: A systematic review from European association of urologists sections of urolithiasis (EULIS) and uro-technology (ESUT).** R. Bhanot, A. Pietropaolo, T. Tokas, P. Kallidonis, A. Skolarikos, EX. Keller, V. De Coninck, O. Traxer, AS Gözen, K. Sarica, BK. Somani. SIU 2021:MP-06.11
- 3. The effect of bladder neck sparing with additional anterior urethral fixation on postoperative continence after robot-assisted radical prostatectomy.** E. Gazel, E. Kaya, S. Yalcin, S. Yilmaz, T. Tokas, AC. Aybal, M. Yilmaz, L. Tunc. European Urology Open Science. 2020;19:1753
- 4. The novel HoLEP technique Omega Sign improves continence outcomes of surgery.** L. Tunc, S. Yalcin, E. Gazel, S. Yilmaz, HC. Aybal, M. Yilmaz, T. Tokas. European Urology Open Science. 2020;19:e1252-e1253
- 5. The performance improvement-score algorithm applied to EST s1 EAU protocol. Data from ART in flexible 2018.** D. Veneziano, G. Patruno, M. Talso, T. Tokas, S. Proietti, A. Porreca, G. Kamphuis, CS. Biyani, E. Emiliani, M. Cepeda Delgado, L. Maria de Mar Perez, R. Miano, S. Ferretti, N. Macchione, P. Kallidonis, E. Montanari, A. Ploumidis, E. Lima, BK. Somani. Eur Urol Suppl 2019 ;18(9) :e3351
- 6. Adding construct validity to the Endoscopic Stone Treatment step-1 (EST s1): a novel training and assessment tool from collaboration of ESU, EULIS, ESUT and EUREP.** D. Veneziano, A. Ploumidis, S. Proietti, T. Tokas, G.

Kamphuis, B. Van Cleynenbreugel, AS. Gözen, A. Breda, J. Palou, K. Sarica, E. Liatsikos, K. Ahmed, BK. Somani. J Urol 2019; 201(4): MP 35-03

7. MP45-05 THE EFFECT OF PROSTATIC TISSUE DENSITY ON THE PERIOPERATIVE OUTCOMES OF HOLMIUM LASER ENUCLEATION OF PROSTATE (HOLEP): A PILOT STUDY. E. Kaya, E. Gazel, S. Yalcin, T. Tokas, TB. Aydogan, HC. Aybal, L. Tunc. J Urol 2019;supplement 4

8. The Pi (Performance improvement) score: An algorithm to objectively assess performance improvement during E-BLUS hands on training (HoT) sessions. D. Veneziano, A. Canova, M. Arnolds, J. Beatty, S. Biyani, F. Deho, C. Fiori, G. Hellawell, H. Langenhuijsen, G. Pini, O. Rodriguez Faba, G. Siena, A. Skolarikos, T. Tokas, B. Van Cleynenbreugel, C. Wagner, G. Tripepi, E. Lima. Eur Urol Suppl 2018 ;17(2) :E667-E668

9. The “EUREP hands-on training format”: 4-years of hands-on training improvements from the European School of Urology (ESU). D. Veneziano, B. Van Cleynenbreugel, A. Gözen, S. Barmoshe, S. Biyani, JM. Gaya, G. Hellawell, G. Pini, O. Rodriguez Faba, R. Sanchez Salas, P. Macek, A. Skolarikos, C. Wagner, V. Eret, S. Haensel, G. Siena, M. Schmidt, M. Klitsch, S. Vesely, A. Ploumidis, S. Proietti, G. Kamphuis, T. Tokas, R. Gerarthy, BK. Somani. Eur Urol Suppl 2018 ;18(1) :E1105-E1106

10. Adding construct validity evidence to the endoscopic stone treatment step-1 (EST s1): A novel training and assessment tool from collaboration of ESU, EULIS, ESUT and EUREP. D. Veneziano, A. Ploumidis, S. Proietti, T. Tokas, G. Kamphuis, B. Van Cleynenbreugel, A. Gözen, A. Breda, J. Palou, K. Sarica, E. Liatsikos, K. Ahmed, B. Somani. Eur Urol Suppl 2018;17(2) :E1822-E1825

11.CT-controlled stone-free-rate after minimal-invasive percutaneous nephrolitholapaxy (MIP) in correlation with instrument-size. JR. Schachtner, T. Tokas, G. Kitzbichler, M. Habicher, TRW. Herrmann, U. Nagele, Eur Urol Suppl 2017;16(3):e969-e971

12.Combining the ETHOS operating ergonomic platform, the 3D laparoscopic camera, and the Radius Surgical System (RSS) manipulators to improve ergonomic in laparoscopy (p). A. Tschada, T. Tokas, A.S. Gözen, M. Avgeris, M. Hruza, J. Klein, J. Rassweiler. Eur Urol Suppl. 2016; 15(6): e129

13.Ten-year active monitoring in patients with high risk of prostate cancer by ANNA/C-TRUS imaging (p). T. Tokas, B. Grabski, A. Loch, K. Korte, A. Ramankulov, P. Berg, L. Baeurle, U. Paul, T. Loch. J. Urol Suppl. 2016; 195(4): e178.

14.Laparoscopic single-incision triangulated umbilical surgery (SITUS) pyeloplasty: A description of our first 30 cases (p). J.R. Schachtner, M. Habicher, T. Tokas, U. Nagele. Eur Urol Suppl. 2016; 15(3);e1057

15.Direct comparison of an ergonomic laparoscopic system with robotic surgery, in terms of operating speed, in an inanimate experimental laparoscopic radical prostatectomy setting (p). T.Tokas, A.S. Gözen, M. Avgeris, A. Tschada, J. Rassweiler. Eur Urol Suppl. 2016; 15(3);e360

16.Flexible 3D laparoscopic segmental ureterectomy and end-to-end ureteral anastomosis for benign disease (V). I Leotsakos, U Paul, T. Tokas, L Bäurle, T Loch. J Endourol. 2015, 29(S1): P53.

17.Flexible 3D laparoscopic repair of iatrogenic vesicovaginal fistulas. I Leotsakos, U Paul, T Tokas, L Bäurle, T Loch. J Endourol. 2015, 29(S1): P44.

18.Direct comparison of an ergonomic laparoscopic combination with robotic surgery in an inanimate experimental laparoscopic radical prostatectomy setting; times and ergonomy. T. Tokas, AS Gözen, A Tschada, J Rassweiler. J Endourol. 2015, 29(S1): P12.

19.A laparoscopic combination with comparable ergonomic results to robotic surgery, tested in an experimental laparoscopic radical prostatectomy setting. T. Tokas, AS Gözen, A Tschada, J Rassweiler. J. Urol Suppl. 2015; 193(4): e390.

20.Multi-center results of computerized transrectal ultrasound (ANNA/C-TRUS) targeted prostate biopsies in 2356 cases. T. Tokas, B. Grabski, I. Peters, M. Pechoel, M.A. Kuczyk, M. Burchardt, T. Loch. Eur Urol Suppl. 2015; 14(2): e23.

21.Evaluation of a new operating platform (ETHOS) for laparoscopic surgery in a training room setting. A.S. Gözen, O. Plekhanova, A. Jalal, T. Tokas, J. Klein, J. Rassweiler. Eur Urol Suppl. 2013; 12(1): e220.

22.Computerized transrectal ultrasound targeted biopsies: Preoperative prediction of the radical prostatectomy gleason grade. T. Loch, A. Loch, B. Grabski, L. Bäurle, U. Paul, T. Tokas. J. Urol Suppl. 2014; 191(4): e470-e471.

23.Iatrogenic direct rectal injury: An unusual complication during suprapubic cystostomy insertion and its laparoscopic management. T. Tokas, AS. Gözen, R. Rajmohan, B. Aguilar-Davidov, J. Rassweiler. J Endourol. 2013, 27(S1): A173-4.

24.Does simultaneous extraperitoneal laparoscopic hernia repair influence morbidity and pain levels after extraperitoneal laparoscopic radical prostatectomy? AS. Gözen, T. Tokas, G. Atis, M. Hruza, J. Rassweiler. J Endourol. 2013, 27(S1): A227.

25. Robotically assisted bilateral vasovasostomy, after a successful bilateral vasectomy. T. Tokas, AS. Gözen, J. Rassweiler. J Endourol. 2013, 27(S1): A309.

26. Medium term results of mini laparoscopic pyeloplasty using the small incision access retroperitoneoscopic technique in adults. M. Al Nasser, AS. Gözen, T. Tokas, G. Pini, M. Hruza, J. Rassweiler. J Endourol. 2013, 27(S1): A316-7.

27. Kallikrein-related peptidase 13 (KLK 13) gene expression in urinary bladder cancer: clinical evaluation and preliminary results (p). T. Tokas, K. Stravodimos, M. Avgeris, I. Leotsakos, E. Fragkiadis, C. Alamanis, A. Scorilas, C.A. Constantinides. Eur Urol Suppl. 2012; 11(4): 161

28. Laparoscopic pyeloplasty with flexible nephrolithotripsy (p). K. Stravodimos, I. Leotsakos, A. Alevizopoulos, T. Tokas, I. Katafygiotis, V. Mygdalis, I. Anastasiou, C.A. Constantinides. J Endourol. 2012; 26(S1): A479

29. Percutaneous nephrolithotripsy in transplanted kidney (V). K. Stravodimos, E. Frangiadis, A. Alevizopoulos, T. Tokas, G. Kousournas, V. Mygdalis, C.A. Constantinides. J Endourol. 2012; 26(S1): A529

30. Molecular markers of bladder wall remodelling in LUTS/BPH patients undergoing surgery (p). A. Mihalakis, K. Pavlakis, G. Agrogiannis, C.A. Constantinides, T. Tokas, D. Mitropoulos. Eur Urol Suppl. 2012; 11(1): e12, e12a

9. ΛΟΙΠΕΣ ΕΠΙΣΤΗΜΟΝΙΚΕΣ ΔΡΑΣΤΗΡΙΟΤΗΤΕΣ

9.1. EAU Section of Urological Imaging (ESUI), Associate Member.

9.2. EAU Section of Uro-Technology (ESUT), Associate Member, Training Group

9.3. EAU Working Group in Open Surgery training, Vice-Chair

9.4. Austrian Working Group in Laparoscopy and Robotic Surgery

9.5. Προσκλήσεις σε επιστημονικά συνέδρια και συναντήσεις

1. **Ομιλητής**, 4th Annual Conference of Mediterranean Minimal Invasive Surgery in Urology, 10.2022, Alexandria, Egypt
2. **Ομιλητής/εκπαιδευτής**, Endoscopic Stone Treatment, ESTs2, 10.2022, Prague, Czech Republic
3. **Ομιλητής/Εκπαιδευτής**, 25^ο Πανελλήνιο Ουρολογικό Συνέδριο (1st Urology Boot Camp / Laparoscopy, Fusion biopsy Hands-on training course), 10.2022, Αθήνα, Ελλάδα
4. **Ομιλητής**, ESU Course during the National Armenian Urology Meeting, 09.2022, Yerevan, Armenia
5. **Ομιλητής**, Σεμινάρια Κλινικής Ουρολογίας, 09.2022, Σύρος, Ελλάδα
6. **Ομιλητής/ εκπαιδευτής/ εξεταστής**, Endoscopic stone treatment, ESTs1 exams, EBLUS exams, EAU UROtech: A joint meeting of the EAU Section of Uro-Technology and the EAU Section of Urolithiasis in collaboration with the EAU Robotic Urology Section, 05.2022, Istanbul, Turkey
7. **Ομιλητής**, 41^{ες} Αθηναϊκές Ουρολογικές Ημέρες, 05.2022, Αθήνα, Ελλάδα
8. **Ομιλητής/ εκπαιδευτής** Applied Laparoscopic Urology and Endourology Course. Hands – On Training on Laparoscopic and Robotic Urological Surgery. 04.2022, ELPEN Experimental Research Center, Αθήνα, Ελλάδα
9. **Ομιλητής (Webinar)**, Digital Endourology Meeting, 03.2022, Myanmar
10. **Ομιλητής**, 17^η Εβδομάδα Ελλήνων Ειδικευομένων, 02.2022, Αθήνα, Ελλάδα

11. **Ομιλητής**, 2^ο Διατμηματικό Συνέδριο Ελληνικής Ουρολογικής Εταιρείας, 10.2021, Θεσσαλονίκη, Ελλάδα
12. **Ομιλητής (Webinar), Digital ESUT Course** during the National Persian Urology Meeting, 12.2020, Iran
13. **Ομιλητής (Webinar)**, Digital Meeting ‘‘New Horizons in Endoscopic Resection of Bladder Tumors (ERBT)’’, 08.2020, οργάνωση: iTRUE
14. **Ομιλητής/Εκπαιδευτής**, First International Intensive Course in Laparoscopic and Reconstructive Urology, 12.2019, Karachi, Pakistan
15. **Ομιλητής**, ‘Prostatakrebs Stand der Medizin‘, 11.2019, Innsbruck, Austria
16. **Ομιλητής/Εκπαιδευτής**, SET-UP Programme Standardized Endoscopic Training in Uro Procedures, 10.2018, Bangkok, Thailand
17. **Επίσημος επόπτης (Consultant)**, Εταιρεία: SOFMEDICA, αντικείμενο: διαπερινεϊκή και διορθική MRI/US Fusion βιοψία προστάτη, 2022-ong
18. **Εκπαιδευτής**, ISLE Fusion Biopsy Course, οργάνωση: Ελληνική Ουρολογική Εταιρεία, 2021-ong, Αθήνα, Ελλάδα
19. **Εκπαιδευτής**, Laparoscopy, ESU/ Weill Cornell Masterclasses in Urology, 2016-2019, Salzburg, Austria
20. **Εκπαιδευτής**, Endoscopic Stone Treatment, EUREP, 2015-2022, Prague; Czech Republic
21. **Εκπαιδευτής**, Endoscopic Stone Treatment, Art-in flexible, 2019-ong, Berlin, Germany
22. **Ομιλητής**, Turkish Congress of Endourology, 05.2022, Kyrenia, Cyprus

23. **Εκπαιδευτής/Εξεταστής**, Endoscopic Stone Treatment, ESTs1 exams, 34th Annual Congress of the European Association of Urology, 03.2019
Barcelona, Spain
24. **Εκπαιδευτής/Εξεταστής**, Endoscopic Stone Treatment, ESTs1 exams, 33rd Annual Congress of the European Association of Urology, 03.2018,
Copenhagen, Denmark
25. **Ομιλητής**, 31st Annual Congress of the European Association of Urology, 03.2016, Munich, Germany
26. **Ομιλητής**, Pan European Meeting in the World Congress of Endourology and ESWL, 10.2015, London, United Kingdom
27. **Ομιλητής**, 30th Annual Congress of the European Association of Urology, 03.2015, Madrid, Spain
28. **Εκπαιδευτής**, European-Basic Laparoscopic Urological Skills (**E-BLUS**) **Instructor**, 23rd **Turkish national Congress**. 10.2014, Antalya, Turkey
29. **Ομιλητής**, Interactive symposium “Aktuelles zum Prostatakarzinom: Früherkennung, Diagnostik und Therapie”. 03.2014, Flensburg, Germany
30. **Ομιλητής**, Interactive symposium “Basis und Aussichten der Bildgebung beim Prostatakarzinom: TRUS und C-TRUS/ANNA in der multizentrischen Anwendung”. Certified by the EAU Section Urological Imaging (ESUI). 09.2013. Sylt, Germany
31. **Εκπαιδευτής**, 23rd Applied (Greek - Turkish) Laparoscopic Urology Course. Hands – On Training on Laparoscopic and Robotic Urological Surgery. 05.2013, ELPEN Experimental Research Center, Athens, Greece

32. Ομιλητής, 23rd Applied (Greek Turkish) Laparoscopic Urology Course.

ELPEN Experimental Research Center, 05.2013, Athens, Greece

33. Ομιλητής/ εκπαιδευτής, Endoscopic Stone Treatment, 8th South-Eastern

European urological Meeting (SEEM), 10.2012, Sofia, Bulgaria

9.6. Κριτής σε διεθνή επιστημονικά περιοδικά - 148 reviews (IF 2020-2022)

1. Andrologia (2.532)
2. Asian Journal of Urology (2.784)
3. Biology (5.168)
4. BioMed Research International (3.246)
5. BMC Medical Imaging (1.930)
6. BMJ Open (2.692)
7. Cancers (6.639)
8. Clinical Interventions in Aging (4.458)
9. Diagnostics (3.992)
10. International Brazilian Journal of Urology (3.050)
11. International Journal of Molecular Sciences (6.208)
12. Journal of Clinical Medicine (4.964)
13. Journal of Obstetrics and Gynaecology (1.226)
14. Medicina (2.948)
15. Quantitative Imaging in Medicine and Surgery (3.837)
16. Research and Reports in Urology (1.641)

17. Scientific Reports (4.996)
18. Therapeutic Advances in Urology (2.357)
19. Translational Andrology and Urology (3.150)
20. Turkish Journal of Urology (1.053)
21. Urology Journal (1.555)
22. World Journal of Surgical Oncology (2.447)
23. World Journal of Urology (3.661)

9.7. Μέλος Επιστημονικών Εταιρειών

1. American Urological Association
2. European Association of Urology
3. Endourological Society
4. Société Internationale D'Urologie
5. Ελληνική Ουρολογική Εταιρεία

10. ΥΠΟΜΝΗΜΑ ΕΠΙΣΤΗΜΟΝΙΚΩΝ ΔΗΜΟΣΙΕΥΣΕΩΝ

10.1 Σύντομη παρουσίαση διδακτορικής διατριβής (PhD)

Τίτλος: **“Κλινική αξιολόγηση της Καλλικρεΐνης 13 (KLK13) στον καρκίνο της ουροδόχου κύστης”** Επιβλέπων: Καθηγητής Κωνσταντίνος Κωνσταντινίδης, Διευθυντής Α Πανεπιστημιακής Ουρολογικής Κλινικής, ΓΝΑ «Λαϊκό», Αθήνα, Ελλάδα (2017)

Η διατριβή οδήγησε στην παραγωγή 5 δημοσιεύσεων (Δημοσιεύσεις σε διεθνή επιστημονικά περιοδικά (PubMed Indexed): Publications 15, 10, 19, 29, 35) και μίας περίληψης σε supplements PubMed-indexed επιστημονικού περιοδικού (27).

Περίληψη

Ο καρκίνος της ουροδόχου κύστης αποτελεί την πιο συχνή κακοήθεια του ουροποιητικού συστήματος. Η διάγνωση και ο επανέλεγχος πραγματοποιούνται με τη χρήση της κυστεοσκόπησης, η οποία είναι μια επεμβατική πράξη. Κρίνεται λοιπόν απαραίτητη η εύρεση μη επεμβατικών τεχνικών που να μπορούν να βοηθήσουν τον κλινικό ουρολόγο ή και να αντικαταστήσουν την κυστεοσκόπηση στην καθημερινή κλινική πράξη. Στο σημείο αυτό μπορούν να αποδειχθούν ιδιαίτερα χρήσιμοι οι μοριακοί δείκτες. Έτσι, στις μέρες μας, παρουσιάζεται μια έντονη ερευνητική δραστηριότητα στην ανακάλυψη τέτοιων δεικτών, στην εφαρμογή τους ως διαγνωστικά όπλα, αλλά και τη χρήση τους ως προγνωστικούς δείκτες για τον καρκίνο της ουροδόχου κύστης. Ωστόσο, κανένας δείκτης δεν έχει καταφέρει, μέχρι σήμερα, να περάσει από το εργαστήριο στην αναγνώριση, μέσα από κατευθυντήριες οδηγίες, και, πολύ περισσότερο, στην εφαρμογή του στην καθημερινή κλινική πράξη.

Η γονιδιακή οικογένεια των ιστικών καλλικρεϊνών του ανθρώπου (KLK) είναι μια υποοικογένεια των πρωτεασών σερίνης. Πολλές κατηγορίες νεοπλασιών παρουσιάζουν απορρύθμιση κάποιου από τα KLK γονίδια, τόσο σε επίπεδο μεταγραφής όσο και σε επίπεδο μετάφρασης. Επιπλέον, πολλές μορφές καρκίνου παρουσιάζουν παθολογική έκκριση διαφόρων καλλικρεϊνικών ουσιών, γεγονός που τις καθιστά πρότυπους καρκινικούς βιοδείκτες για τη διάγνωση, παρακολούθηση, και πρόγνωση των ασθενών. Ειδικά για τον καρκίνο της κύστης, έχει παρατηρηθεί υπερέκφραση των γονιδίων KLK5, -6, -8, -9 στα καρκινικά κύτταρα, καθώς επίσης και στους μυοδιηθητικούς όγκους (pT2-pT4) σε σχέση με τους μη μυοδιηθητικούς (pTa & pT1). Η συγκεκριμένη μελέτη, ωστόσο, αποτελεί τη μοναδική που σχετίζεται με την ανάλυση της έκφρασης κάποιας KLK στον καρκίνο της κύστης, που συνοδεύεται από περαιτέρω κλινική αξιολόγηση και παρακολούθηση των ασθενών.

Η Καλλικρεΐνη 13 (KLK13) συμμετέχει σε ένα μεγάλο αριθμό φυσιολογικών λειτουργιών του οργανισμού. Η έκφραση της αποτελεί καλό προγνωστικό δείκτη στον καρκίνο του στήθους, των ωοθηκών, και του στομάχου, και κακό προγνωστικό δείκτη στον καρκίνο του πνεύμονος. Η διαγνωστική και προγνωστική της αξία στον καρκίνο της κύστης δεν έχει ακόμη αξιολογηθεί.

Σκοπός της προοπτικής αυτής μελέτης είναι η κλινική αξιολόγηση της έκφρασης του γονιδίου της KLK13 στον καρκίνο της ουροδόχου κύστεως, με στόχο την περαιτέρω χρήση της ως διαγνωστικό και προγνωστικό δείκτη.

Ιστοτεμάχια ουροδόχου κύστεως ελήφθησαν από την περιοχή του όγκου και παρακείμενη αυτού μακροσκοπικά φυσιολογική περιοχή από 158 ασθενείς με καρκίνο της κύστης. Η λήψη των ιστοτεμαχιδίων έγινε με τη χρήση ψυχρής βιοψίας κατά τη διάρκεια διουρηθρικής εκτομής μορφώματος κύστης ή ριζικής κυστεκτομής. Έγινε ιστολογική ταυτοποίηση όλων των δειγμάτων. Απομονώθηκε το ολικό RNA και έπειτα πραγματοποιήθηκε η αντίστροφη μεταγραφή αυτού σε cDNA. Η ποσοτική ανάλυση της έκφρασης της KLK13 πραγματοποιήθηκε μέσω της ανάπτυξης Real- Time PCR μεθοδολογίας με την χρήση του φθορισμογόνου SYBR-Green I και την χρήση της μεθόδου σχετικής ποσοτικοποίησης 2-ΔΔCT. Ακολούθως, παραγματοποιήθηκε η παρακολούθηση των ασθενών, με σκοπό την κλινική αξιολόγηση της KLK13 και τη συσχέτιση της έκφρασης αυτής με την υποτροπή, την εξέλιξη της νόσου, αλλά και την επιβίωση των ασθενών.

10.2 Δημοσιεύσεις (PubMed)

1. Ripa F, Tokas T, Griffin S, Ferreti S, Tur AB, Somani BK. **Pediatric Ureteral Access Sheath and Outcomes Related to Flexible Ureterscopy and Laser Stone Fragmentation: A Systematic Review of Literature. European Urology Open Science 2022;45:90–98**

Context Flexible ureteroscopy and laser lithotripsy (FURSL) represent a good treatment option for pediatric urolithiasis. Scarce evidence is available about the safety and efficacy of the concomitant use of a ureteral access sheath (UAS) in the setting of pediatric ureteroscopy (URS).

Objective To acquire all the available evidence on UAS usage in pediatric FURSL, focusing on intra- and postoperative complications and stone-free rates (SFRs).

Evidence acquisition We performed a systematic literature research using PubMed/MEDLINE, Embase, and Scopus databases. The inclusion criteria were cohorts of pediatric patients <18 yr old, submitted to URS for FURSL, reporting on more than ten cases of UAS placement. The primary outcomes were pretesting rates, operating time, ureteric stent placement rates after surgery, rates and grades of complications, ureteral injuries, and overall SFR. A total of 22 articles were selected.

Evidence synthesis In total, 26 intraoperative and 130 postoperative complications following URS with UAS placement were reported (1.8% and 9.18% of the overall procedures, respectively). According to the Clavien-Dindo classification, 32 were classified as Clavien I, 29 as Clavien II, 43 as Clavien I or II, six as Clavien III, and one as Clavien IV. Twenty-one cases of ureteral injuries (1.59%) were noted in the whole cohort; most of them were ureteral perforation or extravasation, and were treated with a temporary indwelling ureteric stent. The overall SFR after a single URS procedure was 76.92%; after at least a second procedure, it was 84.9%.

Conclusions FURSL is a safe and effective treatment option for pediatric urolithiasis. UAS use was associated with a low rate of ureteric injuries, mostly treated and resolved with a temporary indwelling ureteric stent.

Patient summary We performed a systematic literature research on the utilization of a UAS during ureteroscopy for stone treatment in pediatric patients. We assessed the outcomes related to the rates of intra- and postoperative complications and the rates of efficacy of the procedure in the clearance of stones. The evidence shows a low rate and grade of complications associated with UAS placement and good stone-free outcomes. A ureteric injury may occur in 1.6% of cases, but it is usually managed and resolved with a temporary indwelling ureteric stent.

2. Tokas T, Rice P, Seitz C, Gauhar V, Somani B. **Temperature change during laser upper-tract endourological procedures: current evidence and future perspective.** *Curr Opin Urol.* 2022 Oct 14. doi: 10.1097/MOU.0000000000001048. Online ahead of print.

PURPOSE OF REVIEW: To examine the most recent data on temperatures produced during laser lithotripsy and to provide several strategies for maintaining lower values and reducing the risk of complications during endourological treatment.

RECENT FINDINGS: Endourologists have access to a wide range of alternatives with the help of the holmium: yttrium-aluminum-garnet (Ho:YAG), thulium: yttrium-aluminum-garnet (TM:YAG), and thulium fiber laser (TFL) that compose a robust and adaptable laser lithotripsy armamentarium. Nevertheless, the threat of thermal damage increases as the local temperature rises with high total power. Most endourologists are not familiar with normal and pathological temperature ranges, how elevated temperatures affect perioperative problems, or

how to avoid them.

SUMMARY: Increased temperatures experienced during laser lithotripsy may affect the course of the healing process. All lasers display a safe temperature profile at energies below 40W. At equal power settings, Ho:YAG, Tm:YAG, and TFL lasers change the temperature comparably. Shorter on/off laser activation intervals, chilled irrigation, open irrigation systems, and UASs all aid in maintaining acceptable temperatures.

3. Gkolezakis V, Rice P, Somani BK, Tokas T. **Thulium Fiber Laser Behavior on Tissue During Upper- and Lower-Tract Endourology. Curr Urol Rep. 2022 Sep 30. doi:10.1007/s11934-022-01117-6. Online ahead of print.**

PURPOSE OF REVIEW: To present the latest evidence on thulium fiber laser (TFL) effects on tissue, during lithotripsy and ablation, emphasizing on generated temperatures, thermal damage thresholds, incision depths, areas of coagulation, and laser damage.

RECENT FINDINGS: Lasers are frequently utilized during endoscopic treatment of different urological conditions. The holmium:yttrium-aluminum-garnet (Ho:YAG) is most frequently used for various types of stones and soft tissue. The TFL has been recently introduced, offering several advantages. However, its activity on tissue during upper and lower tract endourology is poorly understood. At equivalent power settings, TFL and Ho:YAG generate similar temperature changes during lithotripsy. TFL has a shallow incision depth during tissue ablation. Compared to SP TFL, (cw) TFL results in a broader coagulation zone, whereas SP TFL gives of Ho:YAG-similar incision, and (cw) TFL offers a quick, precise cut with more carbonization.

4. Güven S, Sönmez MG, Somani BK, Gözen AS, Sarica K, Rivas JG, Nagele U, Tokas T. **Current management of renal colic across Europe and its compliance to the European Association of Urology Guidelines on Urolithiasis: a survey from the European Section of Uro-technology, European Section of Urolithiasis, Young Academic Urologists study groups. Cent European J Urol. 2022;75(2):182-190.**

INTRODUCTION: Renal colic due to ureteral stones represents the primary acute condition in urology. Although guideline recommendations are available the institution, urologist, and patient preferences in diagnosis and treatment may differ. We aimed to evaluate the adherence

of different European countries to the European Association of Urology (EAU) guidelines of urolithiasis and demonstrate trends in diagnostic and treatment approaches.

MATERIAL AND METHODS: We used a survey including 33 questions clustered in four sections. The survey was circulated to the representatives of the main urological centers in Europe using the European Section of Uro-technology (ESUT), the European Section of Urolithiasis (EULIS), the Young Academic Urologists (YAU), and the European Urology Residents Education Programme (EUREP) mailing lists. The first section included participant and institution demographics, the second assessed the common diagnostic and treatment pathways, the third discussed the advantages and disadvantages of treatment strategies and the fourth investigated treatment preferences in different clinical scenarios. A descriptive analysis was performed.

RESULTS: Of all participants, 84.21% stated that their departments follow specific guidelines, with no significant differences between institutions ($p = 0.18$). Preferred treatment practice difference in the case scenarios was significantly influenced by the Department bed capacities ($p = 0.01$), and complications varied between institutions ($p = 0.02$). Interestingly, 37-45% of participants were unaware of the different treatment costs.

CONCLUSIONS: Although urologists generally decide according to local or international guidelines when approaching renal colic patients, there are deviations in clinical practice due to 'doctor preference' and 'bed availability'. Many urologists are unaware of treatment costs.

5. Naik N, Tokas T, Shetty DK, Hameed BMZ, Shastri S, Shah MJ, Ibrahim S, Rai BP, Chłosta P, Somani BK. **Role of Deep Learning in Prostate Cancer Management: Past, Present and Future Based on a Comprehensive Literature Review. J Clin Med. 2022 Jun 21;11(13):3575.**

This review aims to present the applications of deep learning (DL) in prostate cancer diagnosis and treatment. Computer vision is becoming an increasingly large part of our daily lives due to advancements in technology. These advancements in computational power have allowed more extensive and more complex DL models to be trained on large datasets. Urologists have found these technologies help them in their work, and many such models have been developed to aid in the identification, treatment and surgical practices in prostate cancer. This review will present a systematic outline and summary of these deep learning models and technologies used for prostate cancer management. A literature search was carried out for English language articles over the last two decades from 2000-2021, and present in Scopus, MEDLINE,

Clinicaltrials.gov, Science Direct, Web of Science and Google Scholar. A total of 224 articles were identified on the initial search. After screening, 64 articles were identified as related to applications in urology, from which 24 articles were identified to be solely related to the diagnosis and treatment of prostate cancer. The constant improvement in DL models should drive more research focusing on deep learning applications. The focus should be on improving models to the stage where they are ready to be implemented in clinical practice. Future research should prioritize developing models that can train on encrypted images, allowing increased data sharing and accessibility.

6. Rice P, Somani BK, Nagele U, Herrmann TRW, Tokas T. **Generated temperatures and thermal laser damage during upper tract endourological procedures using the holmium: yttrium-aluminum-garnet (Ho:YAG) laser: a systematic review of experimental studies. World J Urol. 2022 Aug;40(8):1981-1992.**

PURPOSE: To perform a review on the latest evidence related to generated temperatures during Ho:YAG laser use, and present different tools to maintain decreased values, and minimize complication rates during endourological procedures.

METHODS: We performed a literature search using PubMed, Scopus, EMBASE, and Cochrane Central Register of Controlled Trials-CENTRAL, restricted to original English-written articles, including animal, artificial model, and human studies. Different keywords were URS, RIRS, ureteroscopy, percutaneous, PCNL, and laser.

RESULTS: Thermal dose (t43) is an acceptable tool to assess possible thermal damage using the generated temperature and the time of laser exposure. A t43 value of more than 120 min leads to a high risk of thermal tissue injury and at temperatures higher than 43 °C Ho:YAG laser use becomes hazardous due to an exponentially increased cytotoxic effect. Using open continuous flow, or chilled irrigation, temperatures remain lower than 45 °C. By utilizing high-power (> 40 W) or shorter laser pulse, temperatures rise above the accepted threshold, but adding a ureteral access sheath (UAS) helps to maintain acceptable values.

CONCLUSIONS: Open irrigation systems, chilled irrigation, UASs, laser power < 40 W, and shorter on/off laser activation intervals help to keep intrarenal temperatures at accepted values during URS and PCNL.

7. Belgi S, Tokas T, Rice P, Somani BK. **The role of music in outpatient prostate biopsy: A comprehensive literature review. Turk J Urol. 2022 Jan;48(1):41-48.**

Prostate biopsy is a standard urological procedure and a valuable tool for identifying prostate cancer. To assess the effect of music on outpatient prostate biopsy, we aimed to conduct a systematic review of literature to understand if music reduced the use of analgesics and anxiolytics. The systematic review was performed in line with the Cochrane guidelines and Preferred Reporting Items for Systematic Reviews and Meta-Analyses checklist. The databases searched included MEDLINE, Scopus, CINAHL, Clinicaltrials.gov, EMBASE, Cochrane library, and Google Scholar, from inception of databases to February 2021. The primary outcome measures were the effect of music on pain and anxiety from the procedure. The initial search yielded 212 articles and after going through titles and abstracts, and six studies (570 patients) were included for the final review. It included five randomized-controlled trials and one case-control study. These studies were done in Korea, USA, Taiwan, and Turkey. Patients had a combination of either local anesthetic gel or periprostatic nerve block or intravenous pethidine. The choice of music was varied and most offered a choice of music to patients. Four of the six studies showed significantly reduced pain and anxiety with the use of music, and the willingness for repeat procedures was higher in two studies. This review has demonstrated that listening to music is associated with reduced anxiety and pain during prostate biopsy. It is likely to, therefore, increase procedural satisfaction, and willingness to undergo the procedure again considering repeated biopsy is sometimes needed in these patients. As music is simple, inexpensive, and easily accessible, it should be routinely offered to patients for outpatient and office-based urological procedures.

8. Kallidonis P, Peteinaris A, Ortner G, Somani BK, Veneziano D, Tunc L, Gözen AS, Liatsikos E, Tokas T. **Simulation models and training curricula for training in endoscopic enucleation of the prostate: A systematic review from ESUT.** *Turk J Urol.* 2021 Jul;47(4):250-259.

The introduction of endoscopic anatomical enucleation of the prostate created a new educational field. We investigated the current literature for simulators, phantoms, and other training models that could be used as a tool for teaching urologists alone or within the boundaries of a course or a curriculum. A systematic review was performed according to the Preferred Reporting Items for Systematic Reviews and Meta-analyses statement and the European Association of Urology Guidelines office's recommendations for conducting systematic reviews. Seven out of 51 studies met our inclusion criteria and are presented in the

current review. The VirtaMed UroSim HoLEP (Holmium Laser Enucleation of the Prostate) Simulator achieved excellent scores for face, content, and construct validity, and participants agreed that it could be used for training. In addition, this simulator offers the opportunity for morcellation training. The Kansai University model for HoLEP does not support morcellation simulation and has only demonstrated face and content validity. The CyberSim (Quanta System, Solbiate Olona, VA, Italy) has not been yet evaluated, but it seems that it can be used for training without tutoring. Only one training curriculum was revealed from the search. The Holmium User Group-Mentorship Program has been proposed since 2005 for training urologists for HoLEP. Simulators and courses or curricula based on a simulator could be valuable learning and training tools. The existent models seem efficient but have not been widely evaluated and accepted yet. It seems that the training field for transurethral enucleation of the prostate will be rapidly developed soon.

9. Tokas T, Ortner G, Peteinaris A, Somani BK, Herrmann T, Nagele U, Veneziano D, Gözen AS, Kallidonis P. **Simulation training in transurethral resection/laser vaporization of the prostate; evidence from a systematic review by the European Section of Uro-Technology. World J Urol. 2022 May;40(5):1091-1110.**

PURPOSE: Transurethral resection (TURP) and photoselective vaporization of the prostate (PVP) constitute established surgical options to treat benign prostate hyperplasia. We investigated the current literature for simulators that could be used as a tool for teaching urologists alone or within the boundaries of a course or a curriculum.

METHODS: A literature search was performed using PubMed, Scopus, EMBASE, and Cochrane Central Register of Controlled Trials-CENTRAL. Search terms included: Simulat*, train*, curricull*, transurethral, TUR*, vaporesect*, laser. The efficacy of different simulators and the impact of different devices, curricula and courses in training and trainee learning curves were the primary endpoints.

RESULTS: Thirty-one studies are selected and presented. Validated virtual reality TURP simulators are the UW VR, PelvicVision, Uro-Trainer, and TURPsim™. Validated synthetic TURP models are Dr. K. Forke's TURP trainer, Bristol TURP trainer, different tissue prostate models, and 3D-printed phantoms. The Myo Sim PVP and the GreenLight™ are sufficiently validated PVP simulators. Several TURP and PVP training curricula have been developed and judged as applicable. Finally, the TURP modules of the European Urology Residents Education Programme (EUREP) Hands-on Training course and the Urology Simulation Bootcamp

Course (USBC) are the most basic annual TURP courses identified in the international literature.

CONCLUSIONS: Simulators and courses or curricula are valuable learning and training TURP/PVP tools. The existent models seem efficient, are not always adequately evaluated and accepted. As part of training curricula and training courses, the use of training simulators can significantly improve quality for young urologists' education and clinical practice.

10. Tokas T, Tzanaki E, Nagele U, Somani BK. Role of Intrarenal Pressure in Modern Day Endourology (Mini-PCNL and Flexible URS): a Systematic Review of Literature. Curr Urol Rep. 2021 Oct 8;22(10):52.

PURPOSE OF REVIEW: To review the latest evidence about intrarenal pressures (IRPs) generated during flexible ureteroscopy (fURS) and mini percutaneous nephrolithotomy (mPCNL) and present tools and techniques to maintain decreased values.

RECENT FINDING: fURS and PCNL constitute the primary means of stone treatment. New flexible ureterorenoscopes with small diameter and miniaturized PCNL instruments achieve optimal stone-free rates (SFRs) while decreasing invasiveness and morbidity. Nevertheless, endourologists must remain cognizant regarding the dangers of increased IRPs to avoid complications. Current research presents essential information for urologists regarding this topic. During fURS, using a ureteral access sheath (UAS), we avoid extremely high IRPs with all irrigation types. During mPCNL, pressure remains low, mainly using the purging effect or a vacuum-assisted sheath. Devices of intraoperative IRP measurement and intelligent pressure control have proven their feasibility, accuracy and efficacy. These will have an increasing role to play in the future management of stone disease.

11. Ortner G, Nagele U, Herrmann TRW, Tokas T. Irrigation fluid absorption during transurethral bipolar and laser prostate surgery: a systematic review. World J Urol. 2022 Mar;40(3):697-708.

PURPOSE: Transurethral endoscopic procedures using bipolar current, or laser energy are nowadays widely accepted and have replaced the traditional monopolar resection. A major advantage of these techniques is the utilization of isotonic saline as irrigation solution, which minimizes side effects such as symptoms associated to classical transurethral resection

syndrome (TUR-syndrome). Nonetheless, clinically significant IFA also occurs with saline and is determined by pressure gradients, systemic resistance and by the amount of irrigation fluid. We aimed to investigate the extend of IFA and symptoms due to volume overload during bipolar transurethral resection (bTUR) and laser procedures of the prostate.

METHODS: We performed a systematic literature search using PubMed, restricted to original English-written articles, including animal, artificial model, and human studies. Search terms were TUR, transurethral, laser, HoLEP, ThuLEP, greenlight, enucleation, fluid absorption, fluid uptake, and TUR-syndrome.

RESULTS: Mean and maximum IFA during bTURP ranges between 133 and 915 ml and 1019 ml and 2166 ml, respectively. Absorption during laser procedures can be significant with maximum values up to 4579 ml and mainly occurs during prostate vaporization techniques. Incidence of moderate to severe symptoms from iso-osmolar volume overload reaches 9%.

CONCLUSIONS: Irrigation fluid absorption during bTUR and laser surgery of the prostate is not negligible. Iso-osmolar overhydration with development of non-classical TUR syndrome should be identified peri- and postoperatively and surgical teams should be aware of complications. Breath ethanol, venous pH, serum chloride, and bicarbonate could be markers for detecting dangerous events of IFA with saline.

12. Veneziano D, Ploumidis A, Van Cleynenbreugel B, Gozen A, Palou J, Sarica K, Liatsikos E, Miano R, Ahmed K, Kamphuis G, Tokas T, Somani BK. **Development Methodology of the Novel Endoscopic Stone Treatment Step 2/A Training/Assessment Curriculum and a Roadmap on Developing Hands-on Training Curriculums in Future: An International Collaborative Work by European Association of Urology Sections.** *J Endourol.* 2021 Sep;35(9):1419-1426.

Background: Basic simulation training in endourology was established with the endoscopic stone treatment step 1 (EST-s1), which is now recognized worldwide for training and examination. Following on from EST-s1, the endoscopic stone treatment step 2 (EST-s2) was started by the European Association of Urology (EAU) sections. Objective: We describe the methodology used in the development of EST-s2 assessment curriculum. **Materials and Methods:** The "full-life cycle curriculum development" template was followed for curriculum development, focusing on intermediate training of EST protocol with complex endourologic tasks. A cognitive task analysis (CTA) was run in accordance with EAU Urolithiasis guidelines. The protocol and its details underwent a first consensus by Delphi method with

EAU Urolithiasis Section experts in March 2017. Once the outcome and metrics were decided, curriculum development was carried out. Purpose-built stones were developed, and simulator system requirement was defined. Preliminary testing was done in European Urology Residents Education Programme 2019 and in phase five the protocol was finalized with full tutor instruction sheet. **Results:** The EST-s2/A curriculum development took 38 months and involved EAU Uro-technology and urolithiasis sections with coordination from the European School of Urology training group. Starting from the initial CTA, a 1277-word revision with preliminary task description was produced. Nine intermediate skills were identified and included in the final training protocol. The training content and session evaluations were carried out by 26 experts and 16 final year trainees, respectively. Although the experts agreed that EST-s2/A protocol was well structured (96%), covered the complex endourologic maneuvers (92%), and was useful to optimize and improve hands-on-training (HoT) sessions (92%), the overall evaluation was scored 4.25/5 by trainees. **Conclusion:** We describe the development methodology for intermediate EST curriculum, which also provides a roadmap on developing other HoT protocols in future. **Patients Summary:** In this report we described the development of the novel intermediate training curriculum for EST, called EST-s2, which took 3 years of collaborative work inside the EAU. This article is aimed to strengthen the standards in curriculum development and clearly describe the background of this new EAU official endourology protocol.

13. Bhanot R, Pietropaolo A, Tokas T, Kallidonis P, Skolarikos A, Keller EX, De Coninck V, Traxer O, Gozen A, Sarica K, Whitehurst L, Somani BK. **Predictors and Strategies to Avoid Mortality Following Ureterscopy for Stone Disease: A Systematic Review from European Association of Urologists Sections of Urolithiasis (EULIS) and Uro-technology (ESUT).** *Eur Urol Focus.* 2022 Mar;8(2):598-607.

CONTEXT: While kidney stone disease is common and ureteroscopy (URS) is perceived as minimally invasive, there is mortality associated with treatment.

OBJECTIVE: The aim of this review was to ascertain the number of mortalities from URS for stone disease over the past three decades, identify relevant patient risk factors and predictors of mortality, and summarise the key recommendations so that similar instances can be avoided, and lessons can be learnt.

EVIDENCE ACQUISITION: A systematic literature search was conducted following Cochrane and Preferred Reporting Items for Systematic Reviews and Meta-analyses

(PRISMA) methodology for English-language article reporting on data from 1990 to December 2020. Data collated from each study included patient and stone characteristics, number of mortalities, and cause of death.

EVIDENCE SYNTHESIS: Fifteen studies met our inclusion criteria and revealed a total of 72 mortalities from ten countries. The age range of reported patients varied from 21 to 89 yr, with over 60% being above 65 yr of age and 97% with some comorbidity. Based on available data, death reports in females were three times more than those in males. The stone size ranged from 10 to 38 mm. Treatment of larger stones corresponded to a longer operative time, with procedural duration varying from 30 to 120 min. Of the reported causes of mortality in 42 patients, the aetiology was sepsis in over half of the patients, with other causes being cardiac-related, respiratory-related, multiorgan failure, and haemorrhagic complications.

CONCLUSIONS: Although the reported URS mortality rate seems to be low, there has been a rise in deaths over the past decade. Efforts must be made to have preoperative urine culture, and reduce operative time and stage procedures in patients with a large stone burden. Care must be taken in patients with robust preoperative assessment, intraoperative techniques, and postoperative monitoring for early detection of complications with interdisciplinary management of complex cases.

PATIENT SUMMARY: We reviewed the risk factors associated with post-ureteroscopy mortality and ways to minimise this. Evidence shows that although reported mortality remains low, there seems to be an increase in mortality in the past decade and urologists must remain vigilant of this.

14. Rai BP, Mayerhofer C, Somani BK, Kallidonis P, Nagele U, Tokas T. **Magnetic Resonance Imaging/Ultrasound Fusion-guided Transperineal Versus Magnetic Resonance Imaging/Ultrasound Fusion-guided Transrectal Prostate Biopsy-A Systematic Review.** Eur Urol Oncol. 2021 Dec;4(6):904-913.

CONTEXT: Magnetic resonance imaging (MRI)-targeted biopsies have changed the dogma in prostate cancer diagnosis. Biopsies can be performed either transrectally (MRI-guided and transrectal ultrasound fusion transrectal biopsy [MRI-TRUSB]) or transperineally (MRI guided and transrectal ultrasound fusion transperineal biopsy [MRI-TPB]).

OBJECTIVE: To evaluate the detection and complication rates of MRI-TRUSB and MRI-TPB.

EVIDENCE ACQUISITION: We performed a literature search in PubMed, Scopus, EMBASE, and CENTRAL, and selected randomized controlled trials (RCTs) and observational studies comparing MRI-TRUSB versus MRI-TPB.

EVIDENCE SYNTHESIS: Our search identified 3608 studies; we included five in the qualitative and two in the quantitative synthesis. On per-patient pooled analysis for clinically significant prostate cancer (csPCa), MRI-TPB detection rates were significantly higher (relative risk 1.28 [95% confidence interval {CI} 1.03-1.60], $p = 0.03$). On a per-lesion analysis, MRI-TPB anterior csPCa detection rates were statistically significantly higher (relative risk 2.46 [95% CI 1.22-4.98], $p = 0.01$). On a per-lesion analysis, MRI-TPB and MRI-TRUSB overall cancer detection rates were 75% and 81.6% ($p = 0.53$), and csPCa detection rates were 65.7% and 75.5% ($p = 0.40$), respectively. MRI-TPB had lower complication rates (odds ratio 2.56 [95% CI 1.14-5.56, $p < 0.05$]). On Grading of Recommendations Assessment, Development, and Evaluation (GRADE) evaluation, we rated all outcomes as "very low" certainty of the evidence for all outcome measures.

CONCLUSIONS: This review highlights the paucity of good-quality evidence comparing MRI-TPB and MRI-TRUSB. MRI-TPB achieves better detection for csPCa, anterior tumors, and lower infective complications. While RCTs are the highest quality of evidence that can address existing evidence limitations, there are concerns regarding infective complications associated with the MRI-TRUSB. Therefore, the authors propose that researchers and clinicians adopt a pragmatic approach by maintaining prospective databases, internal auditing of the MRI-TPB approach, and comparing these data with historical MRI-TRUSB cohorts.

PATIENT SUMMARY: We looked at the outcomes by comparing magnetic resonance imaging (MRI)-guided and transrectal ultrasound fusion transrectal biopsy with MRI-guided and transrectal ultrasound fusion transperineal biopsy (TPB). The analysis suggests, based on very low certainty evidence, that MRI-TPB has better detection for clinically significant prostate cancer, anterior tumors, and lower complications.

15. Tokas T, Avgeris M, Leotsakos I, Nagele U, Gözen AS. **Impact of three-dimensional vision in laparoscopic partial nephrectomy for renal tumors. Turk J Urol. 2021 Mar;47(2):144-150.**

OBJECTIVE: To compare three-dimensional (3D) with standard two-dimensional (2D) laparoscopic partial nephrectomy (LPN) with respect to intra- and postoperative outcomes.

MATERIAL AND METHODS: Data from 112 patients who underwent transperitoneal LPN from 2012 to 2014 by a single experienced surgeon were collected. Sixty patients (group 1) underwent conventional 2D LPN and 52 patients (group 2) 3D LPN. Perioperative patient, procedure, and tumor data were recorded. The follow-up period was 1-5 years.

RESULTS: The two groups had similar patient age ($p=0.834$) and body mass index ($p=0.141$). The total laparoscopy time (LT) was shorter in group 2 (119.0 vs. 106.0 min; $p=0.009$). Warm ischemia times (WITs) were also shorter in group 2 (11.5 vs. 10.0 min; $p=0.032$). The estimated blood loss (EBL) (350.0 vs. 250.0 mL; $p<0.001$) and hemoglobin (Hb) decrease (1.55 vs. 1.35 g/dL; $p=0.536$) were lower in the 3D LPN group. Creatinine (0 vs. 0 g/dL; $p=0.610$) increase and estimated glomerular filtration rate (eGFR) decrease (0 vs. 0 mL/min/1.73 m²; $p=0.553$) did not demonstrate statistically significant differences. Duration of hospitalization (7 vs. 7 days; $p=0.099$) and complication rates ($p=0.559$) were similar between the two groups.

CONCLUSION: The new-generation 3D laparoscope has a great impact on significant LPN intraoperative parameters, mainly LT, WIT, and EBL. Hb decrease is also in favor of 3D vision, although not dramatically altered. Therefore, 3D LPN appears to be superior to conventional 2D LPNs.

16. Ortner G, Tzanaki E, Rai BP, Nagele U, Tokas T. Transperineal prostate biopsy: The modern gold standard to prostate cancer diagnosis. Turk J Urol. 2021 Feb;47(Supp. 1):S19-S26.

In patients suspicious for prostate cancer, a prostate biopsy should be performed. Biopsies are possible either by the transrectal or transperineal routes. Compared with the transrectal prostate biopsy (TRPBx), transperineal prostate biopsy (TPPBx) offers a non-inferior cancer detection rate (CDR), especially in patients undergoing re-biopsy for persistently elevated PSA and in cases of active surveillance (AS), in which TPPBx seems to be superior. Moreover, the transperineal route achieves superior sampling of the anterior and apical regions, especially after previous multiple negative TRPBx. Infectious complications are nullified due to avoidance of needle passage through the rectal mucosa, and there is a highly significant evidence of reduced fever and sepsis rates when compared with TRPBx, with maintaining acceptable urinary retention rates. This is an important upcoming topic due to the increasing antibiotic resistance rates, thus reducing periinterventional hospitalization and health care costs. To date, TPPBx is perfectly feasible in the inpatient and out-patient settings and under

local anesthesia, characterized by a moderate learning curve and a good reproducibility. By applying mpMRI as a diagnostic tool, clinically significant prostate cancer (csPCa) detection seems to be comparable to transrectal MRI-fusion biopsy (TR-MRIFBx). Finally, focal treatment of localized disease is currently performed exclusively through a TP approach.

17. Gözen AS, Tokas T, Tawfick A, Mousa W, Kotb M, Tzanaki E, Rassweiler J. **Robot-assisted vasovasostomy and vasoepididymostomy: Current status and review of the literature.** *Turk J Urol.* 2020 Sep;46(5):329-334.

OBJECTIVE: Microscope-assisted vasovasostomy (MAVV) is a standard procedure used to reverse vasectomies. Robotic surgery has been established primarily for technically demanding urological procedures and has also been recently implemented in male reproductive surgery. We aimed to review the current evidence of robot-assisted vasovasostomy (RAVV) and robot-assisted vasoepididymostomy (RAVE).

MATERIAL AND METHODS: We performed a systematic literature review using PubMed to identify relevant original articles. We identified 2017 records through database search, and after removing duplicates, 782 records remained for further analysis.

RESULTS: In total, 12 human and three animal studies were selected. Reported vasal patency rate ranges were 88%-100% for RAVVs and 55%-61% for RAVEs. The sperm count and postoperative pregnancy rates of RAVV ranged between 8.4×10^6 - 120×10^6 sperm/mL and 65%, respectively. Finally, procedure times in the human studies, recorded for extracorporeal RAVVs and RAVEs ranged from 97 to 238 minutes.

CONCLUSION: Robot-assisted vasal reversal is feasible with similar patency rates as for the microsurgical approach and showing comparable outcomes. Additional benefits of this technique include improved vision and movement precision.

18. Gazel E, Kaya E, Yalcin S, Tokas T, Aybal HC, Yilmaz S, Aydogan TB, Tunc L. **The low power effect on holmium laser enucleation of prostate (HoLEP); A comparison between 20W and 37,5W energy regarding apical enucleation efficacy and patient safety.** *Prog Urol.* 2020 Oct;30(12):632-638.

INTRODUCTION: The Holmium laser has proven to be an invaluable tool for endoscopic prostate enucleation. The proper energy selection, during the different steps of the procedure, has always been a matter of debate. In this work we compare the effectiveness of the Holmium

laser, using two different low-power energy settings, during enucleation and hemostasis (20W and 37.5W).

METHODS: One hundred and sixty patients underwent a HoLEP procedure with a 50Hz and 2J (100W) setting. During enucleation and hemostasis, two different low-power settings were applied (20W vs. 37.5W). In both groups, only the prostatic tissue in the bladder neck and enucleated tissue far away from the apex, were cut with a setting of 50Hz and 2J (100W).

RESULTS: The mean enucleation efficiency (0.78 vs. 1.2g/min-p:001) was significantly higher by utilizing 37.5W energy (group 2). Additionally, the mean enucleation rate (0.64 vs. 0.88%-P:0.001) and laser efficiency (2.07 vs. 2.12 joule/g-P:0.003) were significantly higher in group 2. The enucleation time was significantly shorter (54 vs. 75.5 mins-P:0.002), while the mean catheter removal time (27 vs. 42 hrs-P:0.008) and Hb decrease (0.5 vs. 0.6g/dl--P:0.019) were significantly lower in group 2.

CONCLUSIONS: HoLEP can be performed efficiently with 100 W-37.5W settings. Enucleation and hemostasis can be performed successfully with 37.5W, while the use of 100W during bladder neck dissection shortens the duration of the procedure.

19. Jones P, Karim Sulaiman S, Gamage KN, Tokas T, Jamnadass E, Somani BK. **Do Lifestyle Factors Including Smoking, Alcohol, and Exercise Impact Your Risk of Developing Kidney Stone Disease? Outcomes of a Systematic Review. J Endourol. 2021 Jan;35(1):1-7.**

Introduction: With a rise in the incidence of stone disease, more research is needed to understand the lifestyle factors associated with it. We evaluate available evidence for association of smoking, alcohol, and exercise with kidney stone disease (KSD). **Methods:** A systematic literature search was conducted in CINAHL, EMBASE, Ovid Medline, Cochrane Library, Scopus, Clinicaltrials.gov, and Google Scholar. Different keywords were "smoking," "cigarette," "alcohol," "spirits," "exercise," "physical activity," "training," "kidney stone," "stone disease," "nephrolithiasis," "urolithiasis," "renal stone," and "urinary stone." The main outcome of interest was the role of smoking, alcohol, and exercise in the development of KSD. **Results:** A total of 4921 articles were found on searching the databases, of which 14 met the criteria for inclusion in the final review. Studies assessed the following risk factors, physical activity (n=6), alcohol (n=6), and smoking (n=9), and included 17,511 patients. The relationship of physical activity with KSD appears to be equivocal. In addition, only one study demonstrated a decreased risk of nephrolithiasis with alcohol consumption. On the contrary,

four studies found a significant association between smoking and renal stone formation.

Conclusions: While smoking is one behavioral factor that seems to have some association with KSD, no clear effect of alcohol and physical activity has been demonstrated. To avoid KSD, awareness of the possible detrimental role of smoking should be considered and patients should remain vigilant about the importance of hydration with physical activity. While this represents the most appropriate guidance from the evidence available, at present there remain insufficient data to truly reveal the relationship between these three factors and KSD.

20. Tokas T, Ortner G, Herrmann TRW, Nagele U; Training, Research in Urological Surgery and Technology (T.R.U.S.T.)-Group. **Relevance of intravesical pressures during transurethral procedures. World J Urol. 2021 Jun;39(6):1747-1756.**

PURPOSE: Endourology has undergone fundamental changes over the last 2 decades. Maintaining low intrarenal pressure (IRP) during upper urinary tract procedures is an established concept. However, researchers have not yet studied the concept of reduced intravesical pressures (IVPs) during transurethral (TUR) surgery as thoroughly. Low IVP is supposed to decrease complications as fluid retention, TUR syndrome, and incidence of fever. The study aims to give an overview of the contemporarily existing concepts and specify the term of low IVP to avoid TUR-related complications and optimize TUR-related results.

METHODS: A literature search was performed using PubMed, restricted to original English-written articles, including animal, artificial model, and human studies. Different keywords were transurethral resection, transurethral enucleation, transurethral vaporization, pressure, fluid absorption, and TUR syndrome.

RESULTS: Analyzed mean IVPs during TUR vary between 11 and 35 cmH₂O but are mostly kept below 30 cmH₂O. Mean maximum IVPs during TUR range from 20 to 55 cmH₂O. Maximum IVPs seem to be lower when surgeons utilize continuous flow resection, and irrigation pressures are kept low. The results demonstrate a strong correlation between IVP levels and fluid absorption.

CONCLUSIONS: IVP increase remains a neglected predictor of transurethral procedure complications, and endourologists should consider its intraoperative monitoring. Further research is necessary to quantify generated pressures and introduce means of controlling them.

21. Veneziano D, Patruno G, Talso M, Tokas T, Proietti S, Porreca A, Kamphuis G, Biyani S, Emiliani E, Cepeda Delgado M, de Mar Perez LM, Miano R, Ferretti S, Macchione

N, Kallidonis P, Montanari E, Tripepi G, Ploumidis A, Cacciamani G, Lima E, Somani B. **Exploratory analysis on the usage of Pi-score algorithm over endoscopic stone treatment step 1 protocol. Minerva Urol Nephrol. 2021 Oct;73(5):662-667.**

BACKGROUND: The Performance Improvement score (Pi-score) has been proven to be reliable to measure performance improvement during E-BLUS hands-on training sessions. Our study is aimed to adapt and test the score to EST s1 (Endoscopic Stone Treatment step 1) protocol, in consideration of its worldwide adoption for practical training.

METHODS: The Pi-score algorithm considers time measurement and number of errors from two different repetitions (first and fifth) of the same training task and compares them to the relative task goals, to produce an objective score. Data were obtained from the first edition of 'ART in Flexible Course', during four courses in Barcelona and Milan. Collected data were independently analyzed by the experts for Pi assessment. Their scores were compared for inter-rater reliability. The average scores from all tutors were then compared to the PI-score provided by our algorithm for each participant, in order to verify their statistical correlation. Kappa statistics were used for comparison analysis.

RESULTS: Sixteen hands-on training expert tutors and 47 3rd-year residents in Urology were involved. Concordance found between the 16 proctors' scores was the following: Task 1=0.30 ("fair"); Task 2=0.18 ("slight"); Task 3=0.10 ("slight"); Task 4=0.20, ("slight"). Concordance between Pi-score results and proctor average scores per-participant was the following: Task 1=0.74 ("substantial"); Task 2=0.71 ("substantial"); Task 3=0.46 ("moderate"); Task 4=0.49 ("moderate").

CONCLUSIONS: Our exploratory study demonstrates that Pi-score can be effectively adapted to EST s1. Our algorithm successfully provided an objective score that equals the average performance improvement scores assigned by of a cohort of experts, in relation to a small amount of training attempts.

22. Tokas T. Comment on: Surgeons' posture and muscle strain during laparoscopic and robotic surgery. Br J Surg. 2020 Jul;107(8):e282. doi: 10.1002/bjs.11692. Epub 2020 May 26.

Editor

I read with interest the refreshing study by Dalager et al., comparing muscle workload and surgeon posture when utilizing continuous bipolar surface electromyography during conventional laparoscopy (LAP) and robotic-assisted laparoscopic colorectal surgery (RALS). According to their results, forearm activity and peak level muscle activity increase during LAP and RALS, respectively. Long periods of low-intensity muscular activity were demonstrated in the shoulders in LAP, forearms in RALS, and neck in both procedures. LAP demands more intraoperative changes in posture. The authors should be commended for their effort which provides a lot of information missing from surgical ergonomics.

Laparoscopy is hampered by the long maintenance of a suboptimal static posture. The surgical robot is a user-friendly interface providing 3D vision and instruments with seven degrees of freedom. Interestingly, Lee et al. report that 56.1 per cent of surgeons regularly undertaking robotic procedures experience related physical discomfort. In this work, 23 per cent of surgeons reported pain during RALS. LAP causes more discomfort in the upper back, shoulders, arms and wrist, whereas RALS leads to discomfort in the forehead, neck and trunk.

23. Kochkin A(1), Tokas T(2), Gallyamov E(3), Biktimirov R(4), Sanzharov A(5), Sergeev V(6), Popov S(7), Gözen AS(8). **Laparoscopic totally intracorporeal ileal ureter replacement: a multi-institutional study. Minim Invasive Ther Allied Technol. 2022 Jan;31(1):119-126.**

OBJECTIVE: To prove the feasibility, as well as the reproducibility of laparoscopic totally intracorporeal ileal ureter replacement (LIUR), by presenting a multicenter patient cohort with a long follow-up.

MATERIAL AND METHODS: Records of patients undergoing different types of ureteral replacements have been collected. Follow-up included a chemical profile and urine cultures. Imaging consisted of renal ultrasonography and excretory urography, as well as a cystography or an isotopic renography when indicated.

RESULTS: Forty patients were included in the study. Twelve underwent a right, 20 a left, and eight a bilateral laparoscopic ureteral replacement. The mean procedure time was 335 (150-680) minutes and the mean estimated blood loss was 221 (50-400) mL. Only three patients presented intraoperative complications, which were managed immediately, and three patients presented a Clavien III postoperative complication. Abdominal drains and nephrostomy tubes were removed after 24-36 h and 7-10 days, respectively. The mean hospital stay was 13.5 (10-35) days. Follow-up was at least six months.

CONCLUSIONS: LIUR constitutes a feasible and reproducible method for the restoration of long ureteral defects.

24. Jamnadass E, Rai BP, Veneziano D, Tokas T, Rivas JG, Cacciamani G, Somani B. **Do prostate cancer-related mobile phone apps have a role in contemporary prostate cancer management? A systematic review by EAU young academic urologists (YAU) urotechnology group. World J Urol. 2020 Oct;38(10):2411-2431.**

AIMS AND OBJECTIVES: To review the available literature regarding the use of prostate cancer-related mobile phone applications (PCA).

MATERIALS AND METHODS: The search was for English language articles between inceptions of databases to June 2019. Medline, EMBASE, Cochrane Library, CINAHL and Web of Science were searched. Full-text articles were reviewed, and the following data were extracted to aid with app analysis: name of application, developer, platform (Apple App Store or Google Play Store) and factors assessed by the article.

RESULTS: The search yielded 1825 results of which 13 studies were included in the final review. 44 PCAs were identified from the data collected of which 59% of the PCAs had an educational focus. 11 apps were inactive and 5 weren't updated within the last year. Five studies focused on the development and testing of apps (MyHealthAvatar, CPC, Rotterdam, Interaktor, NED). Two studies evaluated the readability of PCAs. Most PCAs had a reading level greater than that of the average patient. Two studies evaluated the quality and accuracy of apps. Majority of PCAs were accurate with a wide range of information. The study reported most PCAs to have deficient or insufficient scores for data protection. Two studies evaluated the accuracy of Rotterdam, CORAL and CPC risk calculators. Rotterdam was the best performer.

CONCLUSIONS: PCAs are currently in its infancy and do require further development before widespread integration into existing clinical practise. There are concerns with data protection, high readability standards and lack of information update in current PCAs. If developed appropriately with responsible governance, they do have the potential to play important roles in modern-day prostate cancer management.

25. Lane J, Whitehurst L, Hameed BMZ, Tokas T, Somani BK. **Correlation of Operative Time with Outcomes of Ureteroscopy and Stone Treatment: a Systematic Review of Literature. Curr Urol Rep. 2020 Mar 24;21(4):17.**

PURPOSE OF REVIEW: To present the latest evidence related to the impact of increased operative times in retrograde intrarenal surgery and identify possible important factors that can facilitate ureteroscopy procedures.

RECENT FINDINGS: Ureteroscopy constitutes the mainstay treatment of renal stones and is characterized by a huge variation in techniques and instrumentation. It has been suggested that increased operative times can mitigate the outcomes of the procedures by increasing complication rates. Nevertheless, little is known about the time limits, above which complications are likely to occur. Furthermore, complication rates in different procedure durations have not yet been assessed. Prolonged operative times are linked to increased complication rates in ureteroscopy. Stone complexity, patient risk factors, surgeon experience, bilateral surgery, and instrumentation constitute important factors that can hamper or facilitate a procedure and should be taken into account beforehand. Keeping procedural times below 90 min can dissuade potential predicaments and achieve improved stone-free rates.

26. Tunc L, Yalcin S, Kaya E, Gazel E, Yılmaz S, Aybal HC, Yılmaz M, Tokas T. **The "Omega Sign": a novel HoLEP technique that improves continence outcomes after enucleation.** *World J Urol.* 2021 Jan;39(1):135-141.

PURPOSE: Holmium-laser enucleation of the prostate (HoLEP) has been a promising prostate surgery since its first introduction. Although there are 10 different HoLEP techniques in the literature, stress urinary incontinence (SUI) is common, because surgery is not performed based on the topographic anatomy of the external sphincter. We have developed a new HoLEP method named as the "Omega Sign technique", which is based on the topographic anatomy of the external sphincter and could provide better continence outcomes by decreasing SUI rates.

MATERIALS AND METHODS: The data of 400 patients who underwent HoLEP by a single surgeon between May 2016 and February 2019 were retrospectively reviewed. The patients were divided into two groups, the first underwent the Gilling's technique (Group 1) and the second the novel "Omega Sign" technique (Group 2). Continence status and post micturition symptoms (PMS) were evaluated according to the standards recommended by the international continence status.

RESULTS: The data of 400 HoLEP procedures between May 2016 and February 2019 were analyzed, comparing Group 1 (n = 200) and Group 2 (n = 200). SUI rate was significantly lower in Group 2 at the day of catheter removal and first month ($p < 0.005$). In addition, urge urinary incontinence (UUI) rate and PMS were significantly lower in Group 2.

CONCLUSIONS: We could demonstrate improved continence results, comparable functional outcomes and equally minimal complications with the standard HoLEP technique. We believe that, the novel 'Omega sign' technique decreases SUI rates and will become standardised and easy to understand, thereby bringing and creating a shorter learning curve.

27. Gazel E, Kaya E, Yalçın S, Tokas T, Yılmaz S, Aybal HÇ, Aydoğan TB, Tunç L. **The role of laparoscopic experience on the learning curve of HoLEP surgery: A questionnaire-based study.** *Turk J Urol.* 2019 Oct 25;46(2):129-133.

OBJECTIVE: Holmium laser enucleation of the prostate (HoLEP) is an established method for treating benign prostatic obstruction. Nonetheless, its steep learning curve limits its wide distribution. The purpose of the present study was to demonstrate the impact of laparoscopic experience on HoLEP learning curve by evaluating the association between learning curves of surgeons performing both laparoscopy and HoLEP surgery.

MATERIAL AND METHODS: A questionnaire was prepared to identify surgeon's experience on laparoscopy and HoLEP, as well as their learning curves. This questionnaire was then distributed via e-mail to 110 urologists who are actively involved in endourology/laparoscopy.

RESULTS: Of the 110 urologists, 80 (72.7%) responded and completed the questionnaire. Of the 80 surgeons, 47 (58.8%) reported that they had completed the HoLEP learning curve with <20 cases. Moreover, 33 (41.2%) reported that they were able to complete the learning curve by performing >20 cases. Completion of the HoLEP learning curve in <20 cases was reached at 1.3%, 13.8%, and 43.8% by beginner, moderate skilled, and experienced laparoscopists, respectively ($p < 0.001$).

CONCLUSION: Laparoscopic experience appears to be beneficial for surgeons while learning HoLEP. Highly experienced laparoscopic surgeons have a shorter HoLEP learning curve.

28. Nagele U, Tokas T, Traxer O; Training and Research in Urological Surgery and Technology (T.R.U.S.T.)-Group. **Future of kidney stone surgery: will we treat small stones with large-sized PCNL and big stones with RIRS?** *World J Urol.* 2020 Dec;38(12):3291-3292.

For many years endourologists are searching for the most efficient and least traumatic stone treatment. More and more miniaturized instruments and innovative stone disintegration tools are continuously expanding our armamentarium. Meanwhile, currently available modern imaging modalities are able to detect more and smaller residual fragments postoperatively. In that way, the average stone-free rates are decreasing dramatically despite our new sophisticated treatment options. Dealing with this dilemma we have to take into consideration that in first-time stone formers complete stone-free status seems to be of uttermost importance since even residual fragments smaller than 4 mm could be responsible for acute symptoms in the future. But what are the possibilities to offer the best solution to our patients? Which technologies fit the need for the least traumatic but most efficient procedure in stone surgery?

Accessing almost every part of the kidney is possible with new flexible multiple-use and disposable instruments. Pressure control can be achieved by the use of access sheaths and irrigation/suction devices. New high-frequency and low-power laser technologies enable us to dust stones of any composition and size in reasonable time and minimum risk. Yet late postoperative radiologic control after 1–3 months is discouraging. A significant number of patients suffer from residual fragments and their consequences, namely renal colic and stone growth. A number of well-known factors may play a role in postoperative stone clearance, like patient mobility, kidney geometry, and fluid intake. Nevertheless, a straightforward prediction of a stone-free status cannot always be made preoperatively.

Recent knowledge about different tract dilation methods might relativize the theory of size-related bleeding complications in PCNL. The most effective method does avoid residual fragments by achieving stone extraction in one piece. Risk stratification of stone patients in high and low-risk stone formers and its impact on new stone formation might help us to predict the necessity of a stone-free status in low-risk patients. On the other hand, in the case of high-risk stone formers, fragments can be removed in minimum time, leaving eventually dust and plaques behind but reducing an intervention-dependent risk. Taking all these factors into account, we could treat a small stone in a low-risk stone former with a big access PCNL, harvesting the stone en bloc to reduce future stone formation and at the same time do a flexible approach even in larger stone burden in high-risk stone formers, knowing that these patients suffer from future stones anyway.

29. Papadimitriou MA, Avgeris M, Levis PK, Tokas T, Stravodimos K, Scorilas A. ΔNp63 transcript loss in bladder cancer constitutes an independent molecular predictor

of TaT1 patients post-treatment relapse and progression. J Cancer Res Clin Oncol. 2019 Dec;145(12):3075-3087.

PURPOSE: Bladder cancer represents a major cause of malignancy-related morbidity and the most expensive per-patient-to-treat cancer, due to the lifelong surveillance of the patients. Accurate disease prognosis is essential in establishing personalized treatment decisions; yet optimum tools for precise risk stratification remain a competing task. In the present study, we have performed the complete evaluation of TP63 clinical significance in improving disease prognosis.

METHODS: The levels of ΔNp63 and TAp63 transcripts of TP63 were quantified in 342 bladder tissue specimens of our screening cohort (n = 182). Hedegaard et al. (Cancer Cell 30:27-42. doi:10.1016/j.ccell.2016.05.004, 2016) (n = 476) and TCGA provisional (n = 413) were used as validation cohorts for NMIBC and MIBC, respectively. Survival analysis was performed using recurrence and progression for NMIBC or mortality for MIBC as endpoint events. Bootstrap analysis was performed for internal validation, while decision curve analysis was used for the evaluation of the clinical net benefit on disease prognosis.

RESULTS: ΔNp63 was significantly expressed in bladder tissues, and was found to be over-expressed in bladder tumors. Interestingly, reduced ΔNp63 levels were correlated with muscle-invasive disease, high-grade tumors and high-EORTC-risk NMIBC patients. Moreover, ΔNp63 loss was independently associated with higher risk for NMIBC relapse (HR = 2.730; p = 0.007) and progression (HR = 7.757; p = 0.016). Hedegaard et al. and TCGA validation cohorts confirmed our findings. Finally, multivariate models combining ΔNp63 loss with established prognostic markers led to a superior clinical benefit for NMIBC prognosis and risk stratification.

CONCLUSIONS: ΔNp63 loss is associated with adverse outcome of NMIBC resulting in superior prediction of NMIBC early relapse and progression.

30. Tokas T, Junker D, Nagele U. One-stop biparametric MRI and MRI/ultrasound fusion-guided biopsy: can we include the histopathology result and our treatment recommendations in our diagnostic pathway? World J Urol. 2020 Aug;38(8):2067-2068.

Dear Editor,

With interest we have read the refreshing comparative study published in World Journal of Urology by Tafuri et al., presenting a one-stop prostate diagnostic pathway, which includes both the multiparametric MRI (mpMRI) of the prostate as well as the MRI/ultrasound-guided fusion biopsy. This pathway achieves comparable prostate cancer detection rates, with the standard two visits, and is at the same time faster, better tolerable and possibly less expensive. We commend the authors for presenting such a well-organized study and we believe that this is a big step to the right direction. Another research group tried to assess this issue in the past presenting a group of patients undergoing transperineal cognitive MRI/ultrasound fusion biopsies. Additional research cannot be found. The question is asked as follows: Could we get one or even two steps further by including the histopathology result as well as our treatment suggestions in the same visit? At this point, we would like to present our diagnostic cascade for detection of prostate cancer.

Once the patients are referred for a prostate biopsy, they initially undergo a biparametric MRI (bpMRI) of the prostate, which is interpreted by an expert MRI radiologist. Current evidence shows that MRIs without gadolinium- based contrast agents and dynamic contrast-enhanced imaging demonstrate comparable diagnostic accuracy with standard mpMRI for PI-RADS v2, and not dependent by radiologist or surgeon experience. Our group recently presented similar outcomes in a cohort of 236 patients, also demonstrating lower costs and increased MRI speed. More specifically, calculating that the marginal costs of gadolinium agents for one mpMRI in Austria are 56 € on average (Warenverzeichnis, Österreichische Apotheker-Verlagsgesellschaft m.b.H., Spitalgasse 31A, A-1090 Wien), the variable costs for of bpMRI can be reduced by approximately 13.216 €. Furthermore, bpMRI can achieve an estimated time-saving of 12 min per patient. Therefore, three patients can be examined in the time of two. The patients are then admitted to the Department of Urology and the biopsies (BiopSee® System—MedCom GmbH, Darmstadt, Germany) are performed by an experienced urologist, either transrectally with local anesthesia or transperineally with general anesthesia, in a time frame from 10.00 to 12.00. The biopsy cores are then sent to our histopathologist, where they are being evaluated according to the International Society of Urological Pathology (ISUP) standards, and the patients remain hospitalized until the next morning. It is then when we receive the biopsy results and, after a consultation, the patients are discharged with a treatment suggestion.

This pathway may have some limitations, mainly the one- night hospitalization of the patients. However, no additional patient visits until treatment are deemed necessary, which is important

especially for patients living far from our institution and has definitely a great impact on total healthcare costs. Compliance with time limits and precise coordination of all involved (radiologists, urologists, histopathologists) is of utmost importance and a great challenge for the success of this project. It remains to be seen if future research can support this idea and bring it to the everyday clinical practice.

- 31. Kaya E, Gazel E, Yalcin S, Tokas T, Aydogan TB, Aybal HC, Tunc L. The effect of prostatic tissue density on the perioperative outcomes of Holmium laser enucleation of prostate (HoLEP): a pilot study. World J Urol. 2020 Feb;38(2):455-461.**

PURPOSE: To evaluate the effect of prostate tissue density (PTD) on perioperative Holmium laser enucleation of prostate (HoLEP) outcomes.

METHODS: Two hundred fourteen patients underwent HoLEP between December 2016 and August 2018 (group 1: PTD < 1 g/mL and group 2: PTD ≥ 1 g/mL). Enucleation time (ET), morcellation time (MT), total operation time (TOT), total laser energy (TLE), efficiency of laser (EL), efficiency of enucleation (EE), efficiency of morcellation (EM), enucleation rate (ER), and enucleated tissue weight (ETW) were recorded.

RESULTS: The mean ages of the groups 1, 2 were 61.36±5.92 and 63.1±7.52 years, respectively. TOT (76.4 vs 86.21 min), ET (69.18 vs 79.94 min), EE (0.80 vs 0.91 g/min), and ETW (55.8 vs 70.23 g) were not significantly different between the two groups. However, the MT was longer in group 2 (11.27 ± 8.57 min and 7.22 ± 5.46 min, p = 0.0001). Furthermore, EM was higher in group 1 (9.81 ± 5.61 g/min and 7.45 ± 4.14 g/min, p = 0.0003). The EL and TLE were similar in both groups. PTD positively correlated with MT (ρ = 0.272, p = 0.0005) and negatively correlated with EM (ρ = - 0.315, p = 0.0001). No correlations were identified between the PTD and EL or EE.

CONCLUSIONS: PTD is a factor that influences the HoLEP on perioperative outcomes. The PTD particularly affects the morcellation phase of the surgery. Patients with higher PTD will have a longer duration of MT and lesser EM. Future studies with the use of different imaging methods will give insight into the duration and difficulty of the HoLEP.

- 32. Veneziano D, Ploumidis A, Proietti S, Tokas T, Kamphuis G, Tripepi G, Van Cleynenbreugel B, Gozen A, Breda A, Palou J, Sarica K, Liatsikos E, Ahmed K, Somani BK; ESU Training Group. Validation of the endoscopic stone treatment step**

1 (ESTs1): a novel EAU training and assessment tool for basic endoscopic stone treatment skills-a collaborative work by ESU, ESUT and EULIS. World J Urol. 2020 Jan;38(1):193-205.

INTRODUCTION: The endoscopic stone treatment step 1 (EST s1) protocol has been developed after 2 years of collaborative work between different European Association of Urology (EAU) sections.

OBJECTIVES: In this study, we added construct validity evidence to the EST s1 curriculum.

MATERIALS AND METHODS: The EST-s1 curriculum includes four standardized tasks: flexible cystoscopy, rigid cystoscopy, semi-rigid URS and flexible URS. Validation was performed during the annual 2016 EUREP meeting in Prague. 124 participants provided information on their endoscopic logbook and carried out these 4 tasks during a DVD recorded session. Recordings were anonymized and blindly assessed independently by five proctors. Inter-rater reliability was checked on a sample of five videos by the calculation of intra-class correlation coefficient. Task-specific clinical background of participants was correlated with their personal performance on the simulator. Breakpoint analysis was used to define the minimum number of performed cases, to be considered "proficient". "Proficient" and "Non-proficient" groups were compared for construct validity assessment. Likert scale-based questionnaires were used to test content and to comment on when the EST-s1 exams should be undertaken within the residency program.

RESULTS: 124 participants (105 final-year residents and 19 faculty members) took part in this study. The breakpoint analysis showed a significant change in performance curve at 36, 41, 67 and 206 s, respectively, corresponding to 30, 60, 25 and 120 clinical cases for each of the 4 tasks. EST-s1 was scored as a valid training tool, correctly representing the procedures performed in each task. Experts felt that this curriculum is best used during the third year of residency training.

CONCLUSION: Our validation study successfully demonstrated correlation between clinical expertise and EST-s1 tasks, adding construct validity evidence to it. Our work also demonstrates the successful collaboration established within various EAU sections.

33. Huusmann S, Wolters M, Schilling D, Kruck S, Bader M, Tokas T, Herrmann TR, Nagele U; Training and Research in Urological Surgery and Technology (T.R.U.S.T.) Group. [Pressure study of two miniaturised amplatz sheaths of 9.5 F and 12 F outer

diameter for minimal invasive percutaneous nephrolithotomy (MIP): An ex vivo organ model measurement]. Aktuelle Urol. 2019 Feb;50(1):71-75.

Over the last decade, several devices for percutaneous nephrolithotomy with smaller diameters have been introduced in order to reduce renal trauma. Recent studies have found comparable stone free rates but also exhibit the same rate of postoperative fever and septicaemia. One possible cause is the influence of irrigation fluid during stone treatment procedures. The purpose of this ex vivo study was to compare two new miniaturised PNL nephroscopy sheaths with an outer sheath diameter of 9.5 F and 12 F to the well-established MIP M Set (17.5 F) by Karl Storz.

MATERIAL AND METHODS: The new devices were tested in a perfused organ model of fresh porcine kidneys with different irrigation pressures, applied either by gravitation or the use of a pressure pump (Uromat E.A.S.I. Pump, Karl Storz, Tuttlingen, Germany). In addition, the 9.5 F sheath was examined for active irrigation evacuation, i.e. suction of irrigation fluid through a mono-J-catheter. An urodynamic pressure probe measured intrapelvic pressure levels throughout the procedures.

RESULTS: Regardless of the sheath diameters used, the intrapelvic pressure did not exceed 40 cmH₂O (30mmHg) when applying moderate irrigation pressure levels, either by pump or gravitation. The active suction of irrigation fluid from the kidney basin via the mono-J-catheter had no measurable impact on the detected intrarenal pressures. A crucial increase in the intrapelvic pressure was detected only when using the 9.5 F sheath in combination with applying high irrigation pressures.

CONCLUSION: The newly designed miniaturised MIP sets maintain the favorable pressure features of the earlier 17.5 MIP sheath. Although the diameter has been reduced to 12F or 9.5F, the intrapelvic pressures remained below 40 cmH₂O when regular irrigation settings by gravitation or pump irrigation were used.

34. Veneziano D, Canova A, Arnolds M, Beatty JD, Biyani CS, Dehò F, Fiori C, Hellawell GO, Langenhuijsen JF, Pini G, Rodriguez Faba O, Siena G, Skolarikos A, Tokas T, Van Cleynenbreugel BSEP, Wagner C, Tripepi G, Somani B, Lima B. **Performance Improvement (Pi) score: an algorithm to score Pi objectively during E-BLUS hands-on training sessions. A European Association of Urology, Section of Uro-Technology (ESUT) project. BJU Int. 2019 Apr;123(4):726-732.**

OBJECTIVE: To evaluate the variability of subjective tutor performance improvement (Pi) assessment and to compare it with a novel measurement algorithm: the Pi score.

MATERIALS AND METHODS: The Pi-score algorithm considers time measurement and number of errors from two different repetitions (first and fifth) of the same training task and compares them to the relative task goals, to produce an objective score. We collected data during eight courses on the four European Association of Urology training in Basic Laparoscopic Urological Skills (E-BLUS) tasks. The same tutor instructed on all courses. Collected data were independently analysed by 14 hands-on training experts for Pi assessment. Their subjective Pi assessments were compared for inter-rater reliability. The average per-participant subjective scores from all 14 proctors were then compared with the objective Pi-score algorithm results. Cohen's κ statistic was used for comparison analysis.

RESULTS: A total of 50 participants were enrolled. Concordance found between the 14 proctors' scores was the following: Task 1, $\kappa = 0.42$ (moderate); Task 2, $\kappa = 0.27$ (fair); Task 3, $\kappa = 0.32$ (fair); and Task 4, $\kappa = 0.55$ (moderate). Concordance between Pi-score results and proctor average scores per participant was the following: Task 1, $\kappa = 0.85$ (almost perfect); Task 2, $\kappa = 0.46$ (moderate); Task 3, $\kappa = 0.92$ (almost perfect); Task 4 = 0.65 (substantial).

CONCLUSION: The present study shows that evaluation of Pi is highly variable, even when formulated by a cohort of experts. Our algorithm successfully provided an objective score that was equal to the average Pi assessment of a cohort of experts, in relation to a small amount of training attempts.

35. Avgeris M, Tsilimantou A, Levis PK, Tokas T, Sideris DC, Stravodimos K, Ardavanis A, Scorilas A. **Loss of GAS5 tumour suppressor lncRNA: an independent molecular cancer biomarker for short-term relapse and progression in bladder cancer patients.** *Br J Cancer.* 2018 Dec;119(12):1477 1486.

BACKGROUND: Bladder cancer (BlCa) heterogeneity and the lack of personalized prognosis lead to patients' highly variable treatment outcomes. Here, we have analysed the utility of the GAS5 tumour-suppressor lncRNA in improving BlCa prognosis.

METHODS: GAS5 was quantified in a screening cohort of 176 patients. Hedegaard et al. (2016) (n=476) and TCGA provisional (n=413) were used as validation cohorts. Survival analysis was performed using recurrence and progression for NMIBC, or death for MIBC. Internal validation was performed by bootstrap analysis, and decision curve analysis was used to evaluate the clinical benefit on disease prognosis.

RESULTS: GAS5 levels were significantly downregulated in BlCa and associated with invasive high-grade tumours, and high EORTC-risk NMIBC patients. GAS5 loss was strongly and independently correlated with higher risk for NMIBC early relapse (HR = 2.680, p = 0.011) and progression (HR = 6.362, p = 0.035). Hedegaard et al. and TCGA validation cohorts' analysis clearly confirmed the association of GAS5 loss with NMIBC worse prognosis. Finally, multivariate models incorporating GAS5 with disease established markers resulted in higher clinical benefit for NMIBC prognosis.

CONCLUSIONS: GAS5 loss is associated with adverse outcome of NMIBC and results in improved positive prediction of NMIBC patients at higher risk for short-term relapse and progression, supporting personalised prognosis and treatment decisions.

36. Junker D, Steinkohl F, Fritz V, Bektic J, Tokas T, Aigner F, Herrmann TRW, Rieger M, Nagele U. **Comparison of multiparametric and biparametric MRI of the prostate: are gadolinium-based contrast agents needed for routine examinations?** World J Urol. 2019 Apr;37(4):691-699.

PURPOSE: To investigate, if and how omitting gadolinium-based contrast agents (GBCA) and dynamic contrast-enhanced imaging (DCE) influences diagnostic accuracy and tumor detection rates of prostate MRI.

METHODS: In this retrospective study, 236 patients were included. The results of biparametric (bpMRI) and multiparametric magnetic resonance imaging (mpMRI) were compared using the PI-RADS version 2 scoring system. The distribution of lesions to PIRADS score levels, tumor detection rates, diagnostic accuracy and RoC analysis were calculated and compared to the results of histopathological analysis or 5-year follow-up for benign findings.

RESULTS: Omitting DCE changed PI-RADS scores in 9.75% of patients, increasing the number of PI-RADS 3 scores by 8.89% when compared to mpMRI. No change of more than one score level was observed. BpMRI did not show significant differences in diagnostic accuracy or tumor detection rates. (AuC of 0.914 vs 0.917 in ROC analysis). Of 135 prostate carcinomas (PCa), 94.07% were scored identically, and 5.93% were downgraded only from PI-RADS 4 to PI-RADS 3 by bpMRI. All of them were low-grade PCa with Gleason Score 6 or 7a. No changes were observed for PCa $\geq$ 7b.

CONCLUSION: Omitting DCE did not lead to significant differences in diagnostic accuracy or tumor detection rates when using the PI-RADS 2 scoring system. According to these data,

it seems reasonable to use a biparametric approach for initial routine prostate MRI. This could decrease examination time and reduce costs without significantly lowering the diagnostic accuracy.

- 37.** Tokas T, Herrmann TRW, Skolarikos A, Nagele U; Training and Research in Urological Surgery and Technology (T.R.U.S.T.)-Group. **Pressure matters: intrarenal pressures during normal and pathological conditions, and impact of increased values to renal physiology.** *World J Urol.* 2019 Jan;37(1):125-131.

PURPOSE: To perform a review on the latest evidence related to normal and pathological intrarenal pressures (IRPs), complications of incremented values, and IRP ranges during endourology.

METHODS: A literature search was performed using PubMed, restricted to original English-written articles, including animal, artificial model, and human studies. Different keywords were: percutaneous nephrolithotomy, PCNL, ureteroscopy, URS, RIRS, irrigation flow, irrigation pressure, intrarenal pressure, intrapelvic pressure and renal pelvic pressure.

RESULTS: Normal IRPs range from zero to a few cm H₂O. Pyelovenous backflow may occur at pressure range of 13.6-27.2 cm H₂O. During upper tract endourology, complications such as pyelorenal backflow, sepsis, and renal damage are directly related to increased IRPs. Duration of increased IRPs and concomitant obstruction are independent predictors of complication development.

CONCLUSIONS: IRP increase remains a neglected predictor of upper tract endourology complications and its intraoperative monitoring should be taken into consideration. Further research is necessary, to quantify pressures generated during upper tract endourology, and introduce means of controlling them.

- 38.** Tokas T, Skolarikos A, Herrmann TRW, Nagele U; Training and Research in Urological Surgery and Technology (T.R.U.S.T.)-Group. **Pressure matters 2: intrarenal pressure ranges during upper-tract endourological procedures.** *World J Urol.* 2019 Jan;37(1):133-142.

PURPOSE: To perform a review on the latest evidence related to intrarenal pressures (IRPs) generated during upper-tract endourology, and present different tools to maintain decreased values, to decrease complication rates.

METHODS: A literature search was performed using PubMed, restricted to original English-written articles, including animal, artificial model and human studies. Different keywords were: percutaneous nephrolithotomy, PCNL, ureteroscopy, URS, RIRS, irrigation flow, irrigation pressure, intrarenal pressure, intrapelvic pressure and renal-pelvic pressure.

RESULTS: IRPs reported during retrograde intrarenal surgery (RIRS), PCNL, miniPCNL, and microPCNL range 40.8-199.35, 3-40.8, 10-45 and 15.37-41.21 cm H₂O, respectively. By utilizing ureteral access sheaths (UASs) IRPs usually remain lower than 30 cm H₂O at an irrigation pressure (IP) of ≤ 100 cm H₂O but could increase to > 40 cm H₂O at an IP of 200 cm H₂O. By utilizing the minimally invasive PCNL system, IRPs remain low at 20 cm H₂O even at high IPs. Utilizing endoluminal isoproterenol during RIRS, could reduce IRP increases with a rate of 27-107%, and maintain low IRPs values, usually below 50 cm H₂O.

CONCLUSIONS: Increased IRP values have been reported during RIRS and UASs constitute the most efficient tool for decreasing them. IRPs during mini-PCNL can be decreased utilizing the vacuum-cleaner and purging effects but might remain uncontrolled during micro- and ultra-mini PCNL. Intraluminal pharmacological treatment could play a role in IRP decrease, with isoproterenol being the most studied agent.

39. Veneziano D, Ploumidis A, Proietti S, Tokas T, Kamphuis G, Tripepi G, Van Cleynebreugel B, Gozen A, Breda A, Palou J, Sarica K, Liatsikos E, Ahmed K, Somani BK; European School of Urology training group. **Evolution and Uptake of the Endoscopic Stone Treatment Step 1 (EST-s1) Protocol: Establishment, Validation, and Assessment in a Collaboration by the European School of Urology and the Uro-Technology and Urolithiasis Sections.** Eur Urol. 2018 Sep;74(3):401-402.

Endourology training has evolved over the last two decades, with more emphasis now being placed on simulation-based training. While the EBLUS training curriculum and examination have been well established, there was a lack of standardised training for endourology. The European School of Urology (ESU), together with the European Association of Urology (EAU) sections on uro-technology and urolithiasis, started development of the Endoscopic Stone Treatment step-1 (EST-s1) simulation protocol in 2014. This was produced in accordance with the EAU guidelines by following the full life-cycle curriculum development template. The outcomes and metrics were defined via a cognitive task analysis by the EAU Young Academic Urology group and the simulator requirements were then tested. The final task list consisted of

four exercises that replicated the basic skills required for endoscopic stone treatment: (1) flexible cystoscopy; (2) rigid cystoscopy and placement of a safety guidewire; (3) semi-rigid ureteroscopy and placement of an access sheath; and (4) flexible ureterorenoscopy.

The curriculum development process took 2 yr of consensus meetings and expert consultation; this led to addition of content validity evidence to the protocol. Face and construct validity data were collected during the annual EUREP course in 2016 and will be reported in an upcoming publication. This validation study involved 124 participants using low-fidelity simulators. The rules for the exercises and the expected goals were strictly derived from the development process and were summarised in a tutor instruction sheet. Video explanation of the tasks was available on the EAU website. Good correlation between the EST-s1 assessment and clinical background was observed.

Once the EST-s1 curriculum was validated, it was then adopted for trainee assessment and certification for the first time during EUREP17. Trainees had 1 minute to warm up at the beginning of the session to get used to the functionality of the simulator. For certification, trainees had to successfully complete all the tasks with no errors within the time allowed for each task; their global performance assessment as rated by the tutor was also taken into account. Participants had a maximum of two attempts to pass each exercise, with a 1:1 trainee to tutor ratio for tutor instruction.

EST-s1 examinations are now established and have been carried out in the annual EAU, EULIS, ESUT, and EUREP meetings over the last year. Feedback on the various changes adopted in the training curriculum has been excellent and more than 20 EST-s1 training requests are pending from several national urological societies around the world that want to officially adopt the protocol during their events.

EST-s1 is planned to be the first part of a three-step curriculum designed to bring standardisation in the field of endourology training. It is a low-cost, replicable, and validated training protocol, with strong potential for further European and worldwide adoption, and is the first to be fully developed within the EAU in accordance with EAU evidence-based clinical standards. Its development has demonstrated that successful collaborations among EAU sections can establish robust training protocols that can be shared worldwide to achieve the aim of avoiding the use of patients as training platforms.

40. Habicher M, Tokas T, Herrmann TR, Nagele U; Training and Research in Urological Surgery and Technology (T.R.U.S.T.)-Group. **Laparoscopic single-incision**

triangulated umbilical surgery (SITUS) pyeloplasty: a description of the first 32 cases. World J Urol. 2018 Nov;36(11):1883-1888.

INTRODUCTION AND OBJECTIVES: Transumbilical laparoendoscopic (LESS) procedures reduce access trauma. Laparoendoscopic single-incision triangulated umbilical surgery (SITUS) utilizes straight instruments in a triangulated fashion, via three trocars placed through a single umbilical incision.

METHODS: Thirty-two consecutive patients underwent an SITUS pyeloplasty. Access is performed by incision of the umbilical fold by 3/4 of its circumference, a 5-mm camera port, and consequently, cranial and caudal 3 or 5 mm working trocars are placed at a distance of 3-6 cm, thus allowing triangulation. SITUS laparoscopy utilizes the standard straight instruments with a length of 43 cm.

RESULTS: All procedures were successfully performed and no conversion to open, or conventional laparoscopic approach was deemed necessary. Thirty patients underwent a dismembered and two a Fenger pyeloplasty. A crossing vessel was identified in 68.75% of the cases. The median laparoscopic and suturing times were 130 and 30 min, respectively; median blood loss was 50 ml. The median duration of hospitalization was 4 days. The visual analogue scores (VAS) reported were 1 on the first and 0 on the third postoperative day. The indwelling double-J or mono-J stents were removed after a median time of 5 weeks and 4 days, respectively. The overall success rate was 96.8%.

CONCLUSIONS: The SITUS technique for pyeloplasty is an attractive alternative to conventional laparoscopy and a viable competitor to LESS surgery. It combines the common principles of traditional laparoscopy, such as conventional instrumentation and triangulation, with the benefits of single-port surgery.

41. Somani BK, Van Cleynenbreugel B, Gozen A, Palou J, Barmoshe S, Biyani S, Gaya JM, Hellawell G, Pini G, Oscar FR, Sanchez Salas R, Macek P, Skolarikos A, Wagner C, Eret V, Haensel S, Siena G, Schmidt M, Klitsch M, Vesely S, Ploumidis A, Proietti S, Kamphuis G, Tokas T, Geraghty R, Veneziano D. **The European Urology Residents Education Programme Hands-on Training Format: 4 Years of Hands-on Training Improvements from the European School of Urology. Eur Urol Focus. 2019 Nov;5(6):1152-1156.**

BACKGROUND: The European School of Urology (ESU) started the European Urology Residents Education Programme (EUREP) in 2003 for final year urology residents, with hands-on training (HOT) added later in 2007.

OBJECTIVE: To assess the geographical reach of EUREP, trainee demographics, and individual quality feedback in relation to annual methodology improvements in HOT.

DESIGN, SETTING, AND PARTICIPANTS: From September 2014 to October 2017 (four EUREP courses) several new features have been applied to the HOT format of the EUREP course: 1:1 training sessions (2015), fixed 60-min time slots (2016), and standardized teaching methodology (2017). The resulting EUREP HOT format was verified by collecting and prospectively analysing the following data: total number of participants attending different HOT courses; participants' age; country of origin; and feedback obtained annually.

RESULTS AND LIMITATIONS: A total of 796 participants from 54 countries participated in 1450 HOT sessions over the last 4 yr. This included 294 (20%) ureteroscopy (URS) sessions, 237 (16.5%) transurethral resection (TUR) sessions, 840 (58%) basic laparoscopic sessions, and 79 (5.5%) intermediate laparoscopic sessions. While 712 residents (89%) were from Europe, 84 (11%) were from non-European nations. Of the European residents, most came from Italy (16%), Germany (15%), Spain (15%), and Romania (8%). Feedback for the basic laparoscopic session showed a constant improvement in scores over the last 4 yr, with the highest scores achieved last year. This included feedback on improvements in tutor rating ($p=0.017$), organisation ($p<0.001$), and personal experience with EUREP ($p<0.001$). Limitations lie in the difficulties associated with the use of an advanced training curriculum with wet laboratory or cadaveric courses in this format, although these could be performed in other training centres in conjunction with EUREP.

CONCLUSIONS: The EUREP trainee demographics show that the purpose of the course is being achieved, with excellent feedback reported. While European trainees dominate the demographics, participation from a number of non-European countries suggests continued ESU collaboration with other national societies and wider dissemination of simulation training worldwide.

PATIENT SUMMARY: In this paper we look at methodological improvements and feedback for the European Urology Residents Education Programme hands-on-training over the last 4 yr.

42. Yalcin S, Kibar Y, Tokas T, Gezginci E, Günal A, Ölcücü MT, Özgök IY, Gözen AS.
In Vivo Comparison of "V-Loc 90 Wound Closure Device" With "Vicryl" and

"Monocryl" in Regard to Tissue Reaction in a Rabbit Bladder Model. Urology. 2018 Jun;116:231.e1-231.e5.

OBJECTIVE: To compare the barbed polyglyconate suture (BPS) with 2 commonly used conventional sutures, this prospective randomized trial was designed. The sutures applied in the urinary collecting system, in terms of long-term histopathologic and macroscopic suture material features.

MATERIALS AND METHODS: Eight female and 6 male New Zealand rabbits were included in the study. Each animal served as its own control and was subjected to cystotomy. Watertight running cystorrhaphies were performed using 3 different sutures in a randomized fashion, namely Monocryl, Vicryl, and V-Loc 90. Seven animals were sacrificed after the third and 7 after the sixth week. Macroscopic and histopathologic examinations were performed. Tissue reaction, like inflammation and fibrosis, around the sutures were evaluated. Friedman and Wilcoxon signed ranks test was used for the statistical analysis.

RESULTS: The BPS demonstrated no adhesion. However, in the six-week group, stone formation was recorded on 4 BPS and 1 Vicryl thread, a difference being statistically significant ($P = .039$). Additionally, in the third- and in the sixth-week group, 1 ($P = .368$) and 3 ($P = .050$) BPS threads migrated, respectively. The histopathologic analysis revealed less inflammation and fibrosis associated with the BPS thread in both the third and the sixth-week groups ($P = .010$ and $P = .002$, respectively).

CONCLUSION: The BPS appears to be superior to conventional sutures in terms of local inflammation and fibrosis. However, suture migration and stone formation following collecting system closure could be potential predicaments.

43. Xie Y, Tokas T, Grabski B, Loch T. Internal Fusion: exact correlation of transrectal ultrasound images of the prostate by detailed landmarks over time for targeted biopsies or follow-up. World J Urol. 2018 May;36(5):693-698.

PURPOSE: Innovative imaging modalities are applied for diagnosing and follow-up of prostate cancer (PCa). To perform authentic targeted biopsies and evaluate prostate changes, it is essential to reliably identify and hit targets in their true anatomical location over time. A newly described image correlation method (Internal Fusion) allows precise correlation of serial transrectal ultrasound (TRUS) images in vitro and vivo. Identifiable morphologic structures

such as prostatic calcifications define internal anchor points (Internal Landmarks) to facilitate exact correlation.

METHODS: After verification of Internal Fusion in vitro, 83 patients were included from January to August 2017 with at least one prior series of 5-mm spaced TRUS images stored as computed tomographic (US-CT) online data set. Two experienced operators collected new images in correlation with each cross-section of the previous examinations based on Internal Landmarks.

RESULTS: Of the 83 patients, fifty (60%) had prior negative biopsies. Fourteen (17%) wished US-CT targeted biopsies and PCa were detected in 7/14 patients (50%). Overall, accurate imaging correlations were attained in 369/397 slices (93%). In initial and repeat biopsy, 31/31 and 35/35 images could be correlated detecting PCa in 5/8 (63%) and 2/6 patients (33%). The longest observation of prostate changes over time (Trend Monitoring) with accurate image correlation was 8 years and 6 months.

CONCLUSIONS: Internal Fusion by Internal Landmarks ensures exact correlation in long-term follow-up. It is possible to precisely monitor trends in prostate tissue changes. In case of PCa suspicion, biopsies could be targeted with high accuracy by Internal Fusion, even over time.

44. Tokas T, Grabski B, Paul U, Bäurle L, Loch T. A 12-year follow-up of ANNA/C-TRUS image-targeted biopsies in patients suspicious for prostate cancer. World J Urol. 2018 May;36(5):699-704.

PURPOSE: PSA screening has been rehabilitated. PSA is not specific and can be elevated by benign reasons. Additionally, a subgroup of patients with prostate hyperplasia may harbor prostate cancer (PCa). During monitoring, the clinician aims to detect significant tumors in time, submitting patients to minimal psychological and physical burden, especially in men with high serum PSA and repeat biopsies. We aimed to determine long-term outcomes with respect to ANNA/C-TRUS ability to detect PCa with six targeted biopsies.

METHODS: A subset of 71 patients were enrolled. During monitoring, they were subjected to primary, secondary, or even multiple prostate biopsies when needed. Protocol monitoring included PSA measurements, digital rectal examination (DRE) and imaging.

RESULTS: The median follow-up was 12 years. Forty-one patients had a history of negative systematic random biopsies (1-3 sessions). Their age ranges 62-85 years, PSA 0.5-47.3 ng/ml, and the median prostate volume 11-255 cc. During monitoring, 15 patients were diagnosed

with PCa. Only two harbored aggressive tumors. The median time to diagnosis was 6 years. All PCa patients are free from biochemical relapse. From the remaining 56 patients, 11 did not have any biopsies, 12 had one, 13 had two, and 20 had three or more biopsy sessions.

CONCLUSIONS: ANNA/C-TRUS is a useful method monitoring patients with a risk of PCa. 50-75% of the usually performed biopsy cores could be spared and, after 12 years, 97% of the patients were either without evidence of a PCa or were diagnosed with a good prognosis tumor.

45. Tsikrika FD, Avgeris M, Levis PK, Tokas T, Stravodimos K, Scorilas A. miR-221/222 cluster expression improves clinical stratification of non-muscle invasive bladder cancer (TaT1) patients' risk for short-term relapse and progression. Genes Chromosomes Cancer. 2018 Mar;57(3):150-161.

Clinical heterogeneity of bladder cancer prognosis requires the identification of bladder tumors' molecular profile to improve the prediction value of the established and clinically used markers. In this study, we have analyzed miR-221/222 cluster expression in bladder tumors and its clinical significance for patients' prognosis and disease outcome. The study included 387 tissue specimens. Following extraction, total RNA was polyadenylated at 3'-end and reversed transcribed. SYBR-Green based qPCR assays were performed for the quantification of miR-221/222 expression. Extensive statistical analysis was completed for the evaluation of miR-221/222 cluster's clinical significance. The expression of miR-221/222 is significantly downregulated in tumors compared to normal urothelium, while ROC curve and logistic regression analysis highlighted cluster's discriminatory ability. However, miR-222 levels were increased in muscle-invasive (T2-T4) compared to superficial tumors (TaT1), and in high compared to low-grade tumors. Kaplan-Meier survival curves and Cox regression analysis revealed the stronger risk of TaT1 patients overexpressing miR-222 for disease short-term relapse and progression following treatment. Moreover, multivariate Cox models highlighted the independent prognostic value of miR-222 overexpression for TaT1 patients' poor prognosis. Finally, the analysis of miR-222 expression improved significantly the positive prediction strength of the clinically used prognostic markers of tumor stage, grade, EORTC risk-stratification and recurrence at the first follow-up cystoscopy for TaT1 patients' outcome, and resulted to higher clinical net benefit following decision curve analysis. In conclusion, the expression of miR-221/222 cluster is deregulated in bladder tumors and miR-222 overexpression results to a superior positive prediction of TaT1 patients' short-term relapse and progression.

46. Tokas T, Nagele U. The suspension sutures during minimally invasive radical prostatectomy. World J Urol. 2017 Dec;35(12):1987-1988.

With interest, we have read the refreshing randomized trial published in European Urology by Student et al. devoted to the functional effects of their newly described advanced reconstruction of vesicourethral support (ARVUS) after robotic radical prostatectomy. We commend the authors for presenting such a well-organized study with excellent outcomes.

It would be a great opportunity for us to describe our own method of posterior urethral reconstruction during endoscopic extraperitoneal radical prostatectomy (EERPE). In this technique, the ischioprostatic ligaments (Walsh's pillars or Müller's bands) are joined to the arcus tendineus paraurethrally and bilaterally with interrupted Vicry 1-0 suspension stitches. This comes in contrast with ARVUS, in which the levator ani is mainly used for the posterior reconstruction. The ischioprostatic ligaments are thickened fascial band components that connect the prostate laterally to the urethra providing important lateral support to the striated sphincter and the urethra itself. On the other hand, the arcus tendineus (which together with the puboprostatic ligaments makes the puboprostatic collar) is a linear thickening of the superior fascia of the pelvic diaphragm, extending posteriorly from the body of the pubis beside the bladder and giving attachment to the supporting ligaments of the pelvic viscera. These two anatomical structures play an important role to our posterior reconstruction. We believe that since fascial or ligamentous tissue is always stronger than a muscle, as proven in open surgery during the closure of abdominal cavities, the strength and longevity of a posterior reconstruction would be greater in this way.

Our technique is fast and not technically demanding, also offering a hammock-like reconstruction, with a proximal movement of the urethra, like the one achieved during sling procedures. Moreover, after an intrafascial nerve sparing, the posterior reconstruction can be easily accomplished without inferior traction of the puboprostatic ligaments and neurovascular bundles, which are in this way protected from strangulation, as the levator ani is only distally approximated to the posterior median raphe. Finally, the incidence of urethrovesical anastomosis leakage is also reduced.

This letter aims to present an equally sufficient method of posterior reconstruction after a minimally invasive radical prostatectomy. We have performed this method in more than 300 EERPEs. Our functional results are yet to be published.

47. Tokas T, Gözen AS, Avgeris M, Tschada A, Fiedler M, Klein J, Rassweiler J. **Combining of ETHOS Operating Ergonomic Platform, Three-dimensional Laparoscopic Camera, and Radius Surgical System Manipulators Improves Ergonomy in Urologic Laparoscopy: Comparison with Conventional Laparoscopy and da Vinci in a Pelvi Trainer.** *Eur Urol Focus.* 2017 Oct;3(4-5):413-420.

BACKGROUND: Posture, vision, and instrumentation limitations are the main predicaments of conventional laparoscopy.

OBJECTIVE: To combine the ETHOS surgical chair, the three-dimensional laparoscope, and the Radius Surgical System manipulators, and compare the system with conventional laparoscopy and da Vinci in terms of task completion times and discomfort.

DESIGN, SETTING, AND PARTICIPANTS: Fifteen trainees performed the three main laparoscopic suturing tasks of the Heilbronn training program (IV: simulation of dorsal venous complex suturing; V: circular suturing of tubular structure; and VI: urethrovesical anastomosis) in a pelvi trainer. The tasks were performed conventionally, utilizing the three devices, and robotically. Task completion times were recorded and the surgeon discomfort was evaluated using questionnaires.

OUTCOME MEASUREMENTS AND STATISTICAL ANALYSIS: Task completion times were compared using nonparametric Wilcoxon signed rank test and ergonomic scores were compared using Pearson chi-square test.

RESULTS AND LIMITATIONS: The use of the full laparoscopic set (ETHOS chair, three-dimensional laparoscopic camera, Radius Surgical System needle holders), resulted in a significant improvement of the completion time of the three tested tasks compared with conventional laparoscopy ($p < 0.001$) and similar to da Vinci surgery. After completing Tasks IV, V, and VI conventionally, 12 (80%), 13 (86.7%), and 13 (86.7%) of the 15 trainees, respectively, reported heavy total discomfort. The full laparoscopic system nullified heavy discomfort for Tasks IV and V and minimized it (6.7%) for the most demanding Task VI. Especially for Task VI, all trainees gained benefit, by using the system, in terms of task completion times and discomfort. The limited trainee robotic experience and the questionnaire subjectivity could be a potential limitation.

CONCLUSIONS: The ergonomic laparoscopic system offers significantly improved task completion times and ergonomics than conventional laparoscopy. Furthermore, it demonstrates comparable results to robotic surgery.

PATIENT SUMMARY: The study was conducted in a pelvi trainer and no patients were recruited.

48. Van Cleynenbreugel BSEP, Gözen AS, Tokas T. **The value of simulation-based training in the path to laparoscopic urological proficiency.** *Curr Opin Urol.* 2017 Jul;27(4):337-341.

PURPOSE OF REVIEW: Numerous factors have reduced the training opportunities of surgical residents in the operating room. There is also the question of patient's safety. This gives a need for increased training opportunities outside the operating room. We look if there is an added value in simulation-based training (SBT) in the acquisition of laparoscopic skills.

RECENT FINDINGS: Incorporating SBT into the medical students curriculum reduces surgical complication rates in the operating room.

SUMMARY: Reduction in opportunities to train surgical skills in the operating room, increased complexity of surgical procedures, and justified concerns for patients' safety require training opportunities outside the operating room. Data proves that skills, acquired in the lab during SBT, are transferable to the operating room. Moreover, incorporating an evidence-based laparoscopic simulation curriculum shortens the clinical learning curve and reduces surgical adverse events.

49. Tokas T, Avgeris M, Alamanis C, Scorilas A, Stravodimos KG, Constantinides CA. **Downregulated KLK13 expression in bladder cancer highlights tumor aggressiveness and unfavorable patients' prognosis.** *J Cancer Res Clin Oncol.* 2017 Mar;143(3):521-532.

PURPOSE: Despite recent research advantages on the molecular and subcellular background, bladder cancer (BlCa) remains a clinically neglected malignancy. This is strongly reflected by the generic approach of disease diagnosis and management. Additionally, patients' prognosis became a rather demanding task due to the great disease heterogeneity. Here, we aimed to evaluate, for the first time, the clinical value of KLK13 in BlCa.

METHODS: A total of 279 bladder specimens (137 tumors, 107 adjacent normal tissues and 35 healthy samples) were included. Total RNA was extracted, reverse transcribed, and KLK13 expression was assessed by quantitative real-time PCR.

RESULTS: KLK13 expression is significantly increased in bladder tumors compared to normal adjacent epithelium. However, reduced KLK13 expression is correlated with disease aggressiveness, including higher tumor stage and grade, and high-risk TaT1 tumors according to the EORTC stratification. Moreover, Kaplan-Meier and Cox regression analysis highlighted the prognostic value of the reduced KLK13 expression for the prediction of TaT1 patients' recurrence and shorter disease-free survival following TURBT. Finally, the combination of KLK13 expression with EORTC-risk stratification results to an improved prediction of TaT1 patients' outcome.

CONCLUSION: This first clinical study of KLK13 in BlCa reveals its deregulated expression in bladder tumors and highlights KLK13 as a promising marker for improving TaT1 patients' prognosis following treatment.

50. Tokas T, Habicher M, Junker D, Herrmann T, Jessen JP, Knoll T, Nagele U; Training Research in Urological Surgery Technology (T.R.U.S.T.)-Group. **Uncovering the real outcomes of active renal stone treatment by utilizing non-contrast computer tomography: a systematic review of the current literature. World J Urol. 2017 Jun;35(6):897-905.**

PURPOSE: To evaluate the stone-free rates (SFRs) and stone clearance rates (SCRs) of extracorporeal shock-wave lithotripsy (SWL), retrograde intrarenal surgery (RIRS), and percutaneous nephrolitholapaxy (PCNL) according to non-contrast computer tomography (NCCT) findings.

METHODS: Original articles were identified from PubMed. After exclusion of ineligible papers, twenty-three studies with 2494 cases were included in the review.

RESULTS: Six SWL, five RIRS and eight PCNL studies were selected. Additionally, four comparative articles were identified. SWL presents SFRs ranging 35-61.3 % and SCRs for residuals <4 mm being 43.2-92.9 %. RIRS studies report SFRs of 34.8-59.7 % and SCRs for residuals <4 mm ranging 48-96.7 %. Finally, PCNL presents SFRs of 20.8-100 % and SCRs for residuals <4 mm being 41.5-91.4 %. According to the comparative studies, SFRs are 17-61.3 % for SWL, 50 % for RIRS, and 95-100 % for PCNL.

CONCLUSIONS: According to NCCT findings, it seems that PCNL provides better SFRs than ESWL and RIRS. However, further research with comparable and complete preoperative parameters and outcomes could reduce the heterogeneity of current data.

51. Tokas T, Nagele U. Stone free rates (SFRs) after retrograde intrarenal surgery (RIRS) and percutaneous nephrolithotomy (PCNL); are we comparing apples with watermelons? World J Urol. 2016 Nov;34(11):1503-1504.

Dear Editor,

With interest we have read the refreshing meta-analysis published in European Urology by De et al., devoted to standard PCNL, minimally invasive percutaneous nephrolithotomy (MIPP), and RIRS for treating nephrolithiasis. We commend the authors for undertaking such demanding and extensive literature research. They conclude that PCNL offers higher SFRs than MIPP and RIRS. They also pur- port that RIRS provides lower SFRs than MIPP. Nevertheless the “higher morbidity” of MIPP compared to RIRS is probably due to its less frequent use in daily routine in most centers resulting in less experience and technical know how. However, we believe that some main points are not apparently mentioned and should be taken strictly into consideration.

The preoperative stone size and the stone location constitute important parameters, for choosing the best treat- ment. Interestingly, by evaluating the SFR data presented by De et al., ten studies were eligible for the meta-analysis. However, only one study, presenting 172 MIPPs and 108 RIRs, contributed a 52.7 % weight to the overall and 76.9 % to the MIPP subgroup analysis! Furthermore, the authors reported a statistically significant mean stone size difference ($p \leq 0.004$) between MIPP (12.6 mm) and RIRS (6.8 mm). The fact that this study greatly influences the whole meta-analysis substantiates the inhomogeneity of the data collected. Additionally, De et al. admit that some studies assess stone size using maximum stone diameter in mm, while others use the mean area in mm².

The proper definition of SFR, in other words, the clinically significant residual stone size, is the foothold of proper estimation of treatment outcomes. Many studies report a diameter of 4 mm, or 2 mm. Nevertheless, small residual fragments require active intervention, in one- third of the cases. In the meta-analysis by De et al., the cutoff SFR values of the different studies are not clearly defined.

The imaging method used for estimating residual fragments and the ideal time to perform it are of utmost impor- tance. Non-contrast CT (NCCT) should always be the preferred method. Moreover, recent research has shown that magnified bone windows for NCCT are more accurate for measurement of stones. To date, only several, mainly, PCNL studies use NCCT as a standard follow-up method. Additionally, in many centers, NCCT is per- formed during

the first postoperative week, which could be associated with increased false-positive results from stone dust postoperatively. Moreover, residuals that would pass spontaneously and uneventfully during the early postoperative period are also detected. Therefore, imaging at the end of the first month after surgery is considered optimal. This important parameter should have been properly elucidated in De's study.

The aim of this letter is not to pose criticism but to stimulate further research on the subject, since the current available data remain greatly inhomogeneous. Trying to perform a meta-analysis using the current evidence is like comparing "apples" with "watermelons"! Hence, comparing complications with such heterogeneous groups can also force to misleading conclusions. By focusing our research in all mentioned parameters, the inhomogeneity of our data can be reduced.

52. Albisinni S, Fossion L, Oderda M, Aboumarzouk OM, Aoun F, Tokas T, Varca V, Sanchez-Salas R, Cathelineau X, Chlosta P, Gaboardi F, Nagele U, Piechaud T, Rassweiler J, Rimington P, Salomon L, van Velthoven R. **Critical Analysis of Early Recurrence after Laparoscopic Radical Cystectomy in a Large Cohort by the ESUT.** *J Urol.* 2016 Jun;195(6):1710-7.

PURPOSE: We analyze patients with early progression after laparoscopic radical cystectomy in a large cohort by the ESUT (European Association of Urology Section of Uro-Technology). More specifically we focus on patients with favorable pathology (pT2 N0 R0 or less) who experienced an unexpected recurrence and analyze possible causes for such early recurrence, discussing the surgical technique including pneumoperitoneum.

MATERIALS AND METHODS: Since 2000 the ESUT has been constructing a large, multicenter, prospective database of patients undergoing laparoscopic radical cystectomy. All procedures were performed via a standard laparoscopic approach without robotic assistance. We specifically analyzed patients with favorable pathological characteristics, in particular pT2 N0 R0 or less, and evaluated those with progression despite these favorable characteristics. Univariate and multivariate logistic regression was performed to evaluate risk factors for early recurrence.

RESULTS: A total of 627 patients were available for final analysis with a median followup of 46 months (mean 57). Of these patients 311 had favorable pathological characteristics of pT2 N0 R0 or less. During followup 27 (8.7%) patients experienced disease progression during the first 24 months. Surgical negligence was found in only 1 case. Most of these patients with

early recurrence had progression to high tumor volume disseminated metastatic disease. On multivariate logistic regression tumor stage was the only factor significantly associated with early recurrence ($p=0.027$).

CONCLUSIONS: We report early unexpected recurrences after laparoscopic radical cystectomy in nearly 5% of our entire cohort, all in patients with favorable pathological characteristics (pT2 N0 R0 or less). Pneumoperitoneum may have had a role in the development of these relapses. Specifically designed studies are necessary to investigate the possible role of pneumoperitoneum in urothelial cancer recurrence.

53. Enzmann T, Tokas T, Korte K, Ritter M, Hammerer P, Franzaring L, Heynemann H, Gottfried HW, Bertermann H, Meyer-Schwickerath M, Wirth B, Pelzer A, Loch T. **[Prostate biopsy: Procedure in the clinical routine]. Urologe A. 2015 Dec;54(12):1811-20; quiz 1821-2.**

Over the last decade there has been a 25% decrease in the mortality rates for prostate cancer. The reasons for this significant decrease are most likely associated with the application of urological screening tests. The main tools for early detection are currently increased public awareness of the disease, prostate-specific antigen (PSA) tests and transrectal ultrasound (TRUS) guided topographically assignable biopsy sampling. Together with the histopathological results these features provide essential information for risk stratification, diagnostics and therapy decisions. The evolution of prostate biopsy techniques as well as the use of PSA testing has led to an increased identification of asymptomatic men, where further clarification is necessary. Significant efforts and increased clinical research focus on determining the appropriate indications for a prostate biopsy and the optimal technique to achieve better detection rates. The most widely used imaging modality for the prostate is TRUS; however, there are no clearly defined standards for the clinical approach for each individual biopsy procedure, dealing with continuous technical optimization and in particular the developments in imaging. In this review the current principles, techniques, new approaches and instrumentation of prostate biopsy imaging control are presented within the framework of the structured educational approach.

54. Avgeris M, Mavridis K, Tokas T, Stravodimos K, Fragoulis EG, Scorilas A. **Uncovering the clinical utility of miR-143, miR-145 and miR-224 for predicting**

the survival of bladder cancer patients following treatment. Carcinogenesis. 2015 May;36(5):528-37.

Accurate prognosis is a key factor in establishing optimal therapeutic decisions; yet in the case of bladder cancer (BlCa) current prognostic indicators cannot ensure optimal disease management. Here, we aimed to evaluate the previously unexplored clinical potential of the urological cancer-related miR-145, miR-143 and miR-224 in BlCa. A total of 279 bladder tissue specimens were included in this study (133 BlCa, 107 adjacent normal and 39 healthy samples). Total RNA was extracted from tissues, it was polyadenylated and reverse transcribed to cDNA. The expression of target molecules was measured via quantitative real-time PCR. The expression levels of both miR-143 and miR-145 were significantly decreased, whereas those of miR-224 were increased in BlCa. Receiver operating characteristic curve analysis indicated a significant discriminatory capacity for miR-143/miR-145 levels. Important associations with disease aggressiveness were observed for all three microRNAs; elevated levels were observed in tumors of higher stage and grade, as well as in 'high-risk' TaT1 patients. More importantly, high miR-143/145 levels could effectively prognose inferior overall survival for muscle-invasive patients and could independently predict the progression of superficial tumors. Finally, the combination of miR-143/145 overexpression with the widely used prognostic markers of European Organization for Research and Treatment of Cancer-risk groups or recurrence at the first follow-up cystoscopy resulted to a superior positive prediction of non-muscle-invasive bladder cancer short-term progression compared with the use of the abovementioned markers alone. The cancer-related miR-143, miR-145 and miR-224 were investigated for the first time in the clinical setting of BlCa, and miR-143/145 cluster constitutes a novel marker helpful for providing an enhanced prediction of oncologic outcome for BlCa patients.

55. Gözen AS, Tokas T, Akin Y, Klein J, Rassweiler J. Impact of barbed suture in controlling the dorsal vein complex during laparoscopic radical prostatectomy. Minim Invasive Ther Allied Technol. 2015 Apr;24(2):108-13.

OBJECTIVE: To compare applications of unidirectional knotless barbed suture and traditional two single polyglactin sutures for dorsal vein complex (DVC) control during laparoscopic radical prostatectomy (LRP).

MATERIAL AND METHODS: This was a non-randomized, prospective matched-pair pilot study. Thirty-one LRP cases with barbed suture (V-Loc®) were match-paired with 31 LRP cases in which traditional two single polyglactin stitches according to patient's prostate volume and body mass index (BMI) were used. Time needed for DVC ligation, DVC control and operation time were recorded. Peri- and postoperative parameters were noted. Statistical analyses were performed.

RESULTS: Mean age was 65.4 ± 6.3 years. Mean follow-up was 20.2 ± 3.3 months. Mean BMI and prostate volume were similar in both groups. Mean preoperative clinical stage, Gleason score, and PSA were comparable between both groups. Mean DVC ligation time and mean DVC controlling time in group 1 were statistically shorter than in group 2 ($p=0.04$, $p<0.001$). Continence rates were significantly higher in group 1 than in group 2 in early follow-up ($p=0.005$).

56. Gözen AS, Tokas T, Tschada A, Jalal A, Klein J, Rassweiler J. **Direct comparison of the different conventional laparoscopic positions with the ethos surgical platform in a laparoscopic pelvic surgery simulation setting.** *J Endourol.* 2015 Jan;29(1):95-9.

OBJECTIVE: Laparoscopic surgery can be harmful to surgeons requiring a prolonged learning curve due to significant ergonomic drawbacks. Based on preliminary clinical experience, we present an experimental evaluation of the second-generation ETHOS™ operating chair by comparing it with two different operating positions of conventional laparoscopic pelvic surgery.

MATERIALS AND METHODS: The ETHOS operation platform consists of a seat like a saddle and five more parts that can be adjusted individually to support the surgeon's trunk and extremities. This operation platform was tested in 30 trainees who performed three standard suturing exercises in a pelvitrainer, approximating a linear and a U-shaped incision, made on the skin of a chicken leg, and completing an urethrovesical anastomosis, on a pig bladder specimen model, using interrupted sutures. The trainees performed each exercise in standing laterally to pelvitrainer (torero position) vs standing behind pelvi-trainer and sitting on ETHOS. The mean values, from all times and for each exercise and position, were documented, and the participants filled out a validated questionnaire focusing on ergonomic issues.

RESULTS: There were no significant differences among the different training modalities, in step 1 and step 2. However, in step 3, which mimics the urethrovesical anastomosis, the mean

times were statistically significant significantly less by using ETHOS ($p < 0.0001$). The mean times of training in step 3 were 41.2 minutes in the behind the camera position, 49 minutes in torero position, and 39.7 minutes by using ETHOS. The position that was maintained, during the exercises, was mainly responsible for the improvement noted in the ergonomic scores.

CONCLUSIONS: The new operating platform (ETHOS chair) can significantly improve ergonomics in laparoscopy particularly concerning difficult steps like intracorporeal suturing. This may also improve the urethrovesical anastomosis times in a clinical setting.

57. Gözen AS, Tokas T, Akin Y, Atis G, Hruza M, Rassweiler J. Pain after hernia repair with simultaneous extraperitoneal laparoscopic radical prostatectomy. J Endourol. 2014 Sep;28(9):1143-8.

PURPOSE: To compare postoperative pain levels and postoperative morbidity between patients who underwent extraperitoneal laparoscopic radical prostatectomy (EPLRP) concomitant hernia repair and patients who underwent only EPLRP, by matched-pair analyses.

METHODS: From December 2003 to December 2012, 54 patients who underwent EPLRP with simultaneous hernia repair were categorized as group 1. Their postoperative pain levels were quantitatively compared with those of 54 patients who underwent only EPLRP (group 2), in matched-pair analyses, including age, body mass index, and American Society of Anesthesiologists scoring. Preoperative tumor characteristics, operative and postoperative data were recorded. Pain levels were evaluated by using the visual analog scale (VAS) scoring, every day, during the first postoperative week. Statistical analyses were performed.

RESULTS: Mean follow-up was 21 months. Mean age was 65 ± 0.5 years. Preoperative, perioperative, and postoperative data were similar in the two groups. Group 1 needed a mean of 9.17 mg and group 2 needed a mean of 8.06 mg morphine derivative analgesic (piritramide) postoperatively. Total mean VAS scores were 5.65 and 4.98, in group 1 and group 2, respectively ($P = 0.06$). Moreover, there was no significant difference between groups for complications.

CONCLUSION: Simultaneous hernia repair does not affect pain levels after EPLRP. The procedure also does not result in prolongation of operative time and does not increase complication rates.

58. Rajmohan R, Aguilar-Davidov B, Tokas T, Rassweiler J, Gözen AS. Iatrogenic direct rectal injury: an unusual complication during suprapubic cystostomy (SPC)

insertion and its laparoscopic management. Arch Ital Urol Androl. 2013 Jun 24;85(2):101-3.

Suprapubic cystostomy (SPC) is commonly used, instead of indwelling urethral catheterization, as indicated in many pathological conditions. Although considered to be a safe procedure that can be easily performed in an outpatient basis several complications have been reported in international literature. Bowel injury can be a serious complication with the small intestine affected in the majority of cases. We present a case of an accidental rectal injury by a suprapubic catheter misplacement, in a 76 year old demented patient with prostatic hyperplasia and chronic urinary retention. The injury was confirmed by cystography and injection of contrast material through the suprapubic catheter, and successfully treated laparoscopically by an extraperitoneal approach. The patient was discharged after 10 days without any complications. The above method, in experienced hands, can be an effective primary treatment option for such rare but devastating complications. The case and management is unique as, to our knowledge, as no similar cases have been presented.

59. Foutadakis S, Avgeris M, Tokas T, Stravodimos K, Scorilas A. Increased BCL2L12 expression predicts the short-term relapse of patients with TaT1 bladder cancer following transurethral resection of bladder tumors. Urol Oncol. 2014 Jan;32(1):39.e29-36.

OBJECTIVES: More than half of the diagnosed patients with bladder cancer (BCa) recur at least once following their initial treatment. Thus, patients' monitoring and prognosis is of utmost importance. However, the need for intensive surveillance of BCa significantly burdens patients' health-related quality of life. The aim of the present study is the expression analysis of BCL2L12, a recently identified member of the BCL2 apoptosis-related gene family, in BCa and the evaluation of BCL2L12 prognostic significance for the survival outcome of the patients.

METHODS AND MATERIALS: Our study included 115 patients with BCa, and tissue specimens were obtained from the tumor area as well as from adjacent normal bladder wall. BCL2L12 expression was determined using quantitative real-time polymerase chain reaction assay, and was further correlated with patients' clinicopathological features and follow-up survival data.

RESULTS: Up-regulated BCL2L12 expression levels were detected in malignant bladder specimens compared with normal ones. The higher BCL2L12 expression was further associated with shorter disease-free survival of the patients with BCa. Focusing on patients with TaT1 non-muscle invasive BCa, BCL2L12 expression levels were correlated with higher recurrence rate at the first follow-up cystoscopy and were unveiled to be an independent unfavorable predictor of patients' short-term recurrence following transurethral resection. Finally, BCL2L12 expression levels were also associated with poor disease-free survival of the high-grade TaT1 patients.

CONCLUSIONS: Our data highlight the unfavorable prognostic value of BCL2L12 for patients with BCa and support its potential clinical use for the assessment of TaT1 patients' recurrence risk.

60. Anastasiou J, Karatzas T, Felekouras E, Tokas T, Koutalellis G, Mitropoulos D, Constantinides C. **Radical nephrectomy with transperitoneal subcostal incision for large and locally advanced tumors of the right kidney. Anticancer Res. 2012 Nov;32(11):5023-9.**

BACKGROUND: Several surgical approaches have been used for radical nephrectomy for large and locally advanced tumors of the right kidney.

AIM: To present our experience with radical nephrectomy using a right subcostal incision with a transperitoneal approach in patients with very large tumors of the right kidney.

PATIENTS AND METHODS: Between 2003 and 2010, 34 patients with very large tumors of the right kidney were submitted to surgery. Eighteen patients underwent a transperitoneal approach with a right subcostal incision (intervention group) and 16 patients were operated on with retroperitoneal flank incision (control group).

RESULTS: No significant complications during surgery were observed in the intervention group; two patients needed blood transfusions of 300 cc during the first postoperative day. In the control group, injury of the renal vein or inferior vena cava (IVC) was a relatively common complication; five patients needed blood transfusions of 300 cc during the first postoperative day.

CONCLUSION: A transperitoneal right subcostal incision for radical nephrectomy in patients with large and locally advanced tumors of the right kidney seems to offer better access to the renal pedicle, and to the great vessels of the area as well as better exposure of the organs of the

abdominal cavity. This approach could be more useful in cases in which liver involvement is possible.

- 61.** Adamakis I, Tyritzis SI, Koutalellis G, Tokas T, Stravodimos KG, Mitropoulos D, Constantinides CA. **Early removal of nasogastric tube is beneficial for patients undergoing radical cystectomy with urinary diversion. Int Braz J Urol. 2011 Jan-Feb;37(1):42-8.**

PURPOSE: Examine the beneficial effect of early nasogastric tube (NGT) removal in patients undergoing radical cystectomy with urinary diversion.

PATIENTS AND METHODS: 43 consecutive patients underwent radical cystectomy with urinary diversion and were randomized into 2 groups. In the intervention group (n = 22), the NGT was removed 12 hours after the operation. Comparatively, in the control group (n = 21), the NGT remained in place until the appearance of the first flatus. The appearance of ileus, patient ambulation, time to regular diet, and hospital discharge of the two patient groups were assessed. Patient discomfort due to the NGT was also recorded.

RESULTS: The 2 groups showed statistical homogeneity of their baseline characteristics. Two patients (9.09%) from the intervention and 3 patients (14.3%) from the control group developed postoperative ileus and were treated conservatively. No significant differences in intraoperative, postoperative, bowel outcomes or other complications were found between the two groups. All patients preferred the NGT to be removed first in comparison to their other co-existing drains.

CONCLUSIONS: This is the first randomized, prospective study, to our knowledge, to assess early NGT removal after radical cystectomy. We advocate early removal, independently of the selected type of urinary diversion, since it is not correlated with ileus and is advantageous in terms of patient comfort and earlier ambulation.

- 62.** Falagas ME, Athanasiou S, Iavazzo C, Tokas T, Antsaklis A. **Urinary tract infections after pelvic floor gynecological surgery: prevalence and effect of antimicrobial prophylaxis. A systematic review. Int Urogynecol J Pelvic Floor Dysfunct. 2008 Aug;19(8):1165-72.**

We evaluated the prevalence of urinary tract infection (UTI) after pelvic floor operations for non-malignant etiology and the effectiveness of antibiotic prophylaxis. This was made possible

by a review of the evidence from relevant randomized controlled trials (RCTs). Nineteen out of 879 initially identified studies met the criteria for inclusion in our review. Four RCTs compared an antibiotic prophylactic regimen with placebo, 11 two different prophylactic antibiotic regimens, and four had three different treatment arms. Among placebo recipients undergoing pelvic floor surgery, 10-64% developed UTI. In contrast, UTI after pelvic floor gynecological surgery occurred in 0-15% of the patients who received cephalosporins as antibiotic prophylaxis; the likelihood for postoperative UTI was higher for patients receiving cotrimoxazole (28%), ampicillin/sulbactam (13.6%), metronidazole plus ampicillin (20%), metronidazole (10-22.7%), or ciprofloxacin (27.2%). The use of a cephalosporin as perioperative antimicrobial prophylaxis is the optimal regimen in preventing UTIs after pelvic floor surgery.

63. Falagas ME, Betsi GI, Tokas T, Athanasiou S. Probiotics for prevention of recurrent urinary tract infections in women: a review of the evidence from microbiological and clinical studies. *Drugs*. 2006;66(9):1253-61.

Recurrent urinary tract infections (UTIs) afflict a great number of women around the world. The use of probiotics, especially lactobacilli, has been considered for the prevention of UTIs. Since lactobacilli dominate the urogenital flora of healthy premenopausal women, it has been suggested that restoration of the urogenital flora, which is dominated by uropathogens, with lactobacilli may protect against UTIs. This review is based on a search of PubMed for relevant articles. Many in vitro studies, animal experiments, microbiological studies in healthy women, and clinical trials in women with UTIs have been carried out to assess the effectiveness and safety of probiotics for prophylaxis against uropathogens. Most of them had encouraging findings for some specific strains of lactobacilli. *Lactobacillus rhamnosus* GR-1 and *L. reuteri* RC-14 (previously called *L. fermentum* RC-14) seemed to be the most effective among the studied lactobacilli for the prevention of UTIs. *L. casei* shirota and *L. crispatus* CTV-05 have also shown efficacy in some studies. *L. rhamnosus* GG did not appear to be quite as effective in the prevention of UTIs. The evidence from the available studies suggests that probiotics can be beneficial for preventing recurrent UTIs in women; they also have a good safety profile. However, further research is needed to confirm these results before the widespread use of probiotics for this indication can be recommended.

10.3 Παράγραφοι σε διεθνή συγγράμματα

1. Theodoros Tokas, Chandra Shekhar Biyani, and Ali Serdar Gözen. **Chapter 7: Procedural Training Simulators. Book: Practical Simulation in Urology** (Springer 2022, ISBN 978-3-030-88788-9, Editors: Chandra Shekhar Biyani, Ben Van Cleynenbreugel, Alexandre Mottrie

Introduction

In the last two decades, surgical training and education have abandoned the master apprentice model, which has worked for centuries to school proficient surgeons and gradually adopted strategies followed by industries such as aviation and the military, which heavily rely on simulation training before real-life exposure [1, 2]. The traditional “see one, do one, teach one” training model [3] has lost acceptance in surgical training during the twenty-first century, and by applying simulation, a large part of the procedural learning curve can be acquired using training models [4]. Historically, the first medical simulators were simple models of human patients [5]. By definition, a model is a representation, generally in miniature, to show the construction or appearance of something, or a simplified version of something more complex. Models are utilized to analyze and solve problems or make predictions when creating an original surgical condition (procedure) is impossible. They represent real-world systems or concepts meant to be tested, analyzed, or used for training purposes through simulation. On the other hand, simulation is implementing a model/simulator over time that brings this model to life and demonstrates the behavior of a particular object or phenomenon under certain conditions. Especially procedural training simulators model some aspect of human anatomy or surgical step, which facilitates a learning activity by simulating characteristics of that anatomy or step. As trainees have different learning rates and skills, not all would have sufficient time to master a surgical technique on time with the master–apprentice method. Simulation training allows convenient learning in that the trainee can learn when time allows and does not have to wait for a particular operation when there is a scarcity of in-patients upon which to operate. When training in the operating theater, much operating time is lost, and therefore simulation training does not slow the progress of the lists or reduce staff time for training. On the contrary, it allows training out of the operating theater to be tailored to the individual’s needs and avoids the embarrassment of slow progress around peers. Additionally, the endpoints of a specific task can be altered to meet the trainee’s needs, and the simulated operation can be abandoned when the trainee feels saturated.

By focusing on Urology, the most significant number of procedural training simulators and subsequent validation works have been carried out in the field of endourology, laparoscopic and robot-assisted surgery [6–8]. On the contrary, open urological procedure simulation has only seen a handful of validated models [9]. Different tools have been used over time to help surgeons acquire technical skills. Despite their simple composition, even sponges proved to be as helpful as modern virtual simulators in acquiring specific maneuvers, like intracorporeal knot tying. Nevertheless, it is easy to understand today the multiple aspects that make the sponge “outdated” by comparing it with a sophisticated simulator. In order to gain a better understanding of it, we need to consider training platforms from different perspectives. This chapter aims to give a broad view of different types of models/ simulators applied in Urology. Additional information about their advantages and limitations will be provided. An extensive list of all available simulators is beyond the scope of this chapter.

2. Theodoros Tokas, Udo Nagele. Chapter 14: **Intrarenal Pressure, Fluid Management, and Hydrodynamic Stone Retrieval in Mini-PCNL**. Book: **Minimally Invasive Percutaneous Nephrolithotomy** (Springer 2022, ISBN 978-981-16-6000-9, Editors: Madhu S. Agrawal, Dilip K. Mishra, Bhaskar Somani

14.1 Introduction

Mini-PCNL (mPCNL) constitutes an advancing field in active renal stone treatment. Manufacturers have enriched our armamentarium with a variety of instruments. At the same time, different study groups have presented new techniques in patient body positioning, kidney puncture, and stone lithotripsy. Nevertheless, by decreasing instrument caliber to prevent damage caused by instrument access to the kidney, the water inflow-outflow balance is compromised. To achieve better visibility and improve stone clearance, the surgeon must increase irrigation flow (IF). This action results in an increase of inflow/irrigation pressures (IPs). However, subsequent intraoperative intrarenal pressure (IRP) increments can lead to serious complications [1]. This problem becomes more evident when utilizing extra-small instruments. Nonetheless, the majority of endourologists are not aware of normal and pathological IRP ranges during mini-PCNL and their impact on kidney physiology. In this chapter, we will present ways to maintain optimal fluid management to effectively remove stone fragments after lithotripsy and achieve perfect vision during the whole procedure.

Furthermore, we are going to discuss the influence of increased IRPs in complication development and prevention measures to control IRPs and, at the same time, maintain optimal irrigation flow.

3. Theodoros Tokas, Ali Serdar Gözen, Jan Klein, Alexandra Tschada, Thomas Frede, Dogu Teber, and Jens Rassweiler. Chapter 6: **Laparoscopy Versus Robotics: Ergonomics—Does It Matter?** **Book: Robotics in Genitourinary Surgery** (Springer 2018, ISBN 978-3-319-20644-8, Editors: Ashok K. Hemal, Mani Menon)

Laparoscopy offers significant benefits to the patients, mainly due to its minimally invasive nature. Nevertheless, it is also characterized by significant ergonomic limitations which make it tedious for the surgeon. Robotic surgery seems to offer a valid solution to this problem but is also accompanied by several important ergonomic handicaps. In this chapter, we want to focus on the ergonomic problems of laparoscopy, in comparison to the da Vinci system, based on the current literature and personal long term experience with both techniques. Additionally, we present different solutions to the ergonomic predicaments that one may encounter during a complex procedure, and future perspectives that could aid in the creation of ergonomically designed operating theatres for minimally invasive procedures.

ΠΑΡΑΡΤΗΜΑ**Ανάλυση Δημοσιεύσεων****Πίνακας 1.** Δημοσιεύσεις σε διεθνή επιστημονικά περιοδικά (PubMed Indexed)

No	Περιοδικό	Αριθμός δημοσιεύσεων	Θέση			IF (ISI 2021)	Ολικό IF (ISI 2021)
			1 ^{ος}	2 ^{ος}	L/C		
1	Aktuelle Urol	1	-	-	-	0.465	0.465
2	Anticancer Res	1	-	-	-	2.435	2.435
3	Arch Ital Urol Androl	1	-	-	-	0.000	0.000
4	BJU Int	1	-	-	-	5.969	5.969
5	Br J Cancer	1	-	-	-	9.089	9.089
6	Br J Surg	1	1			11.122	11.122
7	Carcinogenesis	1	-	-	-	4.741	4.741
8	Cent European J Urol	1	-	-	1	0.000	0.000
9	Curr Opin Urol	2	1	-	1	2.808	5.616
10	Curr Urol Rep	3	1	1	1	2.862	8.586
11	Drugs	1	-	-	-	11.431	11.431
12	Eur Urol	1	-	-	-	24.267	24.267
13	Eur Urol Focus	3	1	-	-	5.952	17.856
14	Eur Urol Oncol	1	-	-	1	8.208	8.208
15	Eur Urol Open Science	1	-	1	-	3.000	3.000
16	Genes Chromosomes Cancer	1	-	-	-	4.263	4.263
17	Int Braz J Urol	1	-	-	-	3.050	3.050
18	Int Urogynecol J Pelvic Floor Dysfunct	1	-	-	-	1.911	1.911

19	J Cancer Res Clin Oncol	2	1	-	-	4.322	8.644
20	J Clin Med	1	-	1	-	4.964	4.964
21	J Endourol	4	-	2	-	2.619	10.476
22	J Urol	1	-	-	-	7.600	7.600
23	Minerva Urol Nefrol	1	-	-	-	3.720	3.720
24	Minim Invasive Ther Allied Technol	2	-	2	-	2.442	4.884
25	Prog Urol	1	-	-	-	1.090	1.090
26	Turk J Urol	6	1	2	2	0.000	0.000
27	Urologe A	1	-	1	-	0.000	0.000
28	Urol Oncol	1	-	-	-	0.000	0.000
29	Urology	1	-	-	-	2.633	2.633
30	World J Urol	19	9	3	3	3.661	69.559
	TOTAL	63	15	13	9		265.579

Πίνακας 2. Περιλήψεις σε διεθνή επιστημονικά περιοδικά (PubMed Indexed)

No	Περιοδικό	Αριθμός περιλήψεων	IF (ISI 2021)	Ολικό IF (ISI 2021)
1	European Urology Open Science	4	3.000	12.000
2	European Urology Supplements	12	10.417	125.004
3	J Endourol	9	2.619	23.571
4	J Urol	5	7.600	38.000
	TOTAL	63		198.575

