Urology Research Review™

Making Education Easy

Issue 64 - 2024

In this issue:

Abbreviations used in this issue:

AUA/SUFU = American Urological Association/Society of Urodynamics, Female Pelvic Medicine & Urogenital Reconstruction; **CI** = confidence interval; **HRQoL** = health-related quality of life; **LUTS** = lower urinary tract symptoms; **OAB** = overactive bladder; **OR** = odds ratio; **QoL** = quality of life; **RALP** = Robot-Assisted Laparoscopic Radical Prostatectomy; **SF** = short form; **UI** = urinary incontinence; **UTI** = urinary tract infection.

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Welcome to Issue 64 of Urology Research Review.

A study published in the Lancet has found that gepotidacin, a novel bactericidal, first-in-class triazaacenaphthylene antibiotic that inhibits bacterial DNA replication, is an efficacious oral antibiotic with acceptable safety and tolerability profiles in patients with uncomplicated urinary tract infections. In a study from Japan, we learn that a multicomponent intervention, including a cognitive component, improves HRQoL for women with moderate-to-severe OAB. We wrap up this issue with a randomised controlled trial investigating the effect of transcranial direct current stimulation combined with pelvic muscle training in women.

We hope you find our selection of articles for this review interesting and welcome your feedback.

Kind Regards,

Professor Eric Chung

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Oral gepotidacin versus nitrofurantoin in patients with uncomplicated urinary tract infection (EAGLE-2 and EAGLE-3): Two randomised, controlled, double-blind, double-dummy, phase 3, non-inferiority trials

Authors: Wagenlehner F et al.

Summary: The EAGLE-2 (n = 1531) and EAGLE-3 (n = 1605) multicentre, randomised, double-blind, double-dummy, phase III, non-inferiority trials assessed the use of an oral bactericidal, triazaacenaphthylene antibiotic, gepotidacin compared with nitrofurantoin in adolescent and adult females with uncomplicated UTI. Both studies were halted for efficacy after an interim analysis. In EAGLE-2, therapeutic success (complete symptom resolution and reduction of qualifying uropathogens to $<10^3$ CFU/mL) at days 10-13 was achieved by 162 (50.6%) gepotidacin and 135 (47.0%) nitrofurantoin recipients (adjusted difference 4.3%; 95% CI -3.6 to 12.1), while in EAGLE-3, therapeutic success was achieved by 162 (58.5%) of 277 gepotidacin and 115 (43.6%) of 264 nitrofurantoin recipients (adjusted difference 14.6%; 95% CI 6.4-22.8). Gepotidacin was thus considered non-inferior to nitrofurantoin in both studies (10% margin) and in EAGLE-3, gepotidacin was superior to nitrofurantoin. The most common adverse event with gepotidacin was diarrhoea (14% in EAGLE-2 and 18% in EAGLE-3), while with nitrofurantoin it was nausea (4% in EAGLE-2 and 4% in EAGLE-3); cases were generally mild or moderate.

Comment: Uncomplicated UTIs can cause significant morbidity and effective treatments are often limited by antimicrobial resistance and antibiotic allergy/intolerance. There is an unmet need for new oral antibiotics active against uropathogens resistant to current treatment options. Gepotidacin has broad-spectrum bactericidal coverage (including Enterobacterales) without cross-resistance to fluoroquinolones. The therapeutic successes for gepotidacin versus nitrofurantoin were 50.6% versus 47.0% (EAGLE-2) and 58.5% versus 43.6% (EAGLE-3), thus gepotidacin met the pre-set noninferiority difference in both studies (and was superior to nitrofurantoin in EAGLE-3). Because of its novel mechanism of action, lack of cross-resistance to other antibiotic classes and dual mechanism of action suggesting a high barrier to the development of resistance, gepotidacin represents a potentially useful addition to the treatment repertoire in UTI. The relatively low treatment response in both trials was worth pointing out. In the context of unsatisfactory clinical response despite microbiologic eradication, one can speculate that symptoms in many participants may have been unrelated to UTI, with the positive culture reflecting bacteriuria. Evaluating antibiotics for a "relatively mild disease" involving "nonsterile body sites" can be difficult.

Reference: Lancet 2024;403(10428):741-755

Abstract

Multicomponent intervention for overactive bladder in women: A randomized clinical trial

Authors: Funada S et al.

Summary: This Japanese, multicentre, open-label, randomised clinical trial examined a multicomponent intervention including a cognitive component versus a waitlisted control for improving health-related quality of life (HRQoL) in 79 women with moderate-to-severe overactive bladder (OAB). Change in HRQoL total score of the OAB questionnaire from baseline to week 13 was 23.9 points (95% CI 18.4-29.5 points) in the intervention group versus 11.3 points (95% CI 6.2-16.4 points) in controls (difference 12.6 points; 95% CI 6.6-18.6 points; $p < 0.001$). The intervention was also superior for frequency of micturition and urgency, but there was no difference in OAB symptom score.

Comment: As a first-line therapy for OAB, behavioural therapy encompasses lifestyle modifications, bladder training, and pelvic floor muscle training. The success of behavioural modifications in treating OAB resides in time compliance and clinical adherence. In this randomised clinical trial of 79 women, those who underwent four 30-minute weekly sessions of a multicomponent intervention had a clinically significant improvement in HRQoL scores compared with the waitlist control group. These findings provide evidence to support a multicomponent intervention with cognitive components as an effective treatment option for women with moderate-to-severe OAB by improving HRQoL. It is important to note that improvements in HRQoL do not always correspond to changes in the total OAB symptom score, raising the possibility that the effect of the multicomponent intervention is not uniform for such a heterogeneous target population. While systematic review highlighted the superior efficacy and safety of behavioural therapy in treating OAB and urgent urinary incontinence in women compared with anticholinergic medications, behavioural therapy often plays only some secondary roles after drug therapy due to factors such as lack of structured protocols, and the perceived cumbersomeness or unfamiliarity with this type of therapy on the part of clinicians. Indeed, a cognitive approach may prove essential in modifying symptom perception and behavioural responses.

Reference: JAMA Netw Open 2024;7(3):e241784
Abstract

Treatment of lower urinary tract symptoms in men in primary care using a conservative intervention: Cluster randomised controlled trial

Authors: Drake MJ et al.

Summary: This UK, cluster randomised, controlled trial compared standardised and manualised care intervention versus usual care in 887 men in primary care with lower urinary tract symptoms (LUTS). Intervention recipients had a lower mean International Prostate Symptom Score (IPSS) at 12 months (adjusted mean difference -1.81 points; 95% CI -2.66 to -0.95), suggesting less severe urinary symptoms than with usual care. After 12 months, LUTS specific QoL, incontinence, and perception of LUTS were also better with the intervention than usual care arm. Urology referrals (7.3% vs 7.9%) and adverse events (7 vs 8 events) did not differ between intervention and usual care.

Comment: The UK National Institute for Health and Care Excellence and the European Association of Urology recommend assessments to exclude serious medical conditions and advocate conservative and lifestyle interventions as first-line treatment for LUTS in men. As provision for LUTS in men in primary care is inconsistent, primary care health professionals require practical resources to support the assessment of urinary symptoms and to enhance patient engagement with conservative management interventions. This multicentre, two-arm cluster randomised controlled trial in UK primary care, conducted in 30 general practice sites, found the mean patient-reported primary outcome (IPSS) was 1.81 points lower in the intervention arm than the usual care arm, with secondary outcomes based on International Consultation on Incontinence Questionnaire (ICIQ) and IPSS QoL also showing improvement versus usual care, demonstrating the overall impact on LUTS through incontinence, post-void dribble, and QoL. In addition, participants' perception of their LUTS improved over 12 months in the intervention arm (measured using the Brief Illness Perception Questionnaire). Interestingly, referral rates to urology and adverse events did not differ greatly between the arms. This study developed a standardised and manualised intervention that provided a practical resource to support symptom assessment and conservative treatment for LUTS in men in primary care. Importantly, symptomatic improvement of LUTS can be sustained in the medium term using clear written materials with practical relevant assessments and supportive follow-up.

Reference: BMJ. 2023;383:e075219
Abstract

Saline-assisted fascial exposure (SAFE) technique to improve nerve-sparing in robot-assisted laparoscopic radical prostatectomy

Authors: Pedraza AM et al.

Summary: This study examined the effect of using the Saline-Assisted Fascial Exposure (SAFE) technique on erectile function (EF), urinary continence, and oncological outcomes after RALP in 99 patients with a baseline Sexual Health Inventory for Men (SHIM) score of ≥17 and a high probability of extracapsular extension. The SHIM score favoured RALP plus SAFE over RALP alone at 6, 13, 26, and 52 weeks ($p = 0.01$; $p < 0.001$, $p < 0.001$, $p = 0.01$, respectively). The cumulative incidence curve suggested that EF rates were higher in RALP plus SAFE versus RALP alone recipients ($p < 0.001$).

Comment: The principle of the SAFE technique entails a low-pressure injection of saline solution in the periprostatic fascia to achieve an atraumatic dissection of the neural hammock. By employing a controlled injection of saline solution, this approach not only enhances the quality of nerve sparing but also leads to better outcomes in terms of EF, which can be attributed to the careful separation of tissue planes and the delicate handling of neural structures, thus minimising the risk of trauma during the procedure. This RALP plus SAFE technique showed better EF based on SHIM scores up to 1 year follow-up and that baseline SHIM and use of the SAFE technique were independent predictors of EF recovery. Over the past few decades, various nerve-sparing techniques have been developed based on the fascial planes of dissection (intrafascial, interfascial or extrafascial), the direction of dissection (retrograde or antegrade), the timing of the neurovascular bundle dissection off the prostate (early vs late release), the use of cautery, the application of traction and the number of the neurovascular bundles which are preserved. Moreover, emerging innovative technologies have entered the nerve-sparing field, making its future even more promising. Given that potency and continence outcomes after radical prostatectomy are multifactorial endpoints in addition to the difficulty in their postoperative assessment and the well-documented discrepancy existing in their definition, safe conclusions about the superiority of one technique over the other cannot be easily drawn.

Reference: BJU Int. 2024;133(4):451-459
Abstract

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Atlas of intracorporeal orthotopic neobladder techniques after robot-assisted radical cystectomy and systematic review of clinical outcomes

Authors: Piramide F et al.

Summary: This systematic review of robotic intracorporeal orthotopic neobladder (ONB) reconstruction techniques (Studer, Hautmann, Y shape, U shape, Bordeaux, Pyramid, Shell, Florence Robotic Intracorporeal Neobladder [FloRIN], and Padua Ileal Neobladder [PIB]) after robot-assisted radical cystectomy (RARC) included an assessment of individual intraoperative, perioperative and functional outcomes based on 19 studies (none were cohort studies or randomised controlled trials). All available techniques had similar operative time and length of stay, intraoperative complications, and estimated blood loss, but there was major variability (probably due to bias) in postoperative complications and functional outcomes. The review also provides a step-by-step surgical atlas for robot-assisted ONB reconstruction.

Comment: RARC, ONB reconstruction is among the most challenging procedures in urological surgery. However, given its potential clinical benefits relative to the open approach, such as smaller incisions and reduced pain, body cooling, bowel exposure, and risk of fluid imbalance, the adoption of intracorporeal ONB has increased with the expertise in robotic surgery. Remarkably, multiple, and heterogeneous techniques for intracorporeal ONB have been described, reproducing open surgery or adapting the technique to the robot-assisted approach. Nine different techniques were identified; some are adapted from the open surgery techniques (i.e., Studer, Hautmann, PIB, Y shape, U shape, and Pyramid), and others are specifically designed for intracorporeal neobladder (i.e., FloRIN, Shell, and Bordeaux), each technique with varying operative time, intraoperative and postoperative complication rates, and continence rate. While the current study is the first report providing, in a systematic fashion, clinical outcomes of different intracorporeal ONBs coupled with a video-based surgical atlas, the lack of comparative studies between different techniques prevents solid conclusions on the benefit of one technique over the other and highlight the need for higher standardisation of postoperative complication reporting. In the interim, the adoption of an intracorporeal ONB technique should be based on surgeons' preferences and expertise.

Reference: Eur Urol. 2024;85(4):348-360
Abstract

Flexible ureteroscopy with novel flexible ureteral access sheath versus mini-percutaneous nephrolithotomy for treatment of 2–3 cm renal stones

Authors: Chen Y et al.

Summary: This retrospective study compared flexible ureteroscopy (f-URS) with a flexible ureteral access sheath (f-UAS; n = 96) to mini-percutaneous nephrolithotripsy (mini-PCNL; n =96) for the treatment of 2-3 cm renal stones. There were no differences in operative time, stone volume clearance and complete stone-free rates (SFR) on the first postoperative day or in residual stone after 1 month. There was a shorter period of postoperative hospital stay (1.4 vs 2.1 days; $p < 0.001$) and a smaller decrease in haemoglobin levels (0.39 vs 0.68 g/dL; $p < 0.001$) in f-UAS recipients. Mini-PCNL recipients had a higher overall complication rate than the f-UAS group (13.5% vs 5.2%; $p = 0.048$).

Comment: While published guidelines recommend PCNL as the preferred treatment for renal stones exceeding 2 cm in size, recent advancement of endoscopic techniques with f-URS has rapidly gained acceptance as an equally effective but safer alternative. A novel f-UAS can enhance the efficiency of f-URS and improve stone-free rates. This principle may be analogous to that of PCNL, where stones are removed from the body using irrigation fluid during the withdrawal of the nephroscope. In this study, f-URS with the novel f-UAS (12/14 Fr) demonstrates superiority over mini-PCNL (18 Fr) for 2-3 cm renal stones in terms of reduced complications and shorter postoperative hospital stays. Interestingly, no significant differences were observed in operative time and SFR. These findings suggest that f-URS with f-UAS could potentially be a viable alternative to mini-PCNL in selected cases.

Reference: Int J Urol. 2024;31(3):281-286
Abstract

Gabapentin for postoperative pain control and opioid reduction in scrotal surgery: A randomized controlled clinical trial

Authors: Punjani N et al.

Summary: This randomised, double-blind, placebo-controlled trial assessed the use of gabapentin for postoperative pain in 74 patients undergoing scrotal surgery for male infertility. Differences in initial postoperative mean pain score (-1.14; 95% CI -2.21 to -0.08; $p = 0.035$) and final mean pain score (-1.27; 95% CI -2.23 to -0.32; $p = 0.0097$) favoured gabapentin. There were no differences in opioid usage, patient satisfaction, or adverse events.

Comment: Concerns regarding opioid over-prescription have spurred the development of multimodal postoperative opioid-sparing pain management strategies to improve pain control and patient satisfaction. In scrotal surgery, adjunct perioperative pain prevention protocols using NSAIDs, and other non-opioid analgesia have reduced patient-reported pain and decreased opioid use. In this study, perioperative gabapentin results in a statistically and clinically significant decrease in pain following scrotal surgery, although there were no statistically significant differences in opioid usage, patient satisfaction, or adverse events. Gabapentin binds to the α2δ subunit of voltage-gated calcium channels in sensory and dorsal horn neurons, which decreases the release of excitatory neurotransmitters, reduces sensitivity, and creates an analgesic effect. Since pain after scrotal surgery may include a neuropathic component mediated by the genitofemoral or ilioinguinal/iliohypogastric nerves, a rationale for the specific use of gabapentin perioperatively exists and may be an effective approach to pain prevention when used before and after scrotal surgery.

Reference: J Urol. 2024;211(5):658-666
Abstract

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Independent commentary by Professor Eric Chung

Professor Eric Chung is a consultant urological surgeon at the Andro Urology Centre for Sexual, Urinary and Reproductive Excellence and holds academic appointments at the University of Queensland (Brisbane) and Macquarie University Hospital (Sydney). He is the Leader of male LUTS and Past Chair of Andrology section in the Urological Society of Australia and New Zealand (USANZ), the Secretary-General for the Asia Pacific Society of Sexual Medicine (APSSM) and Chairperson for the Prostate Cancer Survivorship committee at the International Consultation on Sexual Medicine (ICSM). He has been invited to speak and operate at many international meetings and has authored more than 100 peer-reviewed papers and book chapters.

Timing of testicular biopsy in relation to oocyte retrieval and the outcomes of intracytoplasmic sperm injection

Authors: Ng L et al.

Summary: This study examined the effect of microscopic testicular sperm extraction (TESE) timing relative to oocyte retrieval on intracytoplasmic sperm injection (ICSI) outcome in couples with nonobstructive azoospermia (NOA). Fewer patients underwent a successful testicular sperm retrieval in those undergoing TESE 1 day prior to oocyte retrieval than in those receiving TESE on the day of oocyte retrieval (62% vs 69%; OR 1.4, 95% CI 1.1-1.7; $p < 0.001$). The fertilisation rate was lower in those undergoing TESE on the day prior versus the day of oocyte retrieval (45% vs 53%; OR 1.4; 95% CI 1.2-1.7; $p = 0.01$). The association between the cleavage rate and TESE timing was not significant, but the implantation rate was higher with TESE the day before versus the day of oocyte retrieval (28% vs 22%; OR 0.7; 95% CI 0.6-0.9; $p = 0.01$). Clinical pregnancy and delivery rates were not associated with the TESE timing.

Comment: Sperm retrieval in obstructive cases is almost 100% successful due to the abundance of spermatogenesis in these men. Contrarily, sperm retrieval success for NOA is 60% at best due to the unpredictable variety in the proportion and extent of the spermatogenic foci. Due to the focal nature of spermatogenesis in men with NOA, diagnostic biopsy has not been predictive of sperm retrieval at the time of surgery and henceforth has been abandoned. Cryopreservation of testicular spermatozoa at any time at patient and surgeon convenience for subsequent ICSI has received increased interest. Although sperm retrieval (62% vs 69%) and fertilisation (45% vs 53%) rates were lower in the TESE–day-before cohort, there were comparable embryologic and clinical outcomes between micro-TESE was performed at least 1 day prior to oocyte retrieval (TESE-day-before group) or on the day of oocyte retrieval (TESE-day-of group). The need for this study arose from an attempt to understand whether testicular sperm specimens benefit from a preincubation period, and, if so, to what extent. In recent years, there has been interest regarding *in vitro* "maturation" of surgically retrieved spermatozoa, in which improved motility and higher fertilisation rates, and most importantly, provides an ample window to cancel oocyte retrieval before administering human chorionic gonadotropin trigger, limiting high oestrogen exposure and the risk of ovarian hyperstimulation syndrome. Since this study showed no clinical difference between patients who underwent micro-TESE 1 day prior to oocyte retrieval or on the day of oocyte retrieval, the decision to schedule micro-TESE at least 1 day prior to or on the day of oocyte retrieval should be left to the discretion of the physician and logistical considerations as well as patient convenience.

Reference: J Urol. 2024 May;211(5):678-686
Abstract

Characterizing the spectrum of bladder health and lower urinary tract symptoms among men: Results from the CARDIA study

Authors: Markland AD et al.

Summary: The Coronary Artery Risk Development in Young Adults (CARDIA) study examined the distribution and impact of LUTS, along with risk factors. Cluster analysis identified four groups, men with no or very mild symptoms and no impact on well-being (bladder health, n = 696), moderate symptoms and moderate impact on well-being (moderate symptoms/impact; n = 84), high symptoms and high impact on well-being (severe symptoms/impact; n = 117), and moderate symptoms and urinary incontinence (UI) with a high impact on well-being (UI + moderate symptoms/severe impact, n = 32). These groupings identified a large percentage of patients with postvoid dribbling across groups (overall 69%).

Comment: Epidemiological studies have shown a strong correlation between various cardiometabolic risk factors and LUTS in men, and one wonders whether the presence of LUTS could signify future cardiovascular disease similar to that seen in endothelial dysfunction with erectile dysfunction. The population-based Coronary Artery Risk Development in Young Adults (CARDIA) study investigates cardiovascular factors in men with LUTS. In this study, middle-aged men participating in CARDIA reported low symptom burden on the American Urological Association Symptom Index (AUASI) with a higher prevalence of men with bladder health and with low rates of LUTS in CARDIA (75%), thus did not support associations between cardiovascular risk factors and the clustering of men's bladder health. More data are needed to test associations between cardiovascular risk factors and men's bladder health across the life course, especially regarding newer definitions for cardiovascular health. The low number of men who reported having prostate enlargement may be one reason that an association between metabolic syndrome and bladder health and symptom clusters was not observed in the present study. Furthermore, the AUASI only had one question that addressed the impact of LUTS on well-being to use in this analysis. While this study did not find associations between cardiovascular health and bladder health, additional studies may be needed, especially in cohort studies that include longitudinal measures among men across the lifespan.

Reference: Neurourol Urodyn. 2024;43(4):840-848
Abstract

Comparison of perioperative adverse events following suburethral sling placement using synthetic mesh, autologous rectus fascia, and autologous fascia lata in a national surgical registry

Authors: Hong CX et al.

Summary: This retrospective cohort study using the American College of Surgeons' National Surgical Quality Improvement Program database examined 30-day perioperative adverse events following suburethral sling surgery in 41,533 women using synthetic mesh (n = 41,292) autologous rectus fascia (n = 160), and autologous fascia lata (n = 81). After adjusting for confounders, autologous fascia sling surgeries were associated with increased odds of adverse events versus synthetic mesh (adjusted OR [aOR] 3.63; 95% CI 2.56-5.15). Slings from fascia lata were associated with increased odds of composite adverse events (aOR 2.11; 95% CI 1.03-4.04) versus rectus fascia slings. However, the adverse event rate was similar between the two fascial harvest techniques (aOR 1.93; 95% CI 0.81-4.63) with the exception of urinary tract infections.

Comment: While suburethral sling placement with synthetic mesh has been a preferred surgical treatment for stress urinary incontinence for the past two decades, recent concerns regarding implantable mesh have led to increased adoption of non-mesh anti-incontinence procedures. Studies on perioperative outcomes following suburethral sling placement have been largely limited to non-comparative studies for individual sling types or small comparative studies between different sling types, mostly at single institutions. In this original retrospective study of 41,533 patients who underwent suburethral sling placement, sling surgeries using autologous fascia were independently associated with a 3.6-fold increase in odds of 30-day perioperative adverse events compared to sling surgeries involving synthetic mesh. This is the first study to compare 30-day perioperative outcomes between synthetic and autologous suburethral slings using a large, validated surgical registry, and reported higher adverse event rates for autologous fascial slings compared to mesh slings, likely due to the increased morbidity associated with fascial harvest. However, when UTIs were excluded, the rates of composite adverse events were similar. These data are useful for patient counselling and operative decision-making on suburethral sling material and autologous sling facial harvest sites. When multiple options for sling material exist, surgeons and patients should weigh the short-term perioperative risks of each against long-term complications associated with synthetic mesh, especially in the current medicolegal climate of synthetic mesh.

Reference: Neurourol Urodyn. 2024;43(4):925-934
Abstract

Conformity of ChatGPT recommendations with the AUA/SUFU guideline on postprostatectomy urinary incontinence

Authors: Pinto VBP et al.

Summary: These authors evaluated the accuracy of ChatGPT 3.5 and 4 in providing recommendations on the management of post-prostatectomy urinary incontinence, using The Incontinence After Prostate Treatment: AUA/SUFU Guideline as the best practice benchmark. Ten conceptual questions and 10 case-based questions based on the AUA/SUFU guideline were entered into ChatGPT with a recommendation to limit the answer to 200 words. Overall, ChatGPT 3.5 was 57.7% accurate (11.5/20 points), while ChatGPT 4 was 90% accurate (18/20 points; p = 0.031). For the conceptual questions, ChatGPT 3.5 had a score of 6.5/10 (6 accurate answers and one partially correct answer), while ChatGPT 4 had a score of 9/10 (8 accurate answers and 2 partially correct answers). For the case-based questions ChatGPT 3.5 scored 5.0 and ChatGPT 4 scored 9.0. ChatGPT performed worst in the following domains: evaluation, treatment options, surgical complications, and special situations.

Comment: Artificial intelligence (AI) is becoming increasingly relevant and has shown great promise in aiding healthcare professionals by providing quick and accessible information, assisting in decision-making processes, and improving patient care. ChatGPT evolved through different versions, with ChatGPT 3.5 and 4 being the most recent. These versions have differences in their underlying architecture and capabilities, which may lead to variations in the management recommendations provided. However, the reliance on ChatGPT in clinical practice presents both advantages and potential problems. The advantages include quick access to a vast amount of information, assistance in decision-making processes, and the ability to provide instant responses to a wide range of clinical questions. On the other hand, potential problems could arise from the accuracy of the responses provided by ChatGPT, as the information must be in line with the latest guidelines and evidence-based practices. Additionally, the level of understanding and contextual interpretation by ChatGPT may not always match the complexity and nuance of certain medical scenarios. This is because as medical knowledge evolves, a static model like ChatGPT could become increasingly prone to errors. To maintain its relevance in the medical field, it might be necessary for ChatGPT to integrate a mechanism similar to the well-publicised review and update processes used by many medical guideline committees with continuous, multidisciplinary research and ongoing monitoring that are crucial to assess the evolution and accuracy of medical information generated by AI over time.

Reference: Neurourol Urodyn. 2024;43(4):935-941
Abstract

Effect of transcranial direct current stimulation combined with pelvic muscle training in women: Randomized, controlled, double-blind, and clinical trial

Authors: Corrêa FI et al.

Summary: These authors evaluated the effect of Transcranial Direct Current Stimulation (tDCS) with pelvic floor muscle training (PFMT) on pelvic floor muscle contraction, sexual function and QoL in 32 nulliparous, healthy women (mean age 22.7 years). The women received either active tDCS combined with PFMT or sham tDCS combined with PFMT three times per week for 4 weeks (12 sessions). The PERFECT scheme (P = power, E = endurance, R = repetitions, F = rapid contractions, ECT = each timed contraction) and the perineometer (cmH2O) was used to assess pelvic floor muscle function, while sexual function was assessed by The Female Sexual Function Index, and QoL by the SF-36 questionnaire. At 30-day follow-up, there was a significant increase (p = 0.037) in power in the active group, with repetitions and fast contraction increased versus sham controls. There was also an increase in resistance in both groups; however, these differences were not significantly different. There was an increase in ECT in the active group.

Comment: PFMT, accompanied by an accredited physiotherapist, and associated with other therapies such as electrotherapy and biofeedback, has been more successful than simple verbal instruction training. tDCS is a non-invasive technique that allows brain function modulation through low-intensity direct electrical current. This study evaluates whether the complementary use of tDCS to PFMT would potentiate gains in muscle strength, sexual function and QoL in healthy nulliparous women and whether tDCS would maintain the results for a longer period. While an improvement in these outcomes for both groups was observed, the results are favourable for adjunctive tDCS to PFMT, especially improved time of contractions, maintained during follow-up. In the last two decades, tDCS has become an instrument to investigate cortical neural plasticity mechanisms and motor learning, given its capacity for prolonged changes in brain excitability, even after the stimulation period has ended. Perhaps associating TMAP with tDCS, could result in enhanced and longer-lasting TMAP effects, since the tDCS induces long-term potential, an important memory and learning mechanism.

Reference: Neurourol Urodyn. 2024;43(4):967-976
Abstract