Urology Research Review™

Making Education Easy

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In this issue:

Abbreviations used in this issue:

ADT = androgen deprivation therapy; **AI** = artificial intelligence; **AUA** = American Urological Association; **AUS** = artificial urinary sphincter; **BMI** = body mass index; **CI** = confidence interval; **HR** = hazard ratio; **MRI** = magnetic resonance imaging; **OAB** = overactive bladder; **OR** = odds ratio; **PD-1** = programmed cell death 1; **PD-L1** = programmed cell death ligand 1; **SUFU** = Society of Urodynamics, Female Pelvic Medicine & Urogenital Reconstruction; **UI** = urinary incontinence; **UTI** = urinary tract infection.

Welcome to Issue 65 of Urology Research Review.

A Chinese multicentre study found that artificial intelligence may enhance the sensitivity of urine cytology and help avoid the need for unnecessary endoscopy for the detection of urothelial carcinoma. In a study from the UK, urinary incontinence was found to be a useful indicator of poor short-term outcomes in elderly patients with acute stroke. We conclude this issue with a study from the US that found that transgender women have an increased risk of developing urinary tract infections compared to cis 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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Development and validation of an artificial intelligence-based model for detecting urothelial carcinoma using urine cytology images: A multicentre, diagnostic study with prospective validation

Authors: Wu S et al.

Summary: This Chinese multicentre diagnostic study assessed the use of artificial intelligence (AI) to enhance the sensitivity of urine cytology as a non-invasive examination for urothelial carcinoma (UC) and to minimise unnecessary endoscopy based on retrospective training (n = 2641) and validation (n = 2335) cohorts and a 400-patient prospective validation cohort. The sensitivity of the Precision Urine Cytology AI Solution (PUCAS) ranged from 0.922 (95% CI 0.811-0.978) to 1.000 (95% CI 0.782-1.000) in the retrospective cohorts and 0.896 (95% CI 0.837-0.939) in the prospective cohort. PUCAS also had good performance in detecting malignancy in atypical urothelial cells (sensitivity >0.84). For recurrence detection, PUCAS could reduce 57.5% of unnecessary endoscopy (negative predictive value 96.4%).

Comment: PUCAS is a large, multicentre observation cohort that incorporated a multistage framework with weighted output from multiple models, to determine the need for endoscopy and the likelihood of UC. PUCAS presented satisfying sensitivity (>0.8) and achieved a substantial improvement in sensitivity compared to cytology (increased sensitivity by 24.2% to 49.0%) and fluorescence *in situ* hybridisation (FISH) (increased sensitivity by 12.6% to 33.5%). In the recurrence detection scenario, PUCAS reduced the use of endoscopy by 57.5% with a negative predictive value of 96.4%. However, PUCAS cannot fully replicate the multi-modal diagnostic process in clinical settings, leading to increased papillary urothelial neoplasm of low malignant potential and low-grade tumour misdiagnoses. Apart from cystoscopy, presently available non-invasive tools such as urine cytology, FISH, urine methylation assay, and Cxbladder, have various limitations. Over the past decade, AI has advanced rapidly in the field of image diagnosis and PUCAS can serve as a supplementary tool or an alternative to FISH, since it offers higher sensitivity and can be evaluated using a cloud-based system. In clinical practice, its automatability also aids cytopathologists in minimising repetitive and time-consuming tasks. It is important to undertake further validation of its generalisability to other countries and to integrate this AI model with real-time diagnosis in a cost-effective and prompt service manner.

Reference: EClinicalMedicine 2024:71:102566

Abstract

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Treatment patterns and attrition with lines of therapy for advanced urothelial carcinoma in the US

Authors: Thomas VM et al

Summary: US researchers used data from a nationwide electronic health record database to conduct a retrospective cohort study of the evolving treatment patterns and attrition rates in patients with advanced UC (n = 7260; 73.9% men; median age 73 years). All patients received first-line treatment with 37.4% progressing to second-line treatment, and 11.8% receiving third-line treatment. The primary first-line regimens contained carboplatin (30.9%) or PD-1/PD-L1 inhibitors (29.9%). PD-1/PD-L1 inhibitors were the dominant option for second-line (52.0%) and third-line (30.1%) treatment. From 2019, novel therapeutic agents used in second- and third-line treatment included enfortumab vedotin (8.1% and 18.6%), erdafitinib (1.4% and 3.3%), and sacituzumab govitecan (0.5% and 4.0%).

Comment: The treatment landscape of UC has evolved significantly over the past few years and treatment patterns outside clinical trials are likely to exhibit variations compared with those observed in the clinical trial population. In this cohort study of 7260 patients with advanced UC who received first-line treatment, only 37% progressed to second-line treatment and 12% reached third-line treatment. The most common first-line regimens were cisplatin-based or carboplatin-based regimens, although PD-1 and/or PD-L1 inhibitors, enfortumab vedotin, sacituzumab govitecan, and erdafitinib are increasingly being used since 2019. The attrition rates observed in this study emphasise the necessity for more effective and tolerable front-line treatment options for patients with advanced UC. Clinical trials frequently include patients with more favourable prognoses, which can complicate the generalisability of treatment patterns to a broader and more diverse patient population. A comprehensive, patient-centric approach needs to be made to make a difference and reduce the high attrition rates. This will not only entail bringing effective and well-tolerated therapies at reasonable cost in earlier disease settings, but also improve social support and use of novel ways through information and technology to deliver patient care. Future trials incorporating predictive biomarkers for guiding treatment selection could potentially refine treatment choices in patients with advanced UC.

Reference: JAMA Netw Open 2024;7(5):e249417
Abstract

D-mannose for prevention of recurrent urinary tract infection among women: A randomized clinical trial

Authors: Hayward G et al.

Summary: This UK-based, double-blind, randomised, placebo-controlled trial assessed whether D-mannose for 6 months altered the proportion of women with recurrent urinary tract infection (UTI); n = 598; mean age 58 years) who then experienced a medically attended UTI. The proportion contacting ambulatory care with a clinically suspected UTI was 51.0% in D-mannose recipients and 55.7% in placebo recipients (risk difference -5%; 95% CI -13 to 3).

Comment: The most common approach to prophylaxis of recurrent UTI is daily antibiotic use. While effective during the period of prophylaxis, this increases the risk of subsequent resistant UTIs and adverse effects. In this randomised clinical trial including 598 women with recurrent UTI recruited from primary care settings, the proportion experiencing a medically attended UTI was 51.0% in those taking daily D-mannose over 6 months and 55.7% in those taking placebo. This study concluded that D-mannose should not be recommended to prevent future episodes of medically attended UTI in women with recurrent UTI in primary care. D-mannose is a relatively expensive food supplement and has an important role, especially in the glycosylation of certain proteins, acting as a competitive inhibitor of bacterial adherence. For D-mannose to be offered as an alternative to antibiotic prophylaxis in recurrent UTI and, in turn, contribute to better antimicrobial stewardship in primary care, pharmacokinetic studies to determine the exact dosage and optimum regimen for D-mannose should be undertaken in further research.

Reference: JAMA Intern Med. 2024;184(6):619-628
Abstract

Magnetic resonance imaging–targeted versus systematic prostate biopsies: 2-year follow-up of a prospective randomized trial (PRECISE)

Authors: Klotz L et al.

Summary: This analysis of data from the Canadian multicentre prospective randomised PRECISE trial examined the rate of prostate cancer diagnosis in participants without clinically significant prostate cancer at baseline based on MRI with no biopsy (n = 83), patients with a negative result or International Society of Urological Pathology grade group (GG) 1 on targeted biopsy (n = 72), and those with a negative result or GG 1 on systematic transrectal ultrasound biopsy (n = 120). Evaluable 2-year MRI scans were available for 75 MRI patients and 69 systematic biopsy patients, of whom 55 and 51 had negative 2-year MRI. Of 76 systematic biopsy patients with 2-year MRI, 16 had a biopsy, with a negative result in 8 (10%), GG 1 in 2 (2.6%), and GG ≥2 in 6 (7.9%) patients. Of the 75 men in the MRI arm with 2-year MRI, 8 (11%) had a biopsy which was negative in 4 (5%) and GG ≥2 in 4 (5%) patients. At 2 years, including baseline biopsy results, 52.5% in the MRI arm and 55% in the systematic biopsy arm were free of GG ≥2 disease, treatment, death from any cause, or progression (OR 1.08).

Comment: The PRECISE trial was initiated to determine whether MRI with no biopsy in cases with negative findings and targeted biopsy alone in cases with positive MRI findings was non-inferior to systematic biopsy in diagnosing clinically significant prostate cancer. The primary endpoint of the PRECISE trial was reached, and the results have been published previously. In this 2-year follow-up study, MRI with targeted biopsy alone in comparison to systematic biopsy resulted in an increase in clinically significant prostate cancer diagnosis of 5% (35% vs 30%), allowed 38% of men to avoid a biopsy if their MRI was negative, and yielded a 55% relative reduction in the diagnosis of GG 1 cancer (10% vs 22%). The study results are similar to those from the UK PRECISION trial, which was designed in parallel. While there is Level 1a evidence now supporting the shift to imaging with targeted biopsy or systematic biopsy instead of initial systematic biopsy for diagnosis of prostate cancer, uncertainty remains as to the safety of avoiding biopsy in men with negative imaging. The data from this study are reassuring and unique. At 2 years, there was no difference in subsequent diagnosis of GG ≥2 cancer between the arms in the MRI and targeted biopsy groups. This study reinforces the safety and efficacy of a diagnostic strategy comprising MRI and targeted biopsy only for men with positive MRI findings.

Reference: Eur Urol Oncol. 2024;7(3):456-461
Abstract

Prior male sling does not affect outcomes of artificial urinary sphincter

Authors: Chow P-M et al.

Summary: Taiwanese investigators performed a retrospective chart review to assess outcomes of artificial urinary sphincter (AUS) placement in 210 post-prostatectomy patients with urinary incontinence (UI) with or without a prior male sling (14.3% had prior slings and 85.7% did not). After AUS insertion, 80.0% of those with prior slings and 76.7% without achieved continence (0-1 pad/day), with 6 (20.0%) and 53 (29.4%) device failures, respectively. Median device failure-free survival was not reached for those with prior slings and was 8.9 years for those without prior slings ($p = 0.048$).

Comment: The AUS remains the most effective treatment option for patients who continue to experience stress urinary incontinence (SUI) after sling placement. However, whether prior sling complicates or compromises the outcome of subsequent AUS remains unclear, as it is thought that the failure rates and complications of AUS following sling placements would be higher than those of primary AUS, possibly owing to the decreased proximal urethral blood supply related to the sling. This study showed that AUS is effective in patients with and without prior sling use. Approximately 80% of patients in both groups achieved social continence after AUS placement. The overall device failure rate was 28.1% during the 15-year follow-up period, and the median device failure-free survival was 9 years. Prior sling use was associated with a longer device failure-free survival. Theoretically, antegrade or retrograde blood flow through the corpus spongiosum via the dorsal penile and bulbar arterial systems can be compromised by the placement of a sling, leading to an anterior urethral segment that is dependent on a singular blood supply. Additionally, extensive manoeuvres around a prior sling may further compromise the flow to the segment between the cuff and sling and increase the risk of ischaemia-related complications (stricture, erosions, or cuff-site atrophy). This study provides nice evidence to (continue to) support AUS as an effective and safe salvage option in sling failure.

Reference: BJU Int. 2024;133(5):564-569
Abstract

Urinary incontinence indicates mortality, disability, and infections in hospitalised stroke patients

Authors: Fry CH et al.

Summary: UK researchers used prospectively collected data from 1593 men and 1591 women (mean age 76.8 years) admitted to hyperacute stroke units (HASU) in the Sentinel Stroke National Audit Programme to assess the impact of UI on health outcomes in patients with a range of National Institutes of Health Stroke Scale [NIHSS] scores from 0-42. In patients with no or minor stroke symptoms (NIHSS scores 0-4), patients with UI had higher risks of poor outcomes including in-hospital mortality, disability at discharge, pneumonia; UTI within 7 days of admission; prolonged HASU length of stay; need for palliative care by discharge; support for activity of daily living, and discharge to a care home. For moderate stroke (NIHSS score 5-15) the same increased risks were identified, except for palliative care at discharge and activity of daily living support. In the highest stroke severity group (NIHSS score 16-48) all outcomes except in-patient mortality, pneumonia, and support for activity of daily living were associated with UI.

Comment: It is thought that UI amongst patients with stroke is due to suprapontine lesions, which result in loss of voluntary inhibition of voiding. However, the occurrence of UI is not limited to damage to a specific area of the brain, e.g., pre-frontal cortex, but relates to the extent (size) of cerebral lesions. While UI in patients with acute stroke relates to several adverse outcomes including mortality and disability, such that the incidence of UI has been suggested as a marker of stroke severity, the role of UI on the impact of stroke outcomes is likely to be more complex and remains poorly understood. Compared to patients without UI amongst patients with no symptoms or minor or moderate stroke, those with UI had a greater risk of poor outcomes including mortality, disability at discharge and UTI developed within 7 days of admission; but amongst patients with severe stroke, UI continued to be a risk factor for poor outcomes, except for mortality, infections, activity of daily living support, and palliative care where the size of the ORs diminished. The links between UI and poor outcomes may result from a difficulty for patients with UI to participate or respond successfully to stroke rehabilitation therapy. Further studies are needed on the effects of early recognition and treatment of UI-related complications.

Reference: BJU Int. 2024;133(5):604-613
Abstract

Long-term prostate cancer–specific mortality after prostatectomy, brachytherapy, external beam radiation therapy, hormonal therapy, or monitoring for localized prostate cancer

Authors: Herlemann A et al.

Summary: In an analysis of the multicentre, prospective, Cancer of the Prostate Strategic Urologic Research Endeavor (CaPSURE) registry, researchers compared long-term survival after radical prostatectomy (RP; n = 6227), brachytherapy (BT; n = 1645), external beam radiation therapy (EBRT; n = 1462), primary androgen deprivation therapy (PADT; n = 1510), or active surveillance or watchful waiting (AS/WW; n = 1020) in men with prostate cancer. After a median 9.4 years, 764 men had died from prostate cancer. After Cancer of the Prostate Risk Assessment (CAPRA) score adjustment and using RP as the referent, the HRs for prostate cancer specific-mortality (PCSM) were higher for BT (HR 1.57; 95% CI 1.24-1.98; $p < 0.001$), EBRT (HR 1.55; 95% CI 1.26-1.91; $p < 0.001$), PADT (HR 2.36; 95% CI 1.94-2.87; $p < 0.001$), and AS/WW (HR 1.76; 95% CI 1.30-2.40; $p < 0.001$). PCSM differences were negligible for low-risk disease and increased with risk.

Comment: The landmark ProtecT RCT showed no differences in PCSM among the three different arms after 15 years in men with localised prostate cancer, although it enrolled nearly exclusively men with low- to intermediate-risk disease. In this CaPSURE registry study, a greater difference in PCSM between treatment groups was noted for the group of patients with higher-risk disease, for whom RP as the first treatment was associated with better PCSM. These findings were stable across a range of sensitivity analyses and might support a greater role for surgery in higher-risk disease. Survival differences are minimal for men with lower-risk disease but increased at higher levels of risk. In an analysis with minimum follow-up of 5 years, higher PCSM risk was observed with other treatments in comparison to RP, with HRs (adjusted for CAPRA) of 1.66 (95% CI 1.29-2.14; $p < 0.001$) for BT, 1.64 (95% CI 1.31-2.04; $p < 0.001$) for EBRT, 2.21 (95% CI 1.77-2.76; $p < 0.001$) for PADT, and 1.83 (95% CI 1.31-2.55; $p < 0.001$) for AS/WW. This long-term outcome analysis further supports the conclusions from an earlier 2010 study of risk-adjusted mortality outcomes after primary treatment, this time with substantially longer follow-up, and now also including BT and AS/WW as management strategies. It is important to acknowledge the paradigms for the diagnostic work-up for prostate cancer have evolved and novel therapeutic agents can significantly prolong survival.

Reference: Eur Urol. 2024;85(6):565-573
Abstract

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.

The AUA/SUFU guideline on the diagnosis and treatment of idiopathic overactive bladder

Authors: Cameron AP et al.

Summary: This American Urological Association (AUA) and Society of Urodynamics, Female Pelvic Medicine & Urogenital Reconstruction (SUFU) guideline provides evidence-based guidance on the evaluation, management, and treatment of idiopathic overactive bladder (OAB). The guideline included 33 statements on evaluation and diagnosis of OAB; treatments including non-invasive therapy, pharmacotherapy, minimally invasive and invasive therapies, and indwelling catheters; and management of benign prostatic hyperplasia (BPH) and OAB.

Comment: The most effective approach for a particular patient is best determined by the individual clinician and patient. There are significant limitations to the OAB literature due to heterogenous methodology and relatively short-term follow-up since OAB can be multifactorial and is a condition requiring long-term treatment. Before a patient is exposed to these advanced therapies, the patient's realistic desire for further treatment should be ascertained, and a comprehensive evaluation should be conducted to confirm the diagnosis of OAB and not another disease process. Polypharmacy is common in frail community-dwelling patients, placing them at higher risk for adverse events, including impaired cognition. In dementia patients, antimuscarinics may be contraindicated entirely depending on the level of cognitive impairment. The vast majority of case series of augmentation cystoplasty and diversion in OAB focus on neurogenic patients, not non-neurogenic OABs and there are substantial risks to these procedures, including the likely need for long-term intermittent self-catheterisation and the risk of malignancy. Treating physicians must take into account variations in resources, and patient tolerances, needs, and preferences. Conformance with any clinical guideline does not guarantee a successful outcome. These guidelines do not necessarily establish the standard of care and cannot include a complete evaluation of all data on emerging technologies or management. As medical knowledge expands and technology advances, the guidelines will change. The guidelines do not pre-empt physician judgment in individual cases.

Reference: J Urol. 2024;212(1):11-20
Abstract

Lower urinary tract symptoms in US Women: Contemporary prevalence estimates from the RISE FOR HEALTH study

Authors: Sutcliffe S et al.

Summary: US researchers undertook the large, regionally representative cohort RISE FOR HEALTH study to estimate the prevalence of lower urinary tract symptoms (LUTS) in 3000 women. Overall LUTS prevalence was 79% (95% CI 78-81), 73% (95% CI 71-74) of patients had storage symptoms, 52% (95% CI 50-53) had voiding or emptying symptoms, and 11% (95% CI 10-13) had pain with bladder filling. The prevalence estimate included 43% (95% CI 41-45) with mild to moderate symptoms and 37% (95% CI 35-38) with moderate to severe symptoms. One-third of participants reported LUTS-related bother (38%; 95% CI 36-39) and discussions with health care providers, friends, and family (38%; 95% CI 36-40), but only 7.1% (95% CI 6.2-8.1) had treatment. Even at a mild to moderate level of LUTS, urgency and incontinence were associated with the highest likelihood of bother and/or discussion (prevalence ratio 1.3-2.3) and these women were also the most likely to receive treatment.

Comment: The RISE FOR HEALTH study is a large, regionally representative cohort study of adult female community members. A small fraction of respondents was included in the analysis (3000 out of the 50,367 individuals invited to join) with an overall LUTS prevalence of 79% with predominantly storage symptoms (73%). Over one-third of participants reported LUTS-related bother (38%), and discussion (38%), whereas only 7.1% reported treatment. As expected, older age, greater BMI, vaginal and overall parity, perimenopause or menopause, cigarette smoking, and comorbid conditions including diabetes, depression/anxiety, neurologic disorders, and pelvic treatment/injury were each associated with greater LURN SI-10 (Symptoms of Lower Urinary Tract Dysfunction Research Network Symptom Index 10) scores. In addition to the high prevalence of bothersome LUTS, another notable finding was the high prevalence of symptoms unrelated to bother (>10%), particularly among participants with mild to moderate LUTS. Although these symptoms do not typically require treatment, they may still be clinically relevant because of their insights into the development of future bothersome LUTS, as previous studies have observed positive associations between infrequent or mild LUTS and the development of more frequent or severe LUTS. This study underscores the opportunity to develop and implement prevention and treatment-related interventions to reduce the current and future burden of LUTS.

Reference: J Urol. 2024;212(1):124-135
Abstract

Complications of obliterative versus reconstructive vaginal surgery for pelvic organ prolapse in octogenarians: A retrospective cohort study

Authors: Coleman CEM et al.

Summary: Canadian researchers used data from the National Surgical Quality Improvement Program database to compare perioperative complications amongst 4149 octogenarians undergoing obliterative versus reconstructive surgical management of pelvic organ prolapse. Overall, 60.6% of patients underwent reconstructive surgery and 39.4% obliterative surgery. Patients receiving reconstructive surgery were more likely to be American Society of Anesthesiologists (ASA) class 1 or 2 (46.1% vs 31.3%; $p = 0.002$) and less likely to be receiving antihypertensives (72.0% vs 75.8%; $p = 0.006$), they also had an increased length of hospital stay (1.47 vs 1.03 days; $p < 0.001$) and surgery was more often performed as an inpatient procedure (45.7% vs 37.9%; $p < 0.001$). There were no differences in any complication (excluding UTIs; primary ourcome) within the first 30 days. UTIs were more common in reconstructive patients (adjusted OR [aOR] 0.48; 95% CI 0.34-0.0). The rate of serious (Clavien-Dindo Class IV) complications was low and did not differ between approaches (1.3% vs 1.0%).

Comment: Many women of advanced age choose between vaginal reconstructive or obliterative approaches for surgical correction of pelvic organ prolapse. Obliterative surgery is generally considered to be a lower-risk procedure for women with medical comorbidities; although it is only appropriate for patients who accept the elimination of the ability to engage in penetrative vaginal intercourse. While no difference was observed in the primary outcome (any complication excluding UTI), which occurred in 9.2% of patients undergoing reconstructive procedures and 9.5% of patients undergoing obliterative procedures, the complication that showed a significant difference between groups was UTI; obliterative surgery was associated with decreased odds of UTI compared to reconstructive surgeries. Multivariable logistic regression, adjusting for confounders, found no difference in readmission rates (aOR 0.98), reoperation rates (aOR 0.94) or Clavien-Dindo Class IV complications (aOR 0.70). This study is consistent with prior literature suggesting that obliterative surgery is more common in older patients with medical co-morbidities. Despite tending to be older with more medical co-morbidities, patients undergoing obliterative surgery had a shorter length of stay in the hospital. The finding that complication rates are equivalent between reconstructive and obliterative approaches highlights the importance of considering other factors in surgical decision-making. Patients and surgeons choosing between these two approaches may focus on long-term outcomes, recurrence risk, patient satisfaction, and patient-centred goals.

Reference: Neurourol Urodyn. 2024;43(5):1171-1178
Abstract

Feasibility of sacral neuromodulation in patients with underlying neurologic lower urinary tract dysfunction and fecal incontinence

Authors: Gildor OS et al.

Summary: This single-centre retrospective study assessed the use of sacral neuromodulation (SNM; InterStim II) in 67 patients with underlying neurologic (multiple sclerosis, disc disease, and spinal stenosis) lower urinary tract dysfunction and faecal incontinence versus non-neurogenic patients. During follow-up, the device was removed in 4 (25.0%) neurologic patients and 10 (19.6%) non-neurologic patients. All non-obstructing urinary retention (NOUR) patients with clinical success in the neurologic group had an improvement of at least 75% from the baseline versus 69% of patients in the non-neurologic group. Overall, 50.0% of neurologic and 56.9% of non-neurologic patients were defined as clinical success.

Comment: The use of SNM remains controversial and is considered an "off-label" use in neurogenic patients as compared to non-neurogenic OAB patients. In this study, overall and subgroup (based on an indication for SNM implantation) analyses showed no difference in patients' demographics, the surgery duration, or the chances for clinical success with a similar follow-up period. During the follow-up, the device was removed in 4 and 10 of the patients in group 1 (neurogenic patients) and group 2 (non-neurogenic patients). While univariate analysis in NOUR patients demonstrated that maximal cystometric capacity below 430 mL and detrusor contraction at voiding predicted successful SNM, multivariate regression analysis showed none of the parameters retained significance. Despite the challenges posed by failed previous conservative treatments and the potential for adverse outcomes, this study demonstrated a positive treatment effect with low adverse outcomes in neurogenic patients. Comparatively, both neurogenic and non-neurogenic patients exhibited similar rates of success and low rates of adverse outcomes. This positions SNM therapy as a viable and favourable treatment option for individuals with neurogenic bladder (or bowel) conditions.

Reference: Urology 2024:188:54-62
Abstract

Rates of urinary tract infection in transgender women postvaginoplasty vs cisgender women: A retrospective cohort study in a large US health network

Authors: Gilbert D et al.

Summary: Using the TriNetX database, US researchers sought to describe UTI risk 3-month post-vaginoplasty in transgender women (n = 2041) versus cis women (n = 48,374,745). Across all time intervals and ages, transgender women had a higher probability of developing a UTI ($p < 0.0001$-0.0088) with the greatest difference at ages 40-59 years 10 years post vaginoplasty. Cis women had a 12.96% cumulative outcome incidence, and transgender women had a 29.34% cumulative outcome incidence. HRs ranged from 1.363 at age 18-39 years at 10 years (95% CI 1.119-1.660) to 3.522 at age 60-74 years at 12 months (95% CI 1.951-6.360).

Comment: Gender-affirming surgeries are playing an increasingly prominent role in the healthcare of transgender patients, with increasing rates of gender-affirming surgeries performed annually. While some urinary complications such as urinary spraying, misdirected stream, meatal stenosis, retention, and irritative symptoms have gained recent attention, other complications such as UTIs and cystitis are less explored. In this study, transgender women had a higher probability of developing UTIs compared to cis women at all time intervals and across all age ranges for which there was sufficient data. The probability of being diagnosed with at least one UTI increased with age for transgender women cohorts but had a bimodal distribution for cis women. HRs between age groups at the 36 months and 10-year time points were higher in the 40-59 and 60-74 groups as compared to the 18-39 group. The bimodal distribution is consistent with known UTI trends in cis women and has been repeatedly explained by behavioural and biological factors. Younger females are at higher risk due to the onset of sexual activity while postmenopausal women are at higher risk secondary to lower oestrogen levels. It is hypothesised that transgender women would have a higher cumulative incidence of UTIs compared to cis women due to a combination of biological, behavioural, and surgical factors. Future studies should be conducted to tease apart the aetiologies of these discrepancies. A causal analysis can better determine to what extent the length of the urethra, personal hygiene, lack of commensal bacteria, lack of vaginal mucosa, and other factors may play a role in the rate of UTI for transgender women following vaginoplasty. Additionally, future studies should also investigate the different types of urethroplasty (long ventral spatulation vs an "end" urethrostomy) and the role of neovaginal microbiome and dysbiosis.

Reference: Urology 2024:188:150-155
Abstract