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MP-10.1

First North American experience of propiverine use in children with overactive bladder

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Introduction: Antimuscarinics are the cornerstone of the pharmacological treatment of overactive bladder (OAB) but side effects often limit their long-term use. Propiverine hydrochloride, a molecule with a mixed mechanism of action, was approved in Canada in 2017 as a therapy for OAB in adults and children. However, there is scarce data on its efficacy and tolerability in the pediatric population. Our primary objective was to assess the efficacy and tolerability of propiverine as a first- or second-line pharmacological treatment of OAB in children. Our secondary objective was to compare propiverine to other molecules already investigated in historical cohorts.

Methods: We conducted a retrospective analysis of a prospectively maintained database and reviewed 58 patients who received propiverine between 2017 and 2021. Patients had to attend at least one followup visit to be included. Efficacy and tolerability were assessed through voiding diaries, postvoid residuals (PVR), and by questioning patients and families on change in the number of incontinence episodes (day and night), in urgency episodes (grade 1–3), and on reported adverse events. Categorical variables were reported as counts and percentages, and descriptive statistics (mean and standard deviation or medians and quartiles) were reported for continuous variables. Paired tests were used to assess the evolution of mean bladder capacity and expected bladder capacity (%EBC) scores at different followup points, and linear regression models with the GEE method were used to estimate their average monthly variation.

Results: Fifty-eight patients (37 boys) initiated treatment at a mean age of 9.5±3.2 years. Patients were on propiverine for an average of 15.9±12.4 months. Mean bladder capacity increased from 120 ml to 216 ml, and %EBC increased from 37% to 59%. The average increased rate of %EBC was 0.5% per month (p<0.001). Of the 58 patients, eight were able to stop the medication completely without symptom recurrence, 21 are still on medication, and six are on dose-tapering. Due to treatment-related adverse events, seven interrupted their treatment. Compared to other molecules regularly used in our service, propiverine offered comparable efficacy and tolerability. Our study had limitations: the absence of a placebo group and its retrospective design.

Conclusions: Propiverine appears to be an efficient and safe option for treating OAB in children and is approved for use in children.

MP-10.3

Incidence of fertility preservation procedures in prepubertal and pubertal individuals with cancer

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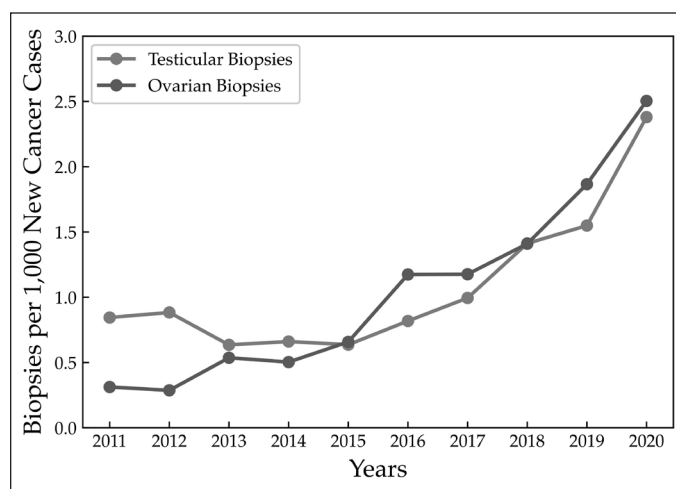
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Introduction: Fertility preservation (FP) for children and adolescents with cancer is underused. In postpubertal boys and girls, FP is achieved by



MP-10.3. Figure 1. Number of testis and ovarian biopsies since 2011.

cryopreservation of sperm or oocytes. In prepubertal individuals, immature ovarian and testicular tissue can be frozen; however, this is considered largely experimental. Our objective was to quantify who is receiving FP procedures in young adults with cancer.

Methods: We performed a retrospective study of children under 18 years old who had surgery in 52 U.S. pediatric hospitals registered in the Pediatric Health Information System (PHIS) from 2011–2019. Male and female cancer patients who underwent a testicular or ovarian biopsy were included. Any patients with testicular or ovarian malignancy, torsion, or other diagnoses that may have required a gonadal biopsy were excluded.

Results: A total of 600 boys and 550 girls who underwent a gonadal biopsy were identified. After applying the exclusion criteria, 418 boys and 333 girls, with a mean age at gonadal biopsy of 8.3 (boys) and 8.8 (girls) years, were included in the analysis; 363 boys were 12 and under and 55 boys were above 12, while 224 girls were 11 and under and 109 were above 11. The most common cancer diagnosis was hematological in both boys (50.96%) and girls (36.64%). A concurrent procedure at time of testis biopsy was performed in 84% of boys, with chemotherapy device insertion being the most common (54.87%). In girls, a concurrent procedure took place 62% of the time, with chemotherapy device insertion being the most common at 40% (Tables 1, 2, 3). When separating patients into pre- and post-pubertal, no differences in characteristics were seen in boys or girls. Overall, the total number of testis and ovarian biopsies has been increasing since 2011 (Figure 1).

Conclusions: Since 2011, gonadal biopsy rates have increased in adolescents and children with cancer, presumably for FP. Our findings highlight the need to establish protocols and tracking for FP procedures in the U.S.

MP-10.3. Table 1. Descriptive statistics of variables collected for prepubertal patients with either testicular or ovarian biopsy from 2011–2020 and compared by sex

| Variable | Total | Male | Female | p |
|--|-------------------|-------------------|-------------------|--------|
| n | 537 | 331 | 206 | |
| Age (years) | 6.1±3.7 | 6.6±3.8 | 5.2±3.3 | <0.001 |
| Cancer type* | | | | <0.001 |
| Hematological | 217 (40.8%) | 154 (47.0%) | 63 (30.9%) | |
| Brain/spinal cord | 71 (13.4%) | 48 (14.6%) | 23 (11.3%) | |
| Urological | 56 (10.5%) | 28 (8.5%) | 28 (13.7%) | |
| Orthopedic | 71 (13.4%) | 32 (9.8%) | 39 (19.1%) | |
| Non-urological solid abdominal tumor | 58 (10.9%) | 28 (8.5%) | 30 (14.7%) | |
| Other | 59 (11.1%) | 38 (11.6%) | 21 (10.3%) | |
| Chemotherapy | 479 (89.4%) | 281 (85.2%) | 198 (96.1%) | <0.001 |
| Fertility preservation visit (female only) | 21 (10.1%) | – | 21 (10.1%) | – |
| Concurrent procedure | 405 (75.4%) | 273 (82.7%) | 132 (63.8%) | <0.001 |
| Line insertion | 267 (49.6%) | 181 (54.7%) | 86 (41.6%) | 0.003 |
| Bone marrow biopsy, aspiration, or extraction | 88 (16.4%) | 71 (21.5%) | 17 (8.2%) | <0.001 |
| Stem cell or bone marrow transfusion or transplant | 56 (10.4%) | 40 (12.1%) | 16 (7.8%) | 0.108 |
| Other procedure | 113 (21.0%) | 74 (22.4%) | 39 (18.8%) | 0.330 |
| Race/Ethnicity | 353 (65.7%) | 208 (62.8%) | 145 (70.4%) | 0.265 |
| Non-Hispanic White | 70 (13.0%) | 48 (14.5%) | 22 (10.7%) | |
| Hispanic | 35 (6.5%) | 19 (5.7%) | 16 (7.8%) | |
| Black | 24 (4.5%) | 16 (4.8%) | 8 (3.9%) | |
| Asian | 7 (1.3%) | 5 (1.5%) | 2 (1.0%) | |
| Multiracial | 48 (8.9%) | 35 (10.6%) | 13 (6.3%) | |
| Other | | | | |
| Urban status | 452 (84.0%) | 275 (83.1%) | 177 (85.5%) | 0.671 |
| Urban/suburban | 63 (11.7%) | 42 (12.7%) | 21 (10.1%) | |
| Not urban | 23 (4.3%) | 14 (4.2%) | 9 (4.4%) | |
| No zip code recorded | | | | |
| Median household income (\$) | 52 260.3±19 504.5 | 52 656.7±19 851.4 | 51 625.8±19 968.3 | 0.560 |

Chi-squared test and t-test were used to compare categorical and continuous variables, respectively, between male and female groups. Significance assessed at p<0.05. Categorical variables represented as frequencies and percentages, continuous variables represented as mean and standard deviation.

MP-10.3. Table 2. Factors associated with rate of testes biopsies in male pre-pubertal (age ≤12) pediatric patients for the years 2011–2020

| Variable | IRR (95% CI) | p |
|---|---------------------|--------|
| Increasing year | 1.13 (1.08–1.18) | <0.001 |
| Average age | 0.75 (0.60–0.94) | 0.013 |
| Proportion hematological cancer | 2.50 (0.60–10.49) | 0.209 |
| Proportion non-Hispanic White | 3.89 (0.09–175.21) | 0.484 |
| Proportion urban | 3.33 (0.00–4934.86) | 0.747 |
| Average median household income by thousand dollars | 0.96 (0.89–1.04) | 0.680 |

Counts were offset using total number of cancers at the institutions analyzed. CI: confidence interval; IRR: incidence rate ratio.

MP-10.3. Table 3. Factors associated with rate of ovarian biopsies in pre-pubertal (age ≤11) female pediatric patients for the years 2011–2020

| Variable | IRR (95% CI) | p |
|---|--------------------|--------|
| Increasing year | 1.35 (1.14–1.59) | <0.001 |
| Average age | 0.90 (0.71–1.13) | 0.366 |
| Proportion hematological cancer | 1.03 (0.08–12.97) | 0.982 |
| Proportion non-Hispanic White | 0.62 (0.02–23.57) | 0.797 |
| Proportion urban | 1.05 (0.01–114.91) | 0.984 |
| Average median household income by thousand dollars | 1.02 (0.95–1.09) | 0.575 |

Counts were offset using total number of cancers at the institutions analyzed. CI: confidence interval; IRR: incidence rate ratio.

MP-10.5**The diagnosis and management of acute epididymitis in children not related to sexually transmitted infection in children: A retrospective review**Yuding Wang¹, Zoe Baker¹, Hannah Dillon¹, Joan Ko¹¹Division of Urology, Department of Surgery, Children's Hospital of Los Angeles, Los Angeles, CA, United States

Introduction: Epididymitis remains a common cause of acute testicular pain in children. Except for epididymitis caused by sexually transmitted infections (STIs), management strategies remain inconsistent, with no clear guidelines. Herein, we sought to understand treatment patterns and related outcomes of children with non-STI-associated epididymitis seen by an academic pediatric urology practice.

Methods: A single-center, retrospective review was completed among all patients referred to a pediatric urology group with presumed diagnosis of non-STI-associated epididymitis/-orchitis from 2015–2020. Data on referring emergency department (ED) or family physician workup were reviewed. Logistic regression analyses and Pearson Chi-squared tests were used to assess associations between patient presentation, prescription of antibiotics (Abx), and epididymitis recurrence.

Results: A total of 127 patients with epididymitis were included; 70.1% were referred from a dedicated pediatric ED. Among all patients, 56.7% had a urinalysis (UA) as part of the initial workup, while 48.8% were prescribed Abx. Patients not referred from a dedicated pediatric ED were 2.7 times more likely to receive Abx for management of epididymitis (95% confidence interval [CI] 1.2–5.9, $p=0.01$). Having a UA was not significantly associated with Abx, while having a positive UA was associated with Abx treatment (odds ratio 3.6, 95% CI 1.2–6.0, $p=0.01$) irrespective of culture results. Twelve patients had recurrent epididymitis, which was not associated with receipt of Abx ($p=0.49$).

Conclusions: While practice patterns vary, Abx are widely prescribed to children diagnosed with non-STI-associated epididymitis based on UA results, which has unknown utility for epididymitis diagnosis and management. Prospective data are needed to identify clear guidelines for managing pediatric epididymitis.

MP-10.6**Mental health, psychosocial functioning, and health-related quality of life of children, adolescents, and adults with bladder exstrophy, cloacal exstrophy, and epispadias: A scoping review**Michelle SooHoo¹, Zoe Baker¹, Yuding Wang¹, Hannah Dillon¹, Arthi Hannallah¹, Lynn Kysh¹, Zorash Montano², Evalynn Vasquez¹¹Division of Urology, Department of Surgery, Children's Hospital of Los Angeles, Los Angeles, CA, United States; ²Department of Psychology, Phoenix Children's Hospital, Phoenix, AZ, United States

Introduction: The exstrophy-epispadias complex (EEC) is a collection of rare congenital conditions affecting the urinary system. Currently, there is not a clear consensus on the psychosocial functioning, mental health (MH) status, or health-related quality of life (HRQoL) of individuals with EEC. The aim of this scoping review was to synthesize the existing literature related to the MH status, psychosocial functioning, and HRQoL of individuals with EEC across the life course.

Methods: Databases, including PubMed, Embase, Cochrane Library, CINAHL, Web of Science, PsycINFO, ERIC, and Google Scholar, were searched from inception using preidentified key terms. Two independent reviewers performed abstract screening of 5431 articles, followed by full-text review of 245 articles. All articles including primary analysis on the psychosocial functioning, MH status, or QoL of individuals with EEC were included in the review, and recurring themes were identified.

Results: A total of 66 articles met inclusion criteria and were included in this review. Findings suggest that MH status and QoL change across the life course in individuals with EEC. Children with EEC demonstrate more externalizing behaviors, while adolescents and adults with EEC demonstrate higher levels of internalizing behaviors and psychological distress, particularly anxiety. Additionally, children appear to demonstrate improved QoL after surgery to improve continence; however, while overall QoL is comparable to the general population, adolescents and adults experience lower QoL in the areas of self-care and general health.

Conclusions: While many individuals diagnosed with EEC experience QoL that is equal to that of the general population, experiences with incontinence, concerns about the appearance of genitalia, and anxiety surrounding the condition do affect MH, psychosocial functioning, and HRQoL in individuals across the life course.

MP-10.7**Pediatric urolithiasis in Ontario, Canada: A retrospective review of surgical trends and management**Fernanda Gabrigna Berto¹, Andrew McClure², Zhan Tao Wang¹, Jennifer Bjazevic¹, Dor Golomb³, Guido Filler⁴, Blayne Welk¹, Hassan Razvi¹, Sumit Dave¹¹Department of Surgery, Western University, London, ON, Canada;²Department of Epidemiology and Biostatistics, Western University, London, ON, Canada; ³Assuta Ashdod, Ashdod, Israel; ⁴Department of Pediatrics, Western University, London, ON, Canada

Introduction: Pediatric urolithiasis (PUL) is a recurrent condition with a growing incidence worldwide that results in significant patient morbidity and healthcare expenditure. This study evaluated surgical trends and management of PUL in the province of Ontario, Canada from 2002–2018.

Methods: This retrospective cohort administrative database study identified all children (<18 years) who underwent their first surgical treatment for PUL identified using the Canadian Institute for Health Information-Discharge Abstract Database or an Ontario Health Insurance Plan billing. Linked databases held at the Institute of Clinical Evaluative Sciences (ICES) were used to identify variables and outcomes. Descriptive statistics were used to analyze demographics and surgical trends, and logistic regression to identify risk factors for repeat surgical intervention.

Results: A total of 1149 patients underwent a first surgical procedure for PUL (mean age 11.27 ± 5.7 years). The number of surgical procedures performed annually ($p=0.059$) and PUL surgery incidence rates were relatively stable ($p=0.08$). There was a trend towards increased use of ureteroscopy (URS) compared to shockwave lithotripsy (SWL) ($p=0.145$), while percutaneous nephrolithotomy remained stable. Outcomes were reviewed for 706 patients who had an index procedure from 2002–2016 and available followup for at least two years; 17.71% had a repeat procedure within six months, predominantly with URS. Renal stone location (odds ratio [OR] 2.79, $p=0.0002$) and SWL (OR 1.66, $p=0.0025$) were independent risk factors for repeat surgical procedure within six months. Stone recurrence requiring surgical intervention was 20.4% within five years.

Conclusions: The overall rate of surgically treated PUL was stable in Ontario, Canada from 2002–2018. URS was the most common surgical treatment modality, and a decline in SWL rates was observed reflecting similar trends noted in adults. PUL was associated with a high surgical re-intervention rate within six months.

MP-10.8**Primary ablation vs. urinary diversion in posterior urethral valve: A meta-analysis**Adree Khondker¹, Justin Chan¹, Jin Kyu (Justin) Kim¹, Michael Chua¹, Brittny Henderson², Priyank Yadav¹, Joana Dos Santos¹, Gregory Tasian², Mandy Rickard¹, Armando Lorenzo¹¹Division of Urology, The Hospital for Sick Children, Toronto, ON, Canada;²Division of Urology, Children's Hospital of Philadelphia, Philadelphia, PA, United States

Introduction: The literature regarding the ideal initial surgical management of posterior urethral valves (PUV) patients is conflicted. Here, we aimed to determine long-term kidney and bladder outcomes in boys with PUV undergoing either primary valve ablation or urinary diversion.

Methods: A systematic search was performed in March 2021. Comparative studies were evaluated according to Cochrane collaboration recommendations. Assessed measures included kidney outcomes (chronic kidney disease stage, kidney function) and bladder outcomes, among others. Odds ratios (OR) and mean difference with 95% confidence interval (CI) were extrapolated from available data. Random-effects meta-analyses were performed and confounders were assessed with subgroup analysis. The review was registered prospectively (PROSPERO CRD42021243967).

Results: Thirty studies describing 1547 boys with PUV were included in this synthesis. Overall effect estimates demonstrate that patients undergoing primary diversion have significantly increased odds of developing kidney insufficiency (OR 0.60, 95% CI 0.44, 0.80, $p < 0.001$). However, in patients with equal or unclear baseline kidney function between interventions, there was no significant difference in followup kidney outcomes ($p = 0.09$ – 0.35). There was no significant difference in the odds of developing bladder dysfunction on urodynamic study or requiring clean-intermittent catheterization with primary ablation rather than diversion (OR 0.89, 95% CI 0.49, 1.59, $p = 0.68$).

Conclusions: Current low-quality evidence suggests that long-term kidney and bladder outcomes are similar between primary ablation and primary diversion after adjusting for baseline kidney function. As patients managed with a diversion likely represent a more severe form of the disease, it remains possible that these patients derive benefit over primary ablation. Further research with adequate covariate control is warranted to investigate sources of heterogeneity and determine the best individualized approach. Our data also suggests that diversion does not lead to worse bladder function compared to ablation.

MP-10.9

Passing the baton: A review of a Scottish center's transitional urology population

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Introduction: Adolescent patients with chronic urological conditions may require ongoing care into adulthood. Our transitional clinic (TC) was established to make this experience supportive and seamless. Our study aims were to define the transitional urology population in our region and identify patient and disease factors that will allow us to improve the service for young people.

Methods: A retrospective chart review was undertaken of all adolescent urology patients from 2014–2021. Inclusion criteria were: patients who turned 16 years old before January 1, 2021 with a urological condition requiring ongoing management and/or surveillance by an adult urologist.

Results: Seventeen patients (eight male, nine female) transitioned to adult urology and six patients had transition discussed but not instigated. Primary diagnosis was: neuropathic bladder (10), dysfunctional voiding (3), overactive bladder (3), posterior urethral valves (2), urethral stricture (2), bladder extrophy (1), cloaca (1), and urethral syringocele (1). Eight of 23 patients had concurrent bowel issues. The mean number of medications was 2.13 (range 0–11). Twelve of 23 voided urethrally, 9/23 performed intermittent catheterization via Mitrofanoff, and 2/23 had a suprapubic catheter. Sixteen of 23 patients were ambulant and 7/23 were wheelchair users. The mean age at first discussion of transition was 16.56 years and the mean age at first TC was 17.60 years. On average, 5.1 people were in the room at TC. The mean age at first adult services encounter was 18.57 years. The mean age at last pediatric intervention was 16.78 years and at first adult intervention was 19.43 years. Eleven of 23 patients had multispecialty involvement at time of transition; 6/23 patients had current involvement with psychology or psychiatry. Nine of 23 had plans to move away from home for further education.

Conclusions: Adolescent urology patients have complex physical, psychological, and social needs to be addressed. TC should offer patients a clear management plan and reassurance that ongoing support will be present.

MP-10.10

Estimating time to prenatal hydronephrosis resolution: Anteroposterior Pelvic Diameter vs. Urinary Tract Dilation grading systems

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Introduction: We aim to compare the ability of the Anteroposterior Pelvic Diameter (APD) vs. Urinary Tract Dilation (UTD) grading systems to predict the rate and time to resolution of hydronephrosis (HN), according to its severity.

Methods: A prospectively collected cohort of patients with prenatal HN was followed from 2008–2021. We excluded patients with hydroureteronephrosis, vesicoureteral reflux, and other urinary tract anomalies. Patients who underwent surgery were censored as non-resolved HN at that time. Each HN grading system was dichotomized for comparison purposes: APD < 15 vs. ≥ 15 mm and UTD P1 vs. UTD P2/P3. HN resolution was defined as APD < 5 mm or UTD P0 in two consecutive ultrasounds. Kaplan-Meier, Cox regression, and weighted Kappa were used for statistical analysis.

Results: Of 518 patients, 243 (47%) were classified as UTD P1, 192 (37%) as UTD P2 and 82 (16%) as UTD P3. Mean APD and age at baseline were 11.6 ± 7.5 mm and 3.2 ± 2.5 months, respectively. A total of 188 (36%) patients resolved at a median time of 32 months. Analysis of agreement showed 362 of 515 (70%) infants were classified as similar HN severity by both grading systems, and 153 (30%) were UTD P2 or P3 with APD < 15 mm ($K = 0.42$, $p < 0.001$) (Table 1). Median time to resolution for different HN grades is presented in Table 2. The overall cumulative resolution rate was 82% and 60% for < 15 mm and ≥ 15 mm APD, respectively. UTD's cumulative resolution rates were 85% for UTD P1 and 71% for UTD P2/P3 (Figure 1).

Conclusions: The time to resolution of HN was similar regardless of the grading system used. Both APD and UTD classifications can be effectively applied clinically to counsel patients about resolution trends.

MP-10.10. Table 1. Distribution of patients with hydronephrosis according to UTD/APD classification

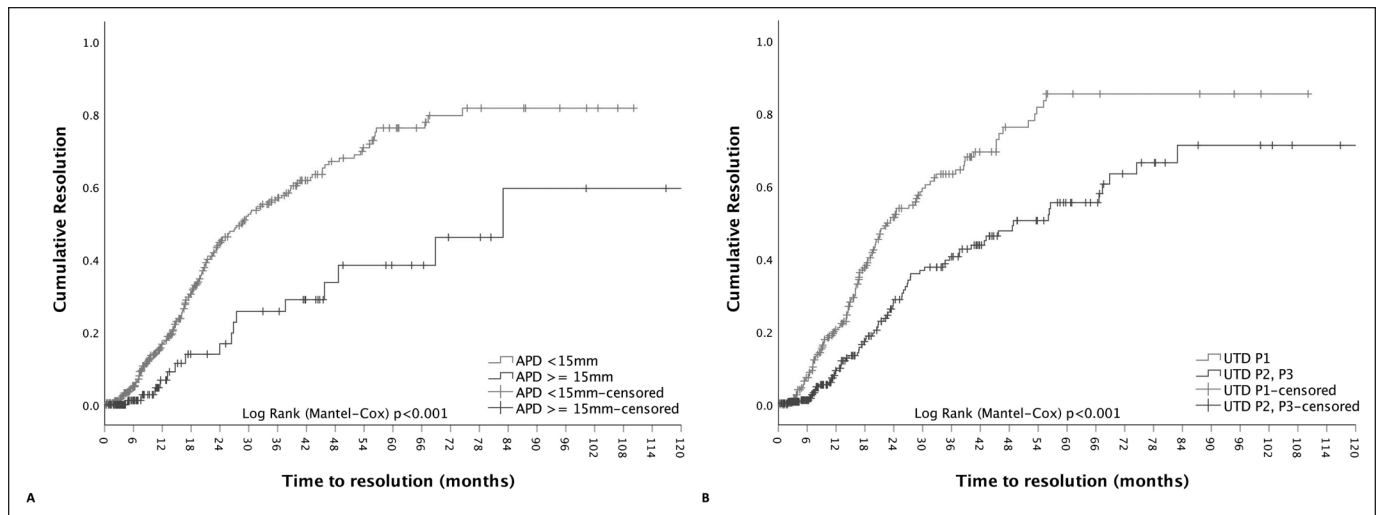
| Mean \pm SD APD diameter (mm) | APD severity | UTD G1 | UTD G2 | Total |
|---------------------------------|--------------|--------|--------|-------|
| 8.4 \pm 2.8 | G1 | 242 | 153 | 395 |
| 22.4 \pm 8.0 | G2 | 0 | 120 | 120 |
| | Total | 242 | 273 | 515 |

G1 severity (APD < 15 mm; UTD P1); G2 severity (APD ≥ 15 mm; UTD P2 or P3); Kappa = 0.424, $p < 0.001$; concordant pairs: 362 (70.3%); discordant pairs: 153 (29.7%); APD: anteroposterior pelvic diameter; UTD: urinary tract dilation grading system.

MP-10.10. Table 2. Time to hydronephrosis resolution

| Median time to resolution (months) | 31.6 (24.9–38.3) [†] |
|------------------------------------|--------------------------------|
| APD < 15 mm | 28.6 (23.2–34) [†] |
| APD ≥ 15 mm | 82.9 (38.1–127.8) [†] |
| UTD P1 | 23.3 (17.5–29.1) [†] |
| UTD P2 | 48.6 (33.2–64.1) [†] |
| UTD P3 | 67.3 (35.9–98.8) [†] |

[†]Median (95% confidence interval); APD: anteroposterior pelvic diameter; UTD: urinary tract dilation grading system.



MP-10.10. Figure 1. Cumulative resolution rates for 518 patients with antenatal hydronephrosis.

MP-10.11

Diagnosing ureteropelvic junction obstruction in pediatrics: A systematic review

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Introduction: The concept of pediatric ureteropelvic junction obstruction (UPJO), or suspected UPJO, represents a heterogeneous population with various modes of presentation, as well as varying degrees of obstruction with differential risk of renal deterioration or development of symptoms if left uncorrected. We hypothesized that the current published literature lacks consistency in reporting and aimed to perform a systematic review of reported diagnostic criteria for pediatric UPJO and indications for pyeloplasty.

Methods: We conducted a MEDLINE and EMBASE search from 1980–2019 using key MESH search terms for UPJO with Child and Prognosis filter. Clinical studies including at least five children with any description of UPJO diagnostic criteria or indications for surgery were included. Non-clinical, abstracts, and conference proceedings were excluded, as were conditions with confounding diagnoses. Abstract and expedited full-text review was performed using Insight Scope platform. Qualitative analysis of verbatim definition of UPJO diagnostic criteria and indication for surgery allowed for extraction of all reported diagnostic items and categorization into themes and frequencies reported.

Results: Two hundred eleven of 1580 studies were included for data extraction; 77% were retrospective studies, 19% prospective studies, 3% systematic reviews, 1% others. A total of 972 diagnostic items were extracted. Major categories for diagnosis of UPJO or indications for pyeloplasty included findings on ultrasound (97%), Lasix renal scan (94%), and symptoms (47%). Only 44% of papers reported all three major domains. Indications for pyeloplasty were reported in 118 studies (56% of total).

Conclusions: There is heterogeneity in the reporting of diagnostic criteria, as well as indication, for pyeloplasty for pediatric UPJO. Future work to develop and adopt standard reporting criteria for UPJO diagnosis and indications for pyeloplasty could advance the field by allowing comparison of different studies.

MP-10.12

The effect of augmentation cystoplasty on rates of urinary tract infection: A single-surgeon case series

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Introduction: Neurogenic bladder dysfunction is a complex diagnosis in the pediatric population, often requiring lifelong surveillance and management. Surgical intervention can include an augmentation cystoplasty procedure to increase bladder capacity and reduce bladder pressures. This population is at increased risk of developing urinary tract infections (UTIs). The primary objective of this study was to evaluate the frequency of treated UTIs in patients undergoing augmentation cystoplasty procedures pre- and postoperatively. Secondary objectives included reviewing the etiology of bladder dysfunction, rates of continuous antibiotic prophylaxis use, and bladder capacity and pressure on urodynamic evaluation.

Methods: A retrospective review was performed evaluating pediatric patients at our center undergoing a bladder augmentation procedure under the care of a single surgeon from 2006–2020. A bladder augmentation was defined as a procedure using a segment of bowel to increase a patient's bladder capacity. Variables assessed included patient age, gender, etiology of bladder dysfunction, length of bowel used, UTI frequency, other urological procedures performed, and bladder capacity and pressures assessed on urodynamics. A UTI was defined as a positive urine culture for which an antibiotic was prescribed by a physician. Descriptive statistics, t-test, and Chi-squared analysis were performed where appropriate using SPSS v25.

Results: A total of 37 patients were included with an average age of 13.1 years and 62% (n=23) being male. The etiology of bladder dysfunction was spina bifida in 65% (n=24), bladder exstrophy in 11% (n=4), cloacal malformation in 5% (n=2), posterior urethral valves in 5% (n=2), cerebral palsy in 5% (n=2), neuroblastoma in 3% (n=1), and Robinow syndrome in 3% (n=1). The average length of ileum used was 24.2 cm. The average number of bacteriuria episodes treated as a UTI in the two years pre-augmentation was less than the two years post-augmentation (1.2 vs. 2.9 episodes, p<0.001). Continuous antibiotic prophylaxis was used in 8% (n=3) pre-augmentation and in 11% (n=4) post-augmentation. The measured maximum cystometric capacities in patients increased from 198 cc to 441 cc with augmentation (p<0.001) and there was a reduction in peak bladder pressures, with a decrease from 41 mmHg to 18 mmHg (p<0.001).

Conclusions: Patients undergoing augmentation cystoplasty are at increased risk of developing asymptomatic bacteriuria and UTI requiring treatment. There is a risk of overtreatment for UTI in this patient population, and further prospective analysis is required to evaluate the accuracy and clinical indications for treatment.

MP-10.13**Association between vesicoureteral reflux and renal failure among neonatally managed patients with posterior urethral valves**Yuding Wang¹, Zoe Baker¹, Hannah Dillon¹, Andy Chang¹¹Division of Urology, Department of Surgery, Children's Hospital of Los Angeles, Los Angeles, CA, United States

Introduction: Posterior urethral valve (PUV) is one of the most common causes of renal failure in boys. Various predictive markers have been proposed to prognosticate clinical disease, including vesicoureteral value (VUR) status. However, previous studies have been limited by heterogeneous patient cohorts that have led to varied and sometimes conflicting results. As most diagnoses of PUV are made within the first 30 days of life, we aimed to evaluate the prognostic utility of VUR status in patients with PUV in this homogeneous population.

Methods: A single-center, retrospective review was completed of all patients with PUV diagnosed and managed within 30 days of life from 2010–2019. Previously described risk factors for renal deterioration in this population, including VUR status and nadir creatinine (Cr), were evaluated. Logistic regression analyses were used to assess the associations between VUR presence, nadir Cr, and chronic kidney disease (CKD).

Results: A total of 40 patients were identified. The mean age of diagnosis was 6.1 days (± 7.3), while the mean age of valve resection was 11.2 days (± 9.5). A total of 23 patients (58%) had concurrent diagnosis of VUR. The median length of followup was 48 (interquartile range [IQR] 24.7–78.9) and 39 (IQR 9.5–60.5) months in the VUR and no VUR groups, respectively. The risk of developing CKD was 14.6 times greater among patients with VUR (95% confidence interval 2.5–84.8, $p=0.003$) compared to patients without VUR. The risk of developing a single episode of UTI within two years of diagnosis was significantly higher in the patients with VUR than those without (58.8% vs. 21.7%, $p=0.02$). No patients had anti-reflux surgery for VUR. Nadir Cr was significantly higher in patients with VUR (0.66 mg/dl) than in patients without VUR (0.41 mg/dl, $p=0.05$). No patients with a nadir Cr less than 0.8 mg/dl progressed to end-stage renal disease.

Conclusions: Using a homogeneous population, the presence of VUR in our cohort was predictive of progression to CKD, contrary to previous literature.

MP-10.14**Use of ureteral access sheath during ureterorenoscopy in the pediatric population: Comparative study**Rabah Benrabah¹, Malak M. Bendjedou¹, Bouhnik H. Halim¹, Sambo Patrik¹¹Department of Urology, Central Hospital of Army, Algiers, Algeria

Introduction: We aimed to investigate the impact of using the ureteral access sheath on the excretory urinary tract and the effectiveness of ureterorenoscopy in children.

Methods: We retrospectively analyzed a population composed of 61 who had had ureteroscopy for upper urinary tract calculi between November 2014 and May 2019. The patients were stratified into two groups according to whether or not ureteral access sheath was used. In group 1 (G1, $n=51$, ureteroscopy was performed with ureteral access sheath. In group 2 (G2, $n=10$), this was done without. The success of the treatment was determined three months later by a morphological examination. Both quantitative and qualitative variables were compared in all patients. The main outcome was the intraoperative complications and the incidence of postoperative pain assessed by the Visual Analog Scale (VAS). Secondary outcomes were fragment-free success rate, reprocessing rate, subsequent complications, and emergency consultations. Patient follow-up was assessed by morphological and endoscopic examinations in the short- and medium-term (9–12 months). The results were evaluated in single- and multivariate analysis.

Results: G1 and G2 had similar characteristics (average age 6.8 [2–14] years vs. 6.5 [1.5–13] years). The average size of the urinary calculus was 17.4 (extremes 15–26) mm vs. 17.2 (extremes 14–20) mm and density of 1002.1 (± 350) UH vs. 1011 (± 275) UH. The sex ratio of males to females

was 2.4 (36/15) and 1.5 (6/4), in G1 vs. G2, respectively ($p=0.8$). The overall success rate was higher in G1 compared to G2 (88.2% vs. 80%, $p=0.8$). Intraoperative results showed a shorter intervention time in G1 89.2 (± 11) minutes vs. 102.4 (± 9) minutes ($p=0.2$). All patients were drained postoperatively by means of a double-J stent. The average length of hospital stay was equivalent in both groups (48 hours; extreme 48–72 hours). No major complications were observed. Complications related to the technique were absent. Postoperative adverse events were always minor (G1: 96%, G2: 90%, $p<0.05$). The average VAS score was 5 vs. 4 for G1 vs. G2, respectively ($p<0.05$). No postoperative narrowing or stenosis were observed on computed tomography.

Conclusions: The use of an access sheath in children facilitates flexible ureteroscopy with lithotripsy of kidney stones, with a significant difference in terms of therapeutic success. The technique is safe, fast, and effective, with minimal morbidity. From an economic perspective, the sheath procedure could reduce cost (fast technique, less basket use, and less postoperative drainage) without affecting surgical results.

UP-10.1**Does the age at presentation predict the outcome of Deflux® injections for patients with Vesicoureteric Reflux (VUR)?**Amr Hodhod¹, Mutaz Farhad¹, Steven Lu¹, Jarrah Aburezzq¹, Carolina Fermin Rizzo¹, Anthony Cook¹, Joseph Lee¹, Bryce Weber¹¹Pediatric Urology, Alberta Children's Hospital, Calgary, AB, Canada

Introduction: Endoscopic management of vesicoureteric reflux (VUR) has gained great popularity over the last few decades. Deflux® injection has shown good results regarding the prevention of febrile urinary tract infection (FUTI) and decreasing the morbidity of the surgical management of VUR. We suspected that patients who present with FUTI earlier in life were more likely to require repeated Deflux injections when compared to those who presented at an older age.

Methods: The charts of refluxing patients who presented with UTI from 2010–2018 were retrospectively reviewed. Two groups were created according to the number of Deflux injections (single-injection vs. repeated injections). We collected patients' gender, side, laterality, and the grade of VUR. Moreover, we recorded the number of Deflux injections. We excluded patients who presented with antenatal hydronephrosis, neurogenic bladder, and followup less than one year after the first injection. Repeated Deflux injection was indicated if patients experienced recurrent FUTI postoperatively and documented VUR.

Results: We included 173 patients with 260 units; 203 renal units (78.1%) underwent a single injection and 57 units (21.9%) had repeated injections. Patients' characteristics are demonstrated in Table 1. Of the repeated group, 41 units (71.9%) received two Deflux injections, 11 units (19.3%) were injected three times, and the remaining five units underwent four injections. Within the same VUR grade, the age at presentation was not significantly different between both groups. Interestingly, 28/57 units (49.1%) with repeated injection presented before the age of one year in comparison to 70/203 units (34.5%) with a single injection ($p=0.04$).

Conclusions: Twenty-two percent of included renal units underwent repeated Deflux injections. More than 40% of units with repeated injections had grade 4–5 VUR. Patients with VUR presented with FUTI before the age of one year old were at higher risk of repeated Deflux injections than those who presented later.

UP-10.2**Significant improvement in hydronephrosis with pyeloplasty prior to three months of age in patients with antenatal severe hydronephrosis**

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Introduction: Pyeloplasty is the definitive management of ureteropelvic junction obstruction (UPJO). However, one challenging question remains: when to perform pyeloplasty? We studied whether early pyeloplasty, in the first three months of life, could show greater improvement in antenatally diagnosed, postnatally persistent hydronephrosis than surgery at an older age.

Methods: Patients with antenatally detected UPJO who underwent pyeloplasty in the first year of life were retrospectively reviewed. All the patients in this data set had Society of Fetal Urology (SFU) grade 3 or 4 hydronephrosis. Exclusion criteria included patients with single kidneys, bilateral pyeloplasty, and associated other congenital anomalies. Patients were divided into two groups according to the age at pyeloplasty, before or after three months of age. Patient anteroposterior diameter of the renal pelvis (APD), SFU grade, renogram data, and postoperative ultrasound changes were collected and analyzed. The percentage of change of APD (D%APD) was calculated by using the formula: $D\%APD = [(initial\ APD / last\ APD) / initial\ APD] \times 100$.

Results: Forty-four patients met the inclusion criteria. Thirteen patients had pyeloplasty during the first three months of life and 31 patients at 3–12 months. Results are summarized in Table 1. Most (92%) of those infants who underwent pyeloplasty <3 months of age demonstrated a significant reduction in APD as compared to 80.6% of the older group. Interestingly, D%APD was significantly higher in patients who underwent pyeloplasty in the first three months of life ($p=0.04$).

Conclusions: Early pyeloplasty, in the first three months of life, showed a significant improvement of APD postoperatively than those who underwent surgery later. It is unclear if this will relate to a reduction of functional renal loss yet bodes well for early intervention.

UP-10.1. Table 1. Patient characteristics

| Parameter | Single Deflux injection | Repeated Deflux injection | p |
|--------------------------------------|-------------------------|---------------------------|--------|
| Age at presentation median (range)* | 25.7 (0.23–154.1) | 22 (1.7–154.8) | 0.7 |
| Gender, n (%) | | | |
| Male | 28 (20.4) | 3 (8.3) | 0.09 |
| Female | 109 (79.6) | 33 (91.7) | |
| Side, n (%) | | | |
| Right | 90 (44.3) | 21 (36.8) | 0.3 |
| Left | 113 (55.7) | 36 (63.2) | |
| Laterality, n (%) | | | |
| Unilateral | 66 (48.2) | 18 (50) | 0.85 |
| Bilateral | 71 (51.8) | 18 (50) | |
| Grade of VUR, n (%) | | | |
| Grade 1 | 33 (16.3) | 6 (10.5) | 0.053 |
| Grade 2 | 61 (30) | 12 (21.1) | |
| Grade 3 | 64 (31.5) | 15 (26.3) | |
| Grade 4 | 31 (15.3) | 17 (29.8) | |
| Grade 5 | 14 (6.9) | 7 (12.3) | |
| Age at 1st injection median (range)* | 47.3 (6.1–166.6) | 37.7 (7.6–158.6) | 0.12 |
| Followup median (range)* | 34.6 (12.1–155.2) | 49.3 (16.3–135.5) | <0.001 |

*Age of presentation in months.

UP-10.2. Table 1. Patients' demographics and postoperative followup

| Parameter | Pyeloplasty ≤3 months n=13 units | Pyeloplasty >3 months n=31 units | p |
|------------------------------------|-------------------------------------|-------------------------------------|--------|
| Age at presentation median (range) | 0.27 month (0.07–1.5) | 0.33 month (0.03–0.9) | 0.8 |
| Side, n (%) | | | |
| Right | 6 (46.2) | 10 (32.3) | 0.38 |
| Left | 7 (53.8) | 21 (67.7) | |
| Gender, n (%) | | | |
| Male | 8 (61.5) | 23 (74.2) | 0.7 |
| Female | 5 (38.5) | 8 (25.8) | |
| SFU grade, n (%) | | | |
| Grade 3 | 1 (7.7) | 11 (35.5) | 0.058 |
| Grade 4 | 12 (92.3) | 20 (64.5) | |
| APD median (range) | 25.8 mm (16–45) | 21 mm (12–29) | 0.035 |
| DRF median (range) | 40% (30–60) | 47% (32–55) | 0.029 |
| T1/2 median (range) | 55 min (27–172) | 29 min (12–146) | 0.013 |
| Age at surgery median (range) | 2.3 min (0.6–2.9) | 7.7 months (3.03–11.9) | <0.001 |
| Followup median (range) | 43 months (18.6–87.8) | 43 months (9–95.1) | 1 |
| Post-op APD median (range) | 7 mm (5–30) | 10 (0–31) | 0.5 |
| % APD improvement median (range) | 69.2% (25–87.3) | 51% (-63.4–100) | 0.04 |
| Post-op SFU, n (%) | | | |
| Grade 1 | 2 (15.4) | 4 (12.9) | 0.74 |
| Grade 2 | 6 (46.2) | 11 (35.4) | |
| Grade 3 | 5 (38.5) | 14 (48.1) | |
| Grade 4 | 0 | 2 (0.6) | |
| Downgraded units, n (%) | 12 (92.3) | 25 (80.6) | 0.33 |