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POD-04.01

Room for Improvement: Quality Appraisal of Systematic Reviews and Meta-Analyses in Pediatric Urology Across 5 Top Specialty Journals

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Introduction and Objectives: Well designed systematic reviews (SR) and meta-analyses (MA) rank high in the hierarchy of levels of evidence, but their usefulness to influence clinical practice depends on their quality. We sought to analyze the quality of published SR and MA in pediatric urology.

Methods: A search for all SR and MA published between Jan 2000-Nov 2009 in 5 top pediatric urology journals was conducted using Pubmed (MEDLINE) and EMBASE with the following limits: "Humans", "Meta-Analysis", Review", "Historical Article", English", and "All Child: 0-18 years." Two reviewers independently selected articles for full-text review. Scientific methodological quality was assessed independently by 2 raters, using CEBM (5-item) and AMSTAR (11-item) tools. Disagreement was resolved by consensus. The overall scores for both tools were compared using Pearson correlation coefficient.

Results: Titles and abstracts were initially reviewed (n = 267) of which 220 were excluded since they were narrative reviews, historical articles, surveys and case reports. Full text evaluation (n = 47) resulted in further exclusion (n = 32, inappropriate age group – adults), leaving 15 for the final analysis. Seven of these were published in 2009 (47% vs. 10% -previous years, $p < 0.01$) and 12 (80%) were exclusively pediatric. Eleven (73%) reviews reported use of keywords only to search for articles and no more than 4 (27%) reported contact with experts. Only 1 (7%) review had a full search strategy described, while 4 (27%) reported use of grey literature and 3 (20%) inclusion of articles in a language other than English. In 8 (53%), selection of studies was performed by 2 reviewers, independently in 5 (33%) and blindly in none. Five (33%) reviews described some form of quality assessment of the included studies, 8 reported (53%) agreement between raters and 6 (40%) mentioned that discrepancy was resolved by consensus. Only 5 (33%) reviews reported assessment of publication bias by funnel plot while 8 (53%) checked for heterogeneity among studies and 10 (66%) presented some form of pooled statistics. Using AMSTAR criteria, 7 (47%) reviews were considered as having less than fair methodological quality, 5 (33%) fair to good quality and 3 (20%) good quality. When the CEBM tool was used, 6 (40%) reviews were rated as less than fair quality, 4 (27%) fair to good and 5 (33%) good. Comparison of the overall score between the 2 measurement tools revealed high agreement ($r^2 = 0.76$).

Conclusions: Despite the recent increase in the number of SR and MA published in Pediatric Urology journals, almost half of these reviews lack good scientific quality, raising concerns about their role to influence clinical practice. Efforts should be made to improve the methodological quality of SRs and MAs in the pediatric urology literature.

POD-04.02

Laparoscopic Orchidopexy with or without Preservation of Gubernaculum Testis (Cremasteric Vessels): Is There a Difference in Testicular Salvage Rates?

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Introduction and Objectives: Conventional Laparoscopic Fowler-Stephens Orchidopexy (CLO) is conducted when spermatic vessels' length limits adequate testicular mobilization. Despite its widespread acceptance as a 1 or 2-stage procedure, atrophy rates can be as high as 30%. In such cases division of cremasteric vessels during advancement medial to the inferior epigastric vessels is likely the culprit. Gubernaculum-sparing laparoscopic orchidopexy (GSLO) – which involves anatomical delivery of the testis through the internal inguinal ring (IIR) – has been proposed as an alternative to CLO maximizing collateral blood supply and potentially reducing atrophy rates. Herein, we test this hypothesis by comparing the 2 techniques.

Methods: A retrospective chart review of 135 pts who underwent surgical management for non-palpable testis (NPT) between 2001 and 2008 was performed. We excluded 16 pts due to missing data resulting in a study sample of 119. The following variables were captured: age at surgery, location of intra-abdominal testis (IAT) testis – high or low, type of surgery (CLO or GSLO, 1 or 2 stages), and atrophy rates. A high IAT was diagnosed when > 2 cm from IIR. Atrophy was defined as the presence of a nubbin or impalpable testis on follow-up, confirmed by Doppler ultrasound. Comparative analyses between CLO and GSLO, and between 1 vs. 2-stage procedures were performed using the Chi-square test.

Results: Out of 119 pts 14 had bilateral NPT for a total of 133 gonads. Mean age at surgery and follow-up were 25±12 and 26±20 months respectively. 22 testes were palpable under general anesthesia and thus managed by inguinal orchidopexy. Laparoscopy was carried-out for the remaining 111 children, showing: vanishing IAT in 16 (14%), vanishing inguinal in 30 (27%) and IAT in 65 (59%; 21-low and 44-high). A 1-stage procedure was performed in 23 (35%) cases and 2-stage in 42 (65%). CLO was undertaken in 23 patients (35%) and GSLO in 42 (65%), based on surgeon preference. The overall atrophy rate was 7.7% (5/65). Five of 23 testes atrophied after CLO vs. none of 42 following GSLO (22% vs. 0%, $p = 0.01$). Of 23 CLO, 9 were done in 2 stages and 14 in a single stage. One atrophy (high testis) was documented after 2-stage CLO vs. 4 (2-high, 2-low testes) atrophies after 1-stage CLO [11% (1/9) vs. 29% (4/14), $p = 0.34$]. No case of 1-stage GSLO (0/7) developed atrophy. At last follow-up evaluation all but one viable testis were found in a normal scrotal position.

Conclusions: GSLO is a feasible alternative to CLO. Our findings suggest that the added vascular supply to the testis (cremasteric vessels) rather than the type of procedure (1 vs. 2-stage) significantly influences testicular atrophy rates. Further prospective comparative studies with CLO are needed to establish whether GSLO truly improves IAT salvage rates.

POD-04.03

Effectiveness of Biofeedback for Dysfunctional Elimination Syndrome in Pediatrics: A Systematic Review

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Introduction and Objective: Dysfunctional elimination syndrome is associated with an inability to effectively empty the bladder and may present with UTI, incontinence, intestinal constipation or other voiding symptoms. Biofeedback has emerged as one potentially effective and non-invasive treatment. We sought to analyze if biofeedback is an effective method to treat these children less than 18 years of age.

Methods: A literature search was conducted in MedLine, EMBASE, CINAHL, Cochrane Database, AUA, CUA and AAP abstracts. Copies of all relevant articles were retrieved for quality assessment and data abstraction by two independent reviewers. Primary outcomes were UTIs and daytime incontinence. Primary outcomes of recurrent UTI and incontinence were analysed using pooled estimates. Also, I^2 was calculated to determine heterogeneity between studies using an adapted formula of Higgins and Pearson's chi-square statistic.

Results: Twenty-seven studies were included (1 RCT and 26 case-series). The pooled estimate showed 83% (95% CI: 79%-86%) and 81% (95% CI: 76%-85%) improvement in UTI and daytime incontinence (Fig. 1) (Fig. 2). I^2 statistic showed "Low" (3%) and "High" (76%) heterogeneity across studies results for UTI and daytime incontinence. The only included RCT favored biofeedback over standard therapy (RR 1.4, 95% CI: 0.98-2.00) but this was not statistically significant. There was also improvement in constipation (18%-100%), frequency (67%-100%), urgency (71%-88%) and VUR (21%-100%). PVR improvement ranged from 26 mL-99 mL and Qmax improvement was from 3.1 mL/s - 4.7 mL/s.

Conclusions: Based on this review, biofeedback is an effective, non-invasive method of treating dysfunctional elimination syndrome, and approximately 80% of children benefited from this treatment. However, most reports were of low level of evidence and studies of more solid design such as RCT should be conducted.

POD-04.04

Long-Term Outcome of Continent Catheterizable Channels

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Introduction and Objective: Creation of a continent catheterizable channel (CCC) has dramatically changed the management of patients undergoing lower urinary tract reconstruction. As many interventions are carried out during childhood it is particularly important to look at long-term problems due to the inherent life expectancy of this population. Herein we present outcomes and complications on a single-centre series followed up to 15 years.

Methods: Medical records of all children who underwent CCC (Mitrofanoff and Monti) between 1992 and 2007, regardless of indication for surgery, were retrospectively reviewed. Data were systematically collected for the following variables: Age, underlying diagnosis, associated procedures, stoma site, tissue used for creating of the conduit (appendix or reconfigured bowel), time to complications (stenosis, prolapse, incontinence) and need for revision.

Fig. 1. POD-04.03.

Fig. 2. POD-04.03.

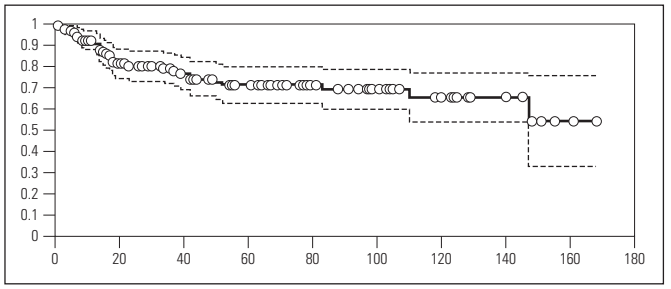

Fig. 1. POD-04.04.

Results: At a mean age of 7.5 years (6m-22yrs.), 71 girls and 98 boys were evaluated, with a subsequent follow-up of 5.8 years (8m-15y). Underling diagnosis included neurogenic bladder (36%), bladder exstrophy (25%), epispadias (7%) and rhabdomyosarcoma in (5%). Concurrent procedures (bladder augmentation, 35%; bladder neck plasty, 22%; bladder neck closure, 8%) were done in 71% of cases. The overall complication rate was 39% (stenosis/stricture, 25%; incontinence, 10%; prolapse, 4%). Even though an initial peak was followed by a stable complication-free period, on long-term follow delayed problems were detected (Fig. 1). Most CCC (96%) were functional at last follow-up including 8% in which the channel could not be salvaged and had to be recreated. On a time-to-event analysis no statistically significant differences in complications rates comparing use of appendix vs. Monti CCC, underlying diagnosis, age or stoma position were noted.
Conclusion: Complications after CCC appear to decrease over time but late problems are detected on long-term evaluation. In our experience no factors predicted likelihood of complication. At long-term follow-up good outcomes were encountered despite need for revision.

POD-04.05

Are Routine Urodynamic Studies (UDS) Necessary in Follow-up Evaluation of Spina Bifida Patients with Neurogenic Bladder?

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Introduction and Objectives: UDS are routinely performed for evaluation and decision making for spina bifida patients (pts). Little data exists to whether UDS findings actually alter clinical impression and change management plans for spina bifida pts beyond what is obtainable by ultrasound. We sought to evaluate the impact of UDS on the change of management.
Methods: A retrospective analysis of spina bifida pts with neurogenic bladder who underwent UDS in 2006 and 2007 was performed. Pts who did UDS as routine preoperative assessment were excluded. Demographic data and ultrasound findings were recorded. Change in management was defined as alteration of frequency of CIC, dose or frequency of anticholinergics or scheduling surgery.
Results: The study included 133 pts, mean age 9.5 yrs (range 2 months -18 yrs). A change in management based on UDS was identified in 57 pts (42%). Among those 25 (18%) had CIC schedule revision, 53 (39%) had anticholinergic dose adjustment and 12 (9%) had surgery scheduled (7 augmentation cystoplasty, 2 mitrofanoff, 1 sling, 1 botox injection, 1 bladder neck closure). There was no significant difference in age and sex in patients whose management was altered or not. Upper tract status by ultrasound was a significant predictor of change in management. Of pts with normal sonographic upper tracts, 27% had change of management based on UDS findings versus 95% who had change of management when the upper tracts were abnormal ($p < 0.05$).
Conclusions: Around half of the children with neurogenic bladder will have change of management on follow-up. Although UDS remains to be routinely performed, those with abnormal sonographic upper tracts are more likely to have change of management. UDS may be unnecessary in evaluation of pts with normal upper tracts.

POD-04.06

Modified Scrotal (Bianchi) Mid-Raphe Single-Incision Orchidopexy for Palpable Undescended Testis

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Introduction and Objective: To compare the results of a low trans-scrotal mid-raphe orchidopexy in patients with palpable undescended testes (UDT), to a high-scrotal incision (Bianchi) and to the conventional inguinal approach.
Methods: We used a retrospective cohort study design. All orchidopexies performed at our institution between January 2003 and September 2009 with a minimum of 3-month follow-up were included. All palpable UDT that could be brought down manually into the upper third of the scrotum under general anaesthesia, were then reviewed (group 1: high-scrotal incision, group 2: low-scrotal incision) and compared to the inguinal two-incision technique (group 3). We excluded cases of inguinal orchidopexy requiring Prentiss manoeuvre, children who had undergone previous inguinal surgery, and patients with concomitant surgeries. We comprehensively reviewed the charts and focused on the following outcomes: operative time, success as defined by mid or lower scrotal position of the testicle, and complications at 6-12 weeks and 1-year after surgery.
Results: A total of 286 orchidopexies were performed in 214 patients with palpable UDT. In group 1, a high-scrotal incision was performed in 44 patients for 60 UDT (success 59/60, 98%) with one recurrence. A modification to the technique was adopted and since November 2005, patients in group 2 had a trans-scrotal orchidopexy through a single low-scrotal incision on the median raphe. It was performed in 81 patients for 125 UDT. All testes except 1 (99%) were located in a good position within the scrotum. In group 3, a standard inguinal two-incision orchidopexy was performed in 89 patients for 101 UDT (success 100%). The mean operative time for unilateral UDT was significantly shorter for the low trans-scrotal orchidopexy (mean 28 min, SD 10, vs. mean 37 min, SD 12; $p < 0.001$) than for the inguinal orchidopexy but equivalent to a high scrotal incision (27+/-10 min; $p = 0.59$). One patient approached by high-scrotal incision required conversion to a traditional inguinal approach. All patent processes vaginalis were ligated, regardless of their size. In all 160 children followed at 1 year, no long term atrophy or secondary reascent were observed. Postoperative complications included transient postoperative scrotal hematoma in a single patient who had a high-scrotal incision and 2 wound infections in the inguinal approach group.
Conclusion: Low trans-scrotal mid-raphe orchidopexy appears to be an excellent alternative to the high-scrotal incision or the standard inguinal orchidopexy for low palpable UDT especially for bilateral cases. Scrotal orchidopexy is simple, safe, and effective in selected cases.