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Urogynecology digest

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Should routine prophylactic colposuspension be performed simultaneously with sacrocolpopexy procedures?

Kummeling MTM, Rietbergen JBW, Withagen MIJ, Mannaerts GHH, Van Der Weiden RMF. Sequential urodynamic assessment before and after laparoscopic sacrocolpopexy. Acta Obstet Gynecol Scand 2013; 92:172–177.

This is a prospective single-centre follow-up study evaluating the effect laparoscopic sacrocolpopexy on urodynamic parameters and lower urinary symptoms. A total of 42 women were recruited, all of whom had post-hysterectomy vault prolapse (POP-Q stage II or III). All women had pre- and postoperative investigations including a POP-Q assessment, questionnaires (Urogenital Distress Inventory, Incontinence Impact Questionnaire and the Defecatory Distress Inventory), bladder diary, urodynamics, and dynamic MRI. Follow-up assessment included a repeat of all the investigations 6 months after surgery. All results were expressed as median and range and urodynamic parameters and questionnaire scores before and after surgery were compared using the Wilcoxon signed rank test. Urodynamic diagnoses before and after surgery were compared using the Chi-squared test. Laparoscopic sacrocolpopexy successfully corrected vaginal vault prolapse in all 42 women. The only significant changes in urodynamic parameters before and after surgery was bladder volume at first desire to void and maximal detrusor pressure at voiding phase. The bladder volume at first desire to void increased from 237 (40–558) mL pre-operatively to 301 (40–704) mL postoperatively ($p=0.01$). The maximal detrusor pressure at voiding phase decreased from 46.4 (8–151) cm H_2O to 30.7 (1–61) cm H_2O ($p=0.02$). In the questionnaire studies there was a significant reduction in overactive bladder symptoms ($p<0.001$) and in obstructive voiding symptoms ($p<0.001$) postoperatively. There was a tendency towards a reduction in urinary stress incontinence, but this did not reach statistical significance.

This study adds to the controversial data available on whether to perform simultaneous colposuspension in laparoscopic sacrocolpopexy procedures. In the Colpopexy and Urinary Reduction Efforts (CARE) trial, Burch colposuspension at the time of abdominal sacrocolpopexy significantly reduced postoperative urinary stress incontinence (USI). However, no postoperative urodynamics were performed and stress incontinence was assumed if there was a positive Pelvic Floor Distress Inventory, demonstration of stress incontinence using a standardised stress test or any treatment for stress incontinence after surgery. This current study showed neither de novo urodynamic stress incontinence nor increase in symptoms based on questionnaires. Despite the small sample size and the bias that could arise from the fact the postoperative evaluations were made by the surgeon who performed the laparoscopic sacrocolpopexy, the absence of adverse urodynamic findings following surgery does not support simultaneous routing prophylactic suspension procedures.

Could the low patient compliance of anticholinergics be due to progressive loss of effectiveness?

Uvin P, Boudes M, Menigoz A, Franken J, Pinto S, Gavaert T, Verplaetse R, Tygat J, Vennekens R, Voets T, De Ridder D. Chronic administration of anticholinergics in rats induces a shift from muscarinic to purinergic transmission in the bladder wall. Eur Urol 2013; 64:502–510

Anticholinergics such as oxybutynin and festoterodine are currently the first-line pharmacotherapy for patients suffering with overactive bladder (OAB). However, the compliance rate of patients taking anticholinergics is low and the reason for discontinuation has not been clearly determined. This study aims to explore the molecular mechanisms and evaluate the effects of chronic systemic administration of anticholinergics on bladder function and on expression of muscarinic and purinergic receptors in rats. Female Wistar rats had osmotic pumps implanted containing distilled water (vehicle), oxybutynin or festoterodine and were then placed in individually metabolic cages to measure voided urine and water uptake. One week after implantation of an oxybutinin-administering pump, the number of voided spots decreased significantly to 2.5±0.7 ($n=6$; $p<0.05$). However, at later points there was no significant difference compared with controls. The acute effects of oxybutynin following a chronic, 28-day oxybutinin treatment were evaluated using cystometry

where a significant increase in intermicturition interval from 3.8±0.2 min to 5.8 ±0.6 min in the vehicle group ($n=9$; $p<0.01$) was noted, whereas in the oxybutinin group the intercontractile time was not significantly different. Further functional experiments, using a strip of detrusor suspended in an organ bath, investigated the relevance of the down-regulation of the muscarinic receptor observed when protein level differences were studied using western blots. When the detrusor strip was stimulated with carbachol the amplitude of the contractions in the oxybutinin group was significantly lower than that of the vehicle rats. When the strips were stimulated with ATP, which aimed to explore the functional expression of the P2X1 receptor, the amplitude of the contractions was significantly higher in oxybutinin rats than in vehicle rats. They also tested this response on cultured urothelial cells to assess whether chronic treatment with oxybutinin modified the sensibility of the urothelium and found that chronic administration of oxybutinin induces plasticity of the bladder contractions towards a purinergic response.

This study has shown that the chronic administration of anticholinergics leads to a reduced functional expression and a shift of the bladder contraction mechanisms from muscarinic to purinergic systems. The results of this study may explain the reduced effectiveness and low compliance of anticholinergic treatment in human patients. A future possibility to overcome this is by combining anticholinergics with drugs that act on the purinergic system when the anticholinergics start losing their efficacy.

Are intravesical glycosaminoglycans more effective than antibiotics for the treatment of recurrent urinary tract infections?

Torella M, Stettin T, Salvatore S, Serati M, Franciscis PD, Colarurci N. Intravesical therapy in recurrent cystitis: a multi-center experience. J Infect Chemother 2013 [online] DOI 10.1007/s10156-013-0609-6.

This prospective study assessed whether intravesical therapy with hyaluronic acid (HA) and chondroitin sulfate (CS) is more effective than antibiotic therapy in reducing episodes and symptoms of recurrent urinary tract infections. Sixty-nine patients were recruited with a history of recurrent cystitis confirmed by a positive urine culture during at least two episodes in the previous 6 months or at least three episodes in the previous 12 months. Patients completed a validated questionnaire grading the symptoms (pelvic pain and urgency/frequency; patient symptom scale, PUF scale) and had a cystoscopy to exclude possible organic bladder pathology. The number of recurring episodes of urinary tract infections was compared in three groups of patients assigned to three different therapeutic regimens: the first group was treated only with HA and CS, the second group with HA and CS associated with fosfomycin, and the third group was treated only with fosfomycin. The number of recurrent episodes for each patient that occurred during a 6- to 12-month follow-up was assessed by urinalysis, questionnaires and a cystoscopy at 12 months. The results showed 72.7 % of patients in the HA-CS group, 75 % in the fosfomycin+HA-CS group, and only 30.4 % in the fosfomycin group were free of urinary tract infections at follow-up. The results were analysed using Fisher's exact test.

This study adds evidence supporting that intravesical therapy with glycosaminoglycans (GAGs), such as hyaluronic acid and chondroitin sulfate, is an effective therapeutic approach to treating and preventing episodes of recurrent cystitis. Previous studies have demonstrated that intravesical therapy is more effective than long-term antibiotic therapy in reducing recurrent urinary tract infections, with this study further supporting what has recently been published. Intravesical administration of GAGs acts directly on the urothelium tissue by reactivating mucosa junctions, which may be altered when microorganisms enter the host cells, therefore leading to bacterial elimination. This will then prevent the development of the chronic phase of the disease. GAGs are the main components of a healthy urothelium and form a mucopolysaccharide film that works as a chemical barrier and protects the urothelium from exogenous insults. Therefore, administration of GAGs acts as a preventative factor for future recurrent infections. Despite the growing evidence of the effectiveness of GAGs, antibiotics are still more commonly used in treating recurrent urinary tract infections. It is evident that a randomised control trial is warranted to establish whether intravesical therapy with GAGs is actually more effective than antibiotic therapy.

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