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Conservative Treatment in Male Urinary Incontinence

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Abstract

Prevalence, pathophysiology, diagnostic and therapeutic approaches of urinary incontinence are well studied in women, however studies on male urinary incontinence focus on incontinence following surgery of the bladder or prostate, predominantly incontinence after radical prostatectomy. Aging men suffer from incontinence; most frequently urge incontinence (Overactive bladder) nearly as often as women do. The domain of conservative therapy of urinary stress incontinence in men is pelvic floor training. It remains unclear whether biofeedback procedures, electrostimulation therapy or magnetic stimulation therapy can enhance pelvic floor training. There are data suggesting that an off-label therapy with Duloxetin®, a selective Serotonin-Noradrenalin-Reuptake-Inhibitor (SSNRI), improves urinary incontinence following radical prostatectomy. Antimuscarinics in combination with bladder training have been proven as safe and effective treatment in male patients with OAB. Data, however, suggest that men with OAB are far less frequently treated than women.

Keywords: Urinary incontinence; Male; Urodynamics; Benign prostate symptoms (BPS); Conservative treatment

Introduction

Urinary incontinence is a common symptom with age affecting both men and women. The International Continence Society (ICS) defines urinary incontinence as any unintentional loss of urine [1]. Although not life-threatening, so incontinence does have a significant impact on health related quality of life (HRQL) [2] and psychosocial burden [3]. Men and women with urinary incontinence are anxious and with their lives more dissatisfied than those continent [2].

Occurrence

Although prevalence of incontinence in men is given as 23% and men are almost as frequently affected aged as women, there is considerably more data on the female urinary incontinence compared to publications on male urinary incontinence [4]. This is especially true if searching for conservative treatment of urinary incontinence. Studies of male urinary incontinence examine almost exclusively surgical treatment for iatrogenic incontinence with a special focus on urinary incontinence after radical prostatectomy.

This was confirmed in a recent PubMed Research from the 16th of September 2016. Using the keywords, 'urinary incontinence' and 'women' we found 10079 entries compared to 2610 publications the keywords, 'urinary incontinence' and 'men'. Supplementing this search by the keyword, conservative treatment 'then we found 14 items for women and 31 for men including three review articles on conservative treatment for postprostatectomy urinary incontinence. Of the remaining 28 publications most studies focus on conservative therapy after radical prostatectomy and no work is specifically dedicated to the conservative treatment of urinary incontinence in men without prior surgery.

Symptoms of urinary incontinence in non-operated man are mostly, 'subsumed under the term lower urinary tract symptoms (LUTS) and in conjunction with an enlarged prostate as so-called, 'benign prostate syndrome' (BPS) '. Urinary incontinence is then seen as the result of a chronic progressive nature of BPS with increase in symptoms such as, urinary retention, incontinence or UTI [5]. The terminology adjoins the BPS on symptom descriptive term LUTS, the prostate enlargement (BPE) and the pathophysiological concept of bladder outlet obstruction (BOO) or based on the ground of a BPE benign prostatic obstruction (BPO). Terminology of LUTS, BPS, overactive bladder-described ("overactive bladder OAB") are often used .ignoring the definition of OAB which excludes the presence of recognizable local pathologies such as BPH, BPE or BOO from [1]. Decisions regarding treatment for BPH are [5] made subject to the current guidelines of benign prostatic obstruction (BPO). The degree of infravesical obstruction can be only objectified by a urodynamic pressure flow measurement.

Although after exclusion of severe bladder emptying problems conservative treatment can be initiated without further diagnostics it has to be emphasized that an accurate diagnostic evaluation of bladder dysfunction in only be achieved with an urodynamic examination, including a cystometry and a pressure/flow measurement. There is also a clear indication for a urodynamic examination in men, after radical surgery in the pelvis and in patients who suffer from neurological diseases (e.g. Parkinson's disease, Multiple sclerosis, cerebral infarction, lumbar spine syndrome, etc.) or if, in spite of invasive treatment continued symptoms consist [6].

The incidence of urinary incontinence after radical prostatectomy is varies in different studies with rates of 6%-83%, however, a year incidence of urinary incontinence is after surgery in specialized clinics with high number of radical prostatectomies at reported as lying well below 10% [7].

Urodynamic studies revealed in 90-100% of incontinent patients after radical prostatectomy the existence of a sphincter deficiency [8]

while an isolated detrusor dysfunction was only found in <5% of the urodynamic studies done in patients with in persisting in- continence after radical prostatectomy. As major risk factor incontinence after radical prostatectomy Boettcher et al. identified In this pre-existing bladder dysfunction [9]. During the first 12 postoperative months Porena et al. describe in their study that up to 77% of patients show detrusor overactivity and a low-compliance bladder [10]. Choosing treatment for incontinence after radical prostatectomy those facts need to be considered.

Non-Pharmacological Therapy

Pelvic floor muscles, biofeedback training and electrical stimulation therapy

Conservative therapies such as a pelvic floor muscle training (PFMT) alone, or in conjunction with biofeedback training and different modalities of electrostimulation using an anal probe, or as magnetic stimulation or peripheral nerve stimulation are the treatment modalities of choice particularly in the first year after radical prostatectomy.

Pelvic floor muscle training is defined as the repeated arbitrary and selective pelvic floor contraction [11]. This is intended to strengthen the striated, external sphincter muscles in order to support the primary urethral closure [12].

Bio feedback training (BF) is done with the intention to teach the patient's to do pelvic floor exercises correctly. Biofeedback can be done with the help of technical using tactile, acoustically or visualized signals. Latter can be done using perineal sonography [13]. The goal is for the patient to, specifically contract pelvic floor muscles including the striated part of the urethral sphincter.

The concept of electrical stimulation therapies (ES) is a passive training through the stimulation of the pudendal nerve and its branches with intermittent pulses of current stimuli of urethral and periurethral muscles. However, the exact mechanism of action has not yet been finally clarified. Depending on the choice of stimulation parameters, it is suggested that stimulation of the PFM causes external sphincter contraction and may increase maximal urethral closure pressure. In OAB electrostimulation might suppress DO through activation of pudendal nerve afferents blocking parasympathetic detrusor motor fibres at the spinal reflex arc, activation of inhibitory hypogastric sympathetic neurons, or a combination of both mechanisms [14]. Electrostimulation therapy and biofeedback training are almost always combined with pelvic floor muscle training under physiotherapeutic supervision.

In the 5th edition of the International Consultation on Incontinence 32 randomized controlled studies for the conservative treatment are evaluated after radical prostatectomy. In a few studies PFMT have has been started prior to surgery with. The research group led by Moore et al. [4] summarizes that incontinence can be reduced in the first three months after surgery with a combined therapy of PFMT and bio-feedback under the supervision of professional physiotherapy. It remained however unclear how patients could benefit from professional guidance compared to the sole practicing at home for a longer period of observation. The recommendations of the ICI (recommendation grade B) leave this decision in view of the lack of data to the individual therapist. An adjunctive therapy with electrical stimulation does not seem to improve the results of conservative therapy [4]. Generally it is postulated that an early start of a conservative training leads to better results. In accordance with those findings. Wille et al. could also not demonstrate superiority of a conservative training with electrostimulation and biofeedback compared to pure PFMT in a prospective randomized trial with 139 patients whose treatment started the day after catheter removal [15].

Extracoporeal magnetic electrostimulation therapy, EXMI (magnetic therapy)

A special form of electrostimulation is the magnetic stimulation therapy. In contrast to electrostimulation extracorporeal magnetic electrostimulation therapy (more commonly called magnetic stimulation) stimulates the pelvic floor muscles (PFM) and sacral nerve roots without insertion of an anal or vaginal probe for treatment the individual is positioned in a chair. Within the seat is a magnetic field generator (therapy head) that is powered and controlled by an external power unit. A concentrated steep gradient magnetic field is directed vertically through the seat of the chair. When seated, the individual's perineum is centered in the middle of the seat, which places the PFM and sphincters directly on the primary axis of the pulsing magnetic field. No electricity, but only magnetic flux enters the body from the device Compared to the electrical stimulation, the magnetic stimulation is characterized by a better penetration and a higher intensity [16]. The effectiveness of magnetic therapy is not well documented and there are even fewer studies dealing with the treatment of male urinary incontinence [17].

Change in lifestyle

Most studies change in life style such as different options for bladder management, regimes of prompted voiding, adapting fluid intake, avoiding medication with impact on the lover urinary tract, weight reduction or diets are focused on incontinence treatment in older patients but data are mostly not stratified by gender. Newman et al. conclude in their review that, although positive lifestyle changes such as weight loss in obese men and dietary modification can lessen urgency, nocturia, and incontinence, urologists rarely recommend this to their patients.

Medical Therapy

Drug therapy of stress incontinence

Currently no pharmacological drug for the treatment of male stress urinary incontinence is approved. For the treatment of female stress urinary incontinence by contrast, has Duloxetin®, a selective serotonin -norepinephrine reuptake inhibitor (SSNRI) has been approved at least in some countries [18].

The inhibiting the reuptake of these neurotransmitters ultimately leads to increased neuronal activity of the pudendal nerve with consecutive enhanced sphincter tone. In addition, at the same time results in a relaxation of the detrusor muscle [19]. Schlenker et al. published the first study on the administration of duloxetine in men with urinary incontinence after radical prostatectomy and radical cystectomy. In 20 male patients 40 mg/2× duloxetine was used. In seven patients stress incontinence was significantly reduced, they used one or no pad; however, six patients discontinued treatment because of significant side effects from [20]. Urodynamic testing revealed a slight increase in urethral closure pressure [19]. However, but these data are still insufficient for a final assessment of the effectiveness of drug therapy of urinary incontinence after radical surgery with duloxetine

[21]. In a larger, prospective randomized study with 102 patients Filocamo et al. examined a combination of BFMT with additional pharmacological treatment using Duloxetin® [22]. Although patients with additional pharmacological treatment benefitted, having less urinary incontinence and better quality of life but side effects of Duloxetin®, especially nausea caused 15.2% of patients receiving duloxetine-medication to discontinue. Treatment with Duloxetin® as an off-label treatment remains to the individual decision of the therapist for specially selected patients with bothersome urinary incontinence [23].

In addition to duloxetine antimuscarinic drugs, phosphodiesterase inhibitors, and α-adrenergic drugs have been proposed as medical treatments for incontinence following radical prostatectomyI. As confirmed by a recently published review most studies are small and use different criteria for quantifying incontinence and assessing treatment results. Thus, there is not enough evidence to recommend the use of these medications as standard treatment of PPI. To determine whether medical therapy is a viable option in the treatment of PPI, randomized, placebo-controlled studies are needed that also assess side effects in the elderly population.

Drug therapy of OAB

Men, who suffer from urinary incontinence without surgery on the prostate or bladder, mostly have symptoms of OAB. Comorbidity such as diabetes mellitus, neurological diseases such as Parkinson's disease, cerebral infarction, lumbar spine syndrome, etc., and drug-induced reduction in vigilance, playing a significant role in the manifestation of incontinence and urgency.

The domain of the treatment of OAB - with and without loss of urine is next to the bladder training and lifestyle changes medical therapy with anti-muscarinergic drugs.

In a 19.09.2016 conducted PubMed literature search we found under the keywords, 'OAB', and 'medication' 192 entries. Most of the studies evaluated patients regardless of gender. Using the keywords, 'OAB' 'medication' and 'women' we found 53 entries, compared to search the same search in men we found 20 entries. Most of the studies found investigated symptoms of BPS using a combination therapy of alpha-blockers or finasteride with an antimuscarinic therapy.

A large database study including 7,244,501 patients over 45 years with OAB showed that men received significantly less frequent medication targeted at OAB in each age group ($p<0.001$) [24]. Although, there are several studies, especially for tolterodine showing that a antimuscarinerc therapy is safe and effective in men [25,26].

Conclusion

Although sparse, there are data to support conservative interventions as the first-line treatment in men with LUTS. There is a strong recommendation for implementing a pelvic floor muscle training (PFMT) program before and after prostatectomy. Pharmacological treatment in men with OAB is safe but men are significantly less often treated and despite growing evidence on effectiveness, urologists rarely recommend conservative treatment to patients. Data available in male urinary incontinence is significantly worse than in the well-studied female patients with urinary incontinence. Men should be diagnosed with regard to the underlying pathophysiology and should be considered for conservative therapy.

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