

# Risk Factors For Urinary Incontinence In Men And Modern Treatment Methods (Literature Review)

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## Abstract

Urinary incontinence in men is a serious socio-economic problem. On the one hand, incontinence significantly reduces patients' quality of life. It leads to social maladaptation; however, treatment and care for them require high financial costs. There is no exact statistical data on the prevalence of urinary incontinence in men and its various types in Russia and abroad. The article discusses scientific publications on the leading medical and social risk factors for urinary incontinence and its treatment methods.

**Keywords:** urinary incontinence, treatment, risk factors, data from scientific publications

## Introduction

The analysis of urological morbidity showed that diseases of the genitourinary system consistently occupy the third place in the structure of prevalence and the fourth place in the form of morbidity of the adult population of Moscow, the Moscow region and the Russian Federation. In 2021, in the Moscow region, their proportion was 7.6% among newly detected diseases and 8.7% among all diseases registered among the adult population. The primary incidence of MPS diseases in the adult male population of the Moscow region decreased in 2021, compared with 2018, by 33.7% (from 4750.7 to 3149.2 per 100,000 population), kidney and ureteral diseases - by 16.3% (from 144.4 to 120.8 per 100,000 population), urolithiasis - by 8.3% (from 111.3 to 102.1 per 100,000 population), prostate diseases - by 48.7% (from 882.9 to 453.3 per 100,000 population). However, this trend in the dynamics of urological morbidity does not correspond to the results of special epidemiological studies. It may be due to incomplete registration of these diseases and a low level of diagnosis.

Among the leading pathology in the male population is incontinence. Urinary incontinence in men is a serious socio-economic problem. On the one hand, incontinence significantly reduces patients' quality of life. It leads to social maladaptation; however, treatment and care for them require high financial costs. There is no exact statistical data on the prevalence of urinary incontinence in men and its various types in Russia. In the multicenter UREPIK study, the majority of male incontinence was 16.3%, while only 25.9% of patients sought medical help [1].

## Results and discussion

According to the studied materials of scientific publications and studies in the Moscow region, including 9071 men over 20 years old, urinary incontinence was noted by 13.9% of respondents, including urgent incontinence – 8.3% [2]. The annual cost of treating a patient with urinary incontinence is more than twice that of a patient without incontinence [3].

Typically, urinary retention in men results from the interaction of anatomical structures (bladder, urethra, pelvic floor muscles) and the nervous system. Retention is achieved by contracting the sphincter and pelvic floor muscles and relaxing the detrusor. Conversely, controlled urination implies relaxation of the sphincter and pelvic floor muscles with simultaneous reduction of the detrusor. Damage to the pelvic floor muscles or a violation of neurogenic control leads to urinary retention and incontinence. According to the International Society for Urinary Retention (ICS) definition, urinary

incontinence should be understood as any involuntary loss of urine. The stressful form is the unintentional loss of urine with effort, tension, sneezing or coughing, while an urgent urge accompanies urgent incontinence. When these symptoms are combined, a mixed form of incontinence should be suspected [4]. Risk factors for urinary incontinence in men include a high body mass index, diabetes mellitus and prostate diseases. In most cases, the stressful form of urinary incontinence in men is a consequence of previous prostate interventions [5-7].

The risk of this type of urinary incontinence is associated with operations such as transurethral resection of the prostate gland and transperineal adenectomy for benign prostatic hyperplasia. Still, it is more related to radical prostatectomy, when persistent urinary incontinence is observed in 8-20% of patients [8-10].

**Diagnostics.** The effectiveness of treating patients with urinary incontinence largely depends on the correct diagnosis. When collecting complaints and anamnesis, it is essential to identify patients who need additional examination. These include patients with complaints of blood impurities in the urine, pain, recurrent urinary tract infections, neurological disorders, and patients who have previously undergone radiation therapy. For each patient, it is advisable to establish the start time, duration, causes of urinary incontinence, and the number of pads used. Questionnaires are used to assess the nature and severity of symptoms, the patient's concern about incontinence and its impact on lifestyle. With the help of urination diaries, it is possible to estimate the volume of urine lost, the frequency of incontinence episodes during daytime and night hours, and the presence of urgent urges. Both questionnaires and urination diaries are convenient tools in the dynamic monitoring of patients. Direct examination of the patient includes palpation of the bladder (to exclude paradoxical ischuria) and assessment of mental and neurological status. Violations at the S2-4 level can be established by assessing the tone of the anal sphincter, the sensitivity of the perineal skin and the bulbo-cavernous reflex. Urethrocystoscopy with a bulbar test is performed to detect partial or complete sphincter insufficiency, exclusion of urethral strictures and bladder neck stenosis. If a stricture is detected, it should be eliminated before treating urinary incontinence. Stones, diverticula, and tumours should be excluded when examining the bladder. Laboratory tests include general urine analysis and bacteriological examination of urine. The volume of residual urine is determined by ultrasound. From the point of view of urodynamics, stress urinary incontinence is defined as involuntary leakage of urine with an increase in intra-abdominal pressure and the absence of detrusor contractions. Incontinence with detrusor hyperactivity is defined as loss of urine due to involuntary contractions [11]. It is worth noting that there is no need for routine urodynamic examination.

In most cases, a thorough history collection and physical analysis, combined with such simple diagnostic methods as a urination diary, a pad test and a general urine test, allow patients to be selected for conservative treatment. Conservative treatment reduces the severity of urinary incontinence symptoms, especially in elderly patients, and allows adequate therapy of concomitant diseases such as heart and kidney failure, diabetes, chronic obstructive pulmonary disease, etc. Lifestyle changes, including weight loss, restriction of fluid intake, abstinence from alcohol, smoking and the use of products containing caffeine, also positively affect the degree of continence [12].

According to the recommendations of the European Society of Urology, M-cholinolytics should be used as first-line drugs in patients with urgent urinary incontinence. Their action consists of the blockade of muscarinic receptors of the bladder wall, leading to a decrease in the sensitivity and contractility of the detrusor. The most common side effect of therapy is dry mouth. In patients with intravesical obstruction, a combination of cholinolytics with alpha-blockers is effective. Duloxetine, an inhibitor of serotonin and norepinephrine reuptake, often causes side effects in the gastrointestinal tract and central nervous system. It is used to improve the clinical picture temporarily and does not lead to a cure for urinary incontinence [12]. In patients with a stressful form of urinary incontinence after prostate surgery, pelvic floor muscle training is usually carried out during the first 6-12 months.

Training allows you to improve the strength and duration of skeletal muscle contractions. In the case of a good patient's adherence to treatment, the number of episodes and the volume of losses decreases and continuity is achieved earlier [13-16]. External devices, which include external clamps, a permanent urethral catheter, a condom ureter and pads, are unacceptable from a social point of view. Complications caused by external clamps include swelling, pain, erosion and stricture of the urethra. A permanent catheter is associated with recurrent urinary tract infections, urethral trauma and stone formation. Surgical treatment. In case of ineffective conservative therapy, surgical treatment options should be discussed depending on the form and degree of urinary incontinence and the patient's preferences. In patients with hyperactive bladder (GAMP), refractory to conservative treatment, intravesical administration of botulinum toxin type A is used. There is no consensus on the localization, number and volume of injections. The most common side effect of injections is an increase in the amount of residual urine, which requires intermittent catheterization [17].

Another method of surgical treatment of GAMP refractory to cholinolytics is sacral neuromodulation, which consists of the percutaneous insertion of an electrode into the sacral foramen near the sacral nerve. The five-year effectiveness of treatment is 50-63%, and the cure rate is 15% [18]. In case of ineffectiveness of the above methods, magnifying plastic surgery of the bladder and various options for urine removal are used. Surgical treatment is indicated

for patients with persistent urinary incontinence [19-20]. The most widespread was the implantation of a sling for mild and moderate urinary incontinence and installing an artificial urinary sphincter for severe UI. The self-retaining retourethral transobturatoric sling showed the best results among all sling operations. Its mechanism of action is not associated with mechanical compression of the urethra but with the support of the external sphincter of the urethra with an increase in intra-abdominal pressure during physical exertion [21]. As a result, the available length of the urethra increases [22]. In a large European study, the success rate of the sling was 76.9% (cure – 53% and improvement – 23.8%). The overwhelming number of complications were transient pain, discomfort in the perineum and acute urinary retention, resolved conservatively. There were no cases of urethral erosion.

It is worth noting that during the three-year observation, there was no decrease in the effectiveness of the sling [23]. Even in the case of ineffective sling implantation, installing an artificial urinary sphincter does not carry additional risks. The mechanism of action of regulated slings is more related to urethral compression. Their effectiveness is 54-79%, while correction of sling tension is necessary for 10-100% of patients. Complications are noted more often and have a more severe character – these are: infectious (5-7%), urethral erosion (3-13%), pressure sores (2-35%), bladder perforation (5-29%), urinary retention (35%) and perineal pain (4-38%) [24-25]. The “gold standard” for treating stress urinary incontinence is the installation of an artificial urinary sphincter. The AMS 800 model is currently the most widely used. Its device consists of a cuff located around the bulbous urethra or neck of the bladder, a pump placed superficially in the scrotum, a reservoir and tubes connecting all components. Continence is achieved by mechanical compression of the urethra with a cuff.

To control the device, the patient must have a preserved mental status and the ability to perform small finger movements. The retention rate (0-1 pad) after implantation of the sphincter is 59-91%. Despite satisfactory retention results and quality of life, IC implantation is expensive and associated with a high risk of complications. The frequency of revisions and/or deletions of the structure can be 30%. The most frequent complications include atrophy (4-10%) and erosion (4-10%) of the urethra, infectious complications (1-14%) and mechanical failure (0-29%) [26 -27].

**Conclusion.** Thus, in most patients, a thorough analysis of complaints and anamnesis allows for differentiating the type of urinary incontinence. Conservative therapy is indicated for patients with urge incontinence. The priority of first-line drugs is M-holinoblockers. Surgical treatment is indicated for patients with urinary incontinence, refractory to conservative treatment. Stress urinary incontinence in men is mainly a consequence of iatrogenic injuries. With persistent stress urinary incontinence of mild and moderate severity, the installation of a male sling should be considered. Implantation of an artificial urinary sphincter has good effectiveness but, at the same time, is associated with a high risk of complications.

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