



## URINATION DISORDERS IN PREGNANT WOMEN

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**Annotation.** Pregnancy is manifested by a host of changes in a woman's body, and changes in the urinary system are no exception. But the line between normality and pathology still remains; the vast majority of authors directly or indirectly associate the development of urination disorders in reproductive age with pregnancy and childbirth. Therefore, the purpose of the study was to examine the frequency and nature of urinary disorders during pregnancy to identify significant risk factors. Pregnant women who applied to the multidisciplinary clinic of SamSMU with urinary disorders in 2023 were examined.

**Key words:** urinary dysfunction, urinary incontinence, pregnancy, reproductive age, body mass index (BMI), overactive bladder (OAB).

**Relevance.** According to Prospective Urinary, up to 30% of women of reproductive age suffer from various types of urinary disorders, which significantly reduce the quality of life (Incontinence Research - PUIR, 2006). In the vast majority of cases, urinary disorders are associated with pregnancy and childbirth [9, 11, 16]. When surveyed using the King's Health Questionnaire, 54% of women with UI in the third trimester of pregnancy reported a negative impact of symptoms on quality of life. In a study by G. Ro1 et al. There was a statistically significant increase in depressive symptoms in pregnant women with urgent UI at 36 weeks of pregnancy [1, 7, 19].

The basis of overactive bladder syndrome (OAB) is detrusor overactivity, a urodynamic concept that refers to involuntary spontaneous or provoked contractions of the detrusor during the filling phase. Currently, there are two main forms of detrusor overactivity: neurogenic and idiopathic [5, 13]. Neurogenic causes of OAB development involve impaired innervation of the bladder due to neurological diseases and injuries. There are supraspinal lesions (Parkinson's disease, multiple sclerosis, Alzheimer's disease, stroke, etc.) and suprasacral lesions (osteochondrosis, spinal spondyloarthrosis, Schmorl's hernia, myelomeningocele, etc.). Risk factors for idiopathic (non-neurogenic) detrusor overactivity include age-related changes, bladder outlet obstruction, myogenic and anatomical changes in the vesicourethral segment, as well as sensory impairment.

**Purpose of work:** study the frequency and nature of urinary disorders during pregnancy to determine significant risk factors.

**Materials and methods:** Patients were examined at the multidisciplinary clinic of SamSMU at the Department of Obstetrics and Gynecology 1. A total of 418 pregnant women who complained of urinary disorders in 2022 took part in the study. The control group consisted of 50 healthy pregnant women.

During the study, the following examination methods were used: collection of complaints and anamnesis, general clinical examination methods (general blood count,

general urinalysis, biochemical blood test, coagulogram), ultrasound examination of the condition of the fetus and urinary organs.

The age of the patients ranged from 23 to 39 years, the average age was  $28.2 \pm 2.38$  years.

All received materials were subjected to automated statistical processing. Variation-statistical processing of the research results was carried out using the "Statistics 6.0" program, determining the main indicators of variation: average values (M), average errors (m), standard deviation (p).

The reliability of the results obtained was determined using the Student's test. The difference between two means is considered significant if the p-parameter is less than 0.05. The confidence level was at least 95%.

**Results of the study:** It was found that the majority (47.4%) of pregnant women with urinary disorders were aged from 30 to 34 years; 34.4% of patients are from 25 to 29 years old; 11.5% of patients are from 18 to 24 years old; the share of other age groups accounted for no more than 5%. 27.9% of women had normal body weight, 38.4% of patients had overweight, 28.7% had stage I obesity. In the group of women with stressful and mixed UI, the average BMI values were higher than in the control group ( $p < 0.02$ ). It was established that there was an increased risk of urinary disorders in the group of women with a BMI value of more than 25 kg/m<sup>2</sup>, CI = 1.15 (95% CI 1.05-1.30;  $p < 0.05$ ). When assessing the obstetric history, the number of previous pregnancies and their outcome were revealed. It was found that 62.6% of women in the study group had a history of one to seven pregnancies (average  $1.9 \pm 1.33$ ). According to the number of pregnancies, the group was distributed as follows: 33.9% of patients had a second pregnancy, 20.7% of women had a history of 2 to 3 pregnancies, 8.0% of women had more than 3 pregnancies.

It was found that 31.4% of women with urinary disorders had a history of 1 to 4 vaginal births (average  $0.9 \pm 0.52$ ). Of these, 25.3% of women had one birth, 39% had two births, and 35.7% had three or more births. 10.2% of patients had a history of cesarean section (mean number of cesarean sections  $0.5 \pm 0.34$ ). 28.4% of patients indicated a history of artificial termination of pregnancy in the early stages, 20.3% of women had a history of one to three spontaneous miscarriages.

In women with urinary disorders, the weight of newborns in previous births ranged from 1680 g to 5300 g (average weight  $3346.3 \pm 162.1$  g). In 30.5% of patients, the weight of the newborn was more than 4000 g, while in 100% of cases the birth was carried out through the vaginal birth canal with dissection of the perineum.

In patients with mixed UI, the average weight of the newborn, when compared with the control group, was significantly higher:  $3544 \pm 121.3$  g and  $3173 \pm 97.6$  g, respectively ( $p < 0.01$ ).

The number of pregnant women (9%) with various types of urinary disorders, having symptoms even before real pregnancy, was higher than in the control group ( $p < 0.001$ ). However, only two patients received conservative therapy for urgent urinary incontinence with a positive effect before this pregnancy. A statistically significant risk of manifestation of urinary disorders during pregnancy in women who had symptoms before this pregnancy was established, RR = 1.74 (95% CI 1.12 - 1.94;  $p < 0.001$ ). All patients who suffered from urinary problems before this pregnancy noted a worsening of symptoms during pregnancy. Using

correlation analysis, a direct moderate relationship was revealed between the presence of symptoms of urinary disorders before and during this pregnancy ( $r = 0.32$ ;  $p < 0.05$ ).

**Conclusion.** Summarizing the data obtained, the leading risk factors for all types of urinary disorders during pregnancy are: their existence before the present pregnancy (AR = 1.74; 95% CI 1.12 - 1.94;  $p < 0.001$ ); age of patients over 35 years (AR = 1.41; 95% CI 1.36 - 4.54;  $p < 0.05$ ); presence of a history of pregnancy (AR = 1.27; 95% CI 1.16 - 1.56;  $p < 0.002$ ) and a BMI value  $> 25 \text{ kg/m}^2$  (AR = 1.15; 95% CI 1.05-1.30;  $p < 0.05$ ). For stressful and mixed UI, a specific risk factor is a greater number of births through the birth canal, for mixed UI - a relatively large weight of the newborn (increase by 11.7%) in previous births, compared to the control group (AR = 1.38; 95 % CI 1.02 - 1.85;  $p < 0.01$ ).

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