

Risk Factors for Urogenital Disorders during Pregnancy and after Childbirth

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ABSTRACT

Introduction: pregnancy and childbirth are the physiological processes, but have a significant impact on both the functions of particular organs, and the woman's body as a whole, and often lead to the emersion of different symptoms, which significantly reduce the quality of life. These are the manifestation of urogenital disorders (MUD) during pregnancy and after childbirth. Mental and physical sufferings of patients stimulate obstetrician-gynecologists and urologists to the joint search for the causes of MUD in women, to the differentiated work out of individual methods of prevention, improving of diagnosis and treatment of this pathology.

Aim: to study the risk factors, including the presence of extragenital pathology in women with MUD.

Materials and methods: preliminary survey has been carried out, 51 women-patient have been defined with complaints for MUD – the main group. The urogynecological questionnaire has been filled in, the diaries have been kept on urination, the results of functional tests have been evaluated as well as of ultrasonography of the lower urinary tract. The comparison group consisted of 50 women who gave birth without any signs of MUD.

Results: the results of conducted reserach indicate the important role of extragenital pathology, in addition to the burdened obstetric and gynecological history as a risk factor for urogenital disorders during pregnancy and after childbirth.

Conclusions: the high frequency of somatic diseases, which are the visceral manifestations of the syndrome of undifferentiated connective tissue dysplasia in women of the main group, indicates that a generalized defect of connective tissue is one of the reasons for the manifestation of the symptoms of urogenital disorders during pregnancy and after childbirth in women of reproductive age. The gained results must be taken into account when developing the methodology of forecasting the urogenital disorders in women during pregnancy and after childbirth.

KEY WORDS: urogenital disorders, extragenital pathology.

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INTRODUCTION

The quality of life of reproductive age women is determined by many factors. Pregnancy and childbirth are the physiological processes, but have a significant impact on both the functions of particular organs, and the woman's body as a whole, and often lead to the emersion of different symptoms, which significantly reduce the quality of life. These are the manifestation of urogenital disorders (MUD) during pregnancy and after childbirth. Many researchers have proved that an overwhelming number of women suffering from MUD have had a history of pregnancy and childbirth [1, 3]. The MUD rate in pregnant women, according to different authors, varies from 12% to 74% [2, 3]. The rate of MUD incidence after the first childbirth varies from 24% to 29% [4, 5]. It has been noted that with some women the control over urinary incontinence is restored spontaneously within a few weeks or months after childbirth. However, according to the EPIN-CONT study (2009), 42% of this group women during 5 years experience the development of persistent stress urinary incontinence (UI); and among women, who have noted even rare single UI episodes, continuing after childbirth, UI stress develops over 5 years in 92% of cases [6, 7]. The MUD impact on the life quality ranges from significant to devastating [1, 2]. Mental and physical sufferings of patients stimulate obstetrician-gy-

necologists and urologists to the joint search for the causes of MUD in women, to the differentiated work out of individual methods of prevention, improving of diagnosis and treatment of this pathology. In the available home scientific literature we have not received adequate information about the rate of MUD during pregnancy and after childbirth. In numerous studies on MUD risk factors we found no generalizations that could forecast the risk of MUD developing during pregnancy and after childbirth, could allow to identify risk groups. The extremely high frequency of MUD symptoms during pregnancy and after childbirth followed by persistent MUD in women of reproductive age became the basis for our study and has been identified as it aim.

AIM OF THE STUDY

To study the risk factors, including the presence of extragenital pathology in women with MUD.

MATERIALS AND METHODS

To achieve the aim the preliminary survey has been conducted. After its results 51 women-patient have been defined with complaints for MUD, who constituted the main group. Verification of the diagnosis and determination of the MUD type have been carried out on the basis of filling in the uro-

gynecological questionnaire, keeping the diaries, results of functional tests and ultrasonography of the lower urinary tract. The comparison group consisted of 50 women who gave childbirth without MUD signs. In the future, based on the statistical analysis of data on heredity, obstetric, gynecological and somatic history the risk factors for MUD during pregnancy and after giving childbirth have been identified to assess each of the factors. At the preliminary stage, we have considered burdened obstetric and gynecological history as a risk factor in the MUD development during pregnancy and after childbirth. With the given research we have examined extragenital pathology as a risk factor for MUD during pregnancy and after childbirth.

RESULTS AND DISCUSSION

The results of the research testify that among the 51 patients of the main group in 71.1% cases MUD first appeared after the childbirth, in 28.9% – the first symptoms have been observed during pregnancy and continued after the childbirth. The comparison group consisted of 50 women with no MUD during pregnancy and after childbirth. All of the women were of reproductive age, from 18 to 42 years old. The average age in the study group was significantly higher and amounted to $30,8 \pm 6,6$ years, in the comparison group the average age was $25,4 \pm 5,4$ ($p < 0.05$). The level of physical activity according to the risk classification of MUD is a contributing factor. In order to identify the possible impact of heavy physical work on the development of MUD symptoms we have studied the structure of employment, working conditions and occupational hazards in the main group and the comparison group. This showed that the patients from the study group were more likely to have engaged in heavy physical labour ($p < 0.05$), working women from the comparison group were more likely to perform light work ($p < 0.05$). Differences in groups based on such signs as employment in harmful work, emotional stress at work, house-keeping are not statistically significant. In the study of gynecological history violations of menstrual function have been revealed in 27.9% of women from the main group and in 16.0% of women from the control group ($p < 0.001$). Gynecological diseases were totally diagnosed in 65.7% of women from the main group and in 38.0% of women the comparison group ($p < 0.001$), of which 2 or more of the diseases were reported in 31.8% of women from the main group and in 24.0% of women groups comparisons ($p < 0.05$). According to the classification of risk factors, pregnancy and childbirth are the precipitating factor in the development of MUD [2, 7]. In this case we have found that the majority of women in both groups are multiparous women who had abortions ($p < 0.001$). There are four times less nulliparous primigravidas in the main group than than in the comparison group ($p < 0.001$), and there are two times more nulliparous who had abortions than in the comparison group ($p < 0.001$). However, the difference between groups in the number of multiparous women who did not have abortions was not statistically significant ($p > 0.05$). Based on these results, the apparent fact is that of considerable importance is not only the quantity of labour, but also the total number of pregnancies in women. The analysis has been conducted in general of the number of pregnancies among

women from the main group. It was found that the average number of pregnancies per 1 woman in the study group is 1.7 times higher than in the comparison group, and is respectively $4,2 \pm 0,08$ and $2,6 \pm 0,07$ ($p < 0.001$). In the light of the theory of structural-anatomic failure of MUD we assume that the happened and then terminated pregnancy and induced with abortion fluctuation in hormone levels and other biologically active substances, including the magnesium deficiency developing during pregnancy, have a pathological effect on the originally defective connective tissue. Subsequent generations lead to decompensation and the development of clinically significant pathological states, including MUD after childbirth [1-7]. We have studied the course and complications of pregnancy in women of the main group and the comparison group. In both groups we have found a high incidence of various complications of pregnancy. Totally 83.3% of women of the main group and 76.0% of female control group ($p < 0.05$) had complications of pregnancy. It is noted that 2 or more complications in the study group were identified in 64.7% of women, while in the comparison group – 48.0% of patients ($p < 0.001$). Among the complications in childbirth in the main group we more likely to see: premature rupture of membranes ($p < 0.05$), preterm childbirth ($p < 0.05$), faster ($p = 0.05$) and rapid ($p < 0.05$) childbirth. The operative delivery ($p < 0.001$), possibly due to the high incidence of complications of pregnancy and the first stage of childbirth, has been noted twice often in the study group. These results are confirmed in the literature – in women with a birth defect of connective tissue, pregnancy leads to a breakdown of adaptive mechanisms, which manifests an increase in the frequency of complications of pregnancy, childbirth and the postpartum period [1-7]. According to the classification of risk factors the damage of the pelvic nerves and the pelvic floor muscles are a provoking factors in the MUD development [1-7]. It was found that among the nulliparous the violation of integrity of the soft tissues of the birth canal occurred in 44.1% of women of the main group and 20.0% in the comparison group ($p < 0.001$). Among the multiparous the damage of the birth canal soft tissue has been found in 24.8% of women of the main group and in 14.0% of women the comparison group ($p < 0.05$). In general, the differences in the frequency of damage of the birth canal soft tissue in both nulliparous and multiparous of the main group and the comparison group are clear and show the significant effect of violation of anatomy and function of the perineum on the MUD risk. Consequently, the results of preliminary studies indicate the significant role of the burdened obstetric and gynecological history as a risk factor of MUD during pregnancy and after childbirth. The obtained results need to be considered in the development of methods to predict MUD in women of the reproductive age. The generalized defect of connective tissue involves multiple organ symptoms. The incidence of extragenital diseases, which are the clinical manifestations of undifferentiated connective tissue dysplasia (UCTD), has been studied in women of the main group and the comparison group. Totally the burdened somatic anamnesis was detected in 92.6% of women from the main group and in 54.0% of comparison group ($p < 0.001$). Noteworthy is the fact that 63.2% of women of the main group had 2 or more extragenital diseases and in

the comparison group – only 20.0% ($p < 0.001$). Among visceral UCTD markers the most studied are the small anomalies of the heart, including mitral valve prolapse (MVP). MVP among the incontinent women from the main group has been identified 3.7 times often than in healthy women of the control group ($p < 0.001$). MVP is often accompanied by the emersion of various cardiac arrhythmias, autonomic dysfunction of the sinus node, atrioventricular block, supraventricular and ventricular premature beats. Electrocardiogram changes, including conduction abnormalities, arrhythmias and repolarization are observed in patients of the main group 2.8 times often than in the comparison group ($p < 0.001$). The high frequency of disorders of the autonomic nervous system is caused by inherited features having UCTD of the structure and function of limbic-reticular complex, including the hypothalamus, stem and temporal lobes of the brain. The disorders of the autonomic nervous system (DANS) in patients of the main group have been noted 2.1 times often than in the comparison group ($p < 0.001$). The inherent inferiority of venous wall and valvular lesion at UCTD are the cause of the pathology of the venous system and the early manifestation of hemorrhoids. The observance of hemorrhoidal circulation indicates the violation of the pelvic floor, which in its turn may be the cause of its failure. In the study of the frequency of cardiovascular disease among patients from the main group the phlebeurysm of veins (PHV) of the lower extremities was observed 2.6 times often, hemorrhoids – 3.7 times often than in the comparison group ($p < 0.001$). Bronchopulmonary defeat at UCTD is characterized by the violation of the architectonics of the lung tissue, leading to its increased extensibility and reduced elasticity. Tracheo-bronchial dyskinesia is one of the causes of bronchial obstruction and chronic cough. The violation of the immune system at UCTD have been defined with manifestations of recurrent chronic inflammatory processes of the upper respiratory tract, otolaryngology organs, lungs, kidneys and skin. Among the incontinent women of the main group the frequent colds occurred 1.9 times often, chronic inflammatory diseases of the upper respiratory tract – 3.2 times often, chronic tonsillitis and tonsillectomy – 2.8 times often than the comparison group ($p < 0.001$). Visceroptosis and herniation are the clear manifestations of generalized connective tissue defect. The most urgent urological pathologies associated with defective connective ligament apparatus of the kidney is nephroptosis. Nephroptosis has been noted in patients from the main group 3.3 times often, hernia in different localization – 9.2 times often than from the comparison group ($p < 0.001$). UCTD is characterized with pathology of the eyesight organs, presented by myopia, hyper- and gipometripiy, changes in the fundus, the increase in the length of the eyeball, cornea flat, blue sclera, strabismus. Pathology of eyesight, including changes in the fundus and myopia, have been noted 2 times often in the study group than in the comparison group ($p < 0.001$). The loose collagen vascular framework explains the tendency of patients with UCTD to allergic reactions, and the severity of the possible skin manifestations to anaphylactic shock. Allergic reactions to medicines, food, hay fever in the study group were observed 3.4 times often than the comparison group of women ($p < 0.001$). The high degree of collagenization of digestive organs conditions

the variety of pathological manifestations on the part of the digestive tract. Patients with symptoms of UCTD are characterized by the early debute of pathology of the digestive system, also by displays of pain syndrome and inflammatory changes in the mucosa of the gallbladder abnormalities, often associated with impairment of biliary tract motility, reflux esophagitis and duodenal reflux, also by symptoms associated with impaired evacuation function of the terminal part of the intestine. Chronic constipation was noted in patients of the main group 2.7 times often ($p < 0.001$), biliary dyskinesia – 1.5 times often ($p < 0.05$), chronic gastritis, gastroduodenitis – 1.2 times often ($p < 0.05$) than in the control group.

CONCLUSIONS

Thus, the high frequency of extragenital diseases, which are the visceral manifestations of the syndrome of undifferentiated connective tissue dysplasia in women of the main group, suggests that the generalized defect of connective tissue is one of the causes of symptoms of manifestations of urogenital disorders (MUD) during pregnancy and after childbirth in women of the reproductive age. The obtained results need to be considered in the development of methods to forecast MUD in women during pregnancy and after childbirth.

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