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The Problem of Pelvic Organ Prolapse in Women in Modern Gynecology

Khamdamova M. T.*, Akramova D. E.

Bukhara State Medical Institute named after Abu Ali ibn Sino, Bukhara, Uzbekistan

Abstract A method for individual prognosis of pelvic organ prolapse in women has been developed, with a probability of 94.36%, with a specificity of 92.19%, and a sensitivity of 97.32%.

Keywords Prolapse, Cystocele, Rectocele

1. Introduction

Today, every second woman in the world suffers from pelvic organ prolapse of varying severity. The pathology can be observed at any age, according to a number of studies, in 41.1% of cases it occurs in postmenopausal women over 60 years old who have not undergone hysterectomy [1]. During a preventive examination, 26% of women over 45 years old are found to have POP of I-II degree, in the age group over 50 years this pathology occurs in 57-78% of cases. According to statistics, 30-80% of women worldwide have rectocele, although only 20-50% of them have bowel movement disorders [16]. The problem of genital prolapse has a rich social history. In the present world, women try to fight the constant discomfort associated with genital prolapse. Although genital prolapse does not pose a risk to life, it leads to physical, social, psychological, professional, domestic and/or sexual limitations [1,3,7,9,14,15].

Against the background of increasing life expectancy, the number of women seeking to maintain social activity as long as possible and not reduce the quality of life as long as possible is increasing [1,2,4,5,10,11,12,13]. Understanding the epidemiology of pelvic organ prolapse, the etiology and pathogenesis of the disease, is necessary to ensure high-quality care for elderly women. Every year, there is an increase in the incidence of genital prolapse worldwide. Unfortunately, pelvic organ prolapse is currently being "rejuvenated". If several decades ago this pathology was more typical for older women, now patients of reproductive age make up at least one third of all women suffering from genital prolapse [17,18]. It is expected that between 2012 and 2050 the number of elderly people will almost double, so the prevalence of pelvic organ prolapse will increase, which will increase the demands on the healthcare system and specialists who have undergone special training [2,19,20]. The exact prevalence of pelvic organ prolapse worldwide is unknown, since different classification systems are used in diagnostics. In the Women's Health Initiative study, pelvic organ prolapse was detected in 41% of women aged 50 to 59 years, including cystocele in 34%, rectocele in 19%, and uterine prolapse in 14% of women [21].

Despite the fact that the problem of genital prolapse is not new, there are currently no generally accepted standards aimed at preventing the development of pelvic organ prolapse.

The literature describes common risk factors for the development of the disease, but the data are often contradictory. Early diagnosis of pelvic organ prolapse is difficult, since women consult a gynecologist with existing signs of the disease, and therefore it is possible to only prevent the development of severe forms of genital prolapse, which is also not always effective. Methods using an individual approach to predicting the development of the disease before the onset of clinical manifestations have not yet been determined. All of the above served as the basis for conducting this study.

Nevertheless, the search for genetic determinants not so much of POP itself, but of the rate of its development, which, on the one hand, would explain the indicated discrepancies, and on the other, would help to clarify many pathogenetic aspects of the disease, seems to be an extremely important area of perineological research.

We believe that a more detailed, comprehensive search for genetic markers of severe stages of POP can become an important part of disease prognosis, identification of risk groups, and selection of tactics for managing patients with initial stages of POP.

The aim of the study is to develop a method for determining the individual risk of pelvic organ prolapse in women in the Bukhara region.

* Corresponding author:
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2. Material and Methods

The study was conducted at the gynecology department of the perinatal center and in the Karmen and Lorastom clinics of the Bukhara region from September 2017 to July 2023. According to the purpose of the study, 65 patients from 25 to 82 years old with a history of 1 to 7 births, suffering from different forms of apical prolapse, were examined and operated on. All patients were examined by general clinical methods, special attention was paid to the study of the pelvic floor. All patients were assessed for general and gynecological status using bimanual, manometric (perineometry), sonographic examination and vaginal palpation with determination of the strength of the perineal muscles according to the Oxford scale.

An assessment of the clinical and socio-biological parameters of women in the main and control groups was made. In the women with pelvic organ prolapse studied, the most common symptoms were increased urination (95% of women), a feeling of a foreign body falling out of the vagina (78%), episodes of gas incontinence (78%), a feeling of pressure in the lower abdomen (67%), pain or discomfort in the lower abdomen or genital area (66%), a feeling of incomplete emptying of the bladder (65%), heaviness in the pelvic area (63%), a feeling of incomplete emptying of the bowels after defecation (56%), urinary incontinence due to a strong urge to urinate (56%), and the need to strain hard to empty the bowels (52%). Women with pelvic organ prolapse reported greater discomfort from uterine prolapse and changes in the anatomy and function of the bladder when walking, swimming, exercising, or traveling by car or bus more than 30 minutes from home. Negative impact of bladder dysfunction on emotional well-being was noted by 57% of women, uterine prolapse – by 48% of women with signs of prolapse. The feeling of dissatisfaction was influenced by bladder dysfunction in 49% of cases, and uterine prolapse in 54% of cases. All women with pelvic organ prolapse underwent a gynecological examination before surgery. The stage of pelvic organ prolapse was determined using the POP-Q system. Thus, among the studied women, stage 2 POP was detected in 20 women (21.9%), stage 3 – 36 women (39.5%), stage 4 – 35 women (38.4%). Among the studied women, isolated prolapse of the posterior vaginal wall was found in 3 (3.3%) patients, prolapse of the anterior and posterior vaginal walls without signs of prolapse of the cervix and body of the uterus was found in 8 (8.8%) patients. One patient had previously undergone hysterectomy, and prolapse of the vaginal stump was detected upon examination. The remaining 79 women had combined prolapse of the uterus and vaginal walls, among them the most distal point of prolapse in 72.2% was the cervix, and in the remaining 27.8% - the anterior vaginal wall.

The scope of surgical intervention in 3 (3.3%) women included colpoperineolevatoroplasty, in 8 (8.8%) – anterior colporrhaphy and colpoperineolevatoroplasty, in 1 (1.1%) – Neugebauer-Lefort midline colporrhaphy, in 2 (2.2%) – extirpation of the cervical stump, anterior colporrhaphy and colpoperineolevatoroplasty, in 77 (84.6%) – vaginal hysterectomy, colporrhaphy and colpoperineolevatoroplasty.

3. Results

Analyzing the socio-biological characteristics of women, such as age, weight-height index, age at first sexual activity, body mass index (BMI), number of sexual partners, it can be concluded that the patients of the main group had a higher body weight (75.58 ± 13.57 kg) compared to the patients of the control group (69.04 ± 11.57 kg, $p < 0.05$), lower height (162.15 ± 5.74 cm and 167.11 ± 4.26 cm, $p < 0.05$). Reliable differences in the body mass index (BMI) were found in women of different groups: in the main group this indicator was 28.75 ± 4.32, in the control group it was lower and was 24.72 ± 3.17, $p < 0.05$. The average age of onset of sexual activity was higher in women of the main group (20.50 ± 2.53 years, $p < 0.05$) by 1 year compared to women of the control group (19.50 ± 1.66 years, $p < 0.05$). The number of sexual partners during life was the same in both groups.

The average age of menarche in women with pelvic organ prolapse was higher by 0.9 years than in the control group - 13.9 years and 13.0, respectively ($p < 0.05$). In patients with signs of pelvic organ prolapse, menopause occurred earlier than in healthy women. The age of menopause in the main group was 48.92 ± 3.32 years, in the control group 50.48 ± 4.17 years, $p < 0.05$. The duration of menopause in women of the main group was 13.28 ± 8.63 years, in women of the control group 9.56 ± 6.66 years, $p < 0.05$.

Analyzing the age of menarche, it was noted that in the main group, menstrual function was established in the period from 12 to 14 years, in the control group, in 95.45% of women (OR = 0.13, 95% CI 0.02-062, $p < 0.05$).

The studies showed that the duration of the menstrual cycle of more than 30 days in the main group was found in 3.3% ± 1.87 women, and among women of the control group in 15.91% ± 5.51, OR = 0.18, 95% CI 0.04-0.83, $p < 0.05$.

The study of the reproductive anamnesis showed the following results.

The number of pregnancies in women with signs of pelvic organ prolapse was higher than in the control group (5.08 ± 2.65 versus 3.31 ± 1.70, $p < 0.05$). The average number of births in women with pelvic organ prolapse was 2.06 ± 0.98, in the control group their number was lower by 0.52 - 1.54 ± 0.76 ($p < 0.05$).

Of note was the higher number of abortions by 0.97 in women with pelvic organ prolapse compared to women in the control group (2.62 ± 2.36 versus 1.65 ± 1.47, $p < 0.05$).

The next objective of the study was to study chronic diseases that could affect the development of pelvic organ prolapse in the study women and women in the control group.

When studying extragenital diseases, it was found that 50.00 ± 7.54% of women in the control group reported no chronic diseases, while in the main group this figure was significantly lower and amounted to 2.20 ± 1.54% (OR =

0.02, 95% CI 0.01-0.11, $p < 0.05$). The presence of combined diseases was noted in 45.05 ± 5.22% of women in the main group and in 27.27 ± 6.71% of women in the control group ($p < 0.05$). Separately, we considered conditions that have a proven connection with the development of pelvic organ prolapse, through direct or indirect increase in intra-abdominal pressure. Chronic bronchitis in the main group was noted in 8 women, which is 8.79 ± 2.97% ($p < 0.05$), in the control group chronic bronchitis was not detected. The next studied symptom was frequent constipation.

In the main group, constipation was noted in 17.58% ± 3.99 women, in the control group – in 2.27% ± 2.25 women (OR = 0.11, 95% CI 0.01-0.83, $p < 0.05$).

Healing of wounds and skin injuries in the two groups was different.

Thus, in the control group, 84.09 ± 5.51% of women, and in the main group, only 25.27 ± 4.56% of women noted wound healing without complications (OR = 0.06, 95% CI 0.02- 0.18, $p < 0.05$). On the contrary, in the main group 72.53 ± 4.68% of women, and in the control group 13.64 ± 5.17% (OR = 16.72, 95% CI 5.83-50.51, $p < 0.05$) of women noted that they had infectious complications during the healing of wounds and injuries to the skin. Thus, the best healing was noted in the control group. The incidence of pelvic organ prolapse in mothers and sisters of the subjects was noteworthy. The frequency of prolapse in the closest female relatives in the main group was 10 times higher and amounted to 23.08 ± 4.42% of women, and in the control group 2.27 ± 2.25% ($p < 0.05$). The next objective of this study was to examine the external environmental factors that could be a possible cause of the development of pelvic organ prolapse. Regarding activities associated with prolonged sitting, it can be noted that in the main group the percentage of such women was 27.47% ± 4.68, and in the control group 56.82% ± 7.47, OR = 3.47, 95% CI 1.53-7.93, $p < 0.05$. When analyzing physical activity, physical activity attracted attention.

When analyzing physical activity, physical activity was of particular interest. Women who developed prolapse reported significant physical activity (sports, heavy housework) in 75.82 ± 4.49% of cases, while in the group of women without genital prolapse, significant physical activity during life occurred in 20.45 ± 6.08% of cases (OR = 0.08, 95% CI 0.03-0.21, $p < 0.05$). Women who developed prolapse reported work involving heavy lifting in 69.23 ± 4.84%. In the group of women without genital prolapse, heavy lifting was recorded in 38.64 ± 7.34%, OR = 0.31, 95% CI 0.13-0.69, $p < 0.05$. It was found that genital prolapse was influenced by childbirth, lifestyle and working conditions of the woman: lifting weights, severe physical exertion, as well as the presence of frequent constipation, respiratory pathologies, hereditary predisposition and the presence of connective tissue pathology.

To determine the presence of signs of dysplasia, the criteria of the degree of expression of CTD by T. Yu. Smolnova et al. (T. Yu. Smolnova, 2003) in points were used.

Analyzing the available criteria, the following data were obtained in our study. A high frequency of asthenic body type was noted in patients of the main group (16.70 ± 0.38%) compared to women in the control group (2.30 ± 0.15%; OR = 8.48, 95% CI 1.1-180.43, $p < 0.05$). The tendency to easy bruising, increased tissue bleeding in the main group of women with genital prolapse (16.50 ± 0.37%) was higher ($p < 0.05$) than in the control group (0.0%). Scoliosis, kyphosis, kyphoscoliosis in the main group were detected in 14.30 ± 0.35%, in the control group of women this pathology was not registered ($p < 0.05$). Signs of varicose veins and hemorrhoids that do not require surgical treatment were detected in 33.00 ± 0.47% of women in the main group, and in the control group - only in 4.50 ± 0.21% of the subjects (OR = 10.33, 95% CI 2.22-66.02, $p < 0.05$). Prolapse of the pelvic organs and hernias among first-degree relatives of women in the main group were registered in 9.90 ± 0.30% of cases; women in the control group did not indicate the presence of prolapse and hernias in close female relatives ($p < 0.05$). Signs of skin elastosis were noted in 25.3 ± 0.44% of patients suffering from genital prolapse, this pathology was not registered in healthy women ($p < 0.05$).

4. Conclusions

To determine the individual risk of pelvic organ prolapse, it is necessary to take into account significant parameters (the nature of wound healing, the presence of physical activity in life, the sum of points on the Smolnova T. Yu. scale, height, weight, constipation, bronchial asthma, the number of births in the anamnesis and the age of menarche in total), assessing them using the proposed method.

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