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Effect of Urodynamic Study Before Sling Operations on Postoperative Patient Satisfaction

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Original Article

Abstract

Background: *Stress incontinence is the commonest cause of urinary incontinence in women, mostly between the ages of 45 and 54 years. Sling Operations become popular globally; aiming mainly to provide output resistance and preventing stress urinary incontinence and do not cause urethral obstruction. Evaluation of urodynamics prior to incontinence surgery is important to evaluate the outcome of these procedures and patient's satisfaction*

Objective: *To compare postoperative satisfaction of women who had urodynamic study and women who did not had urodynamic study before undergoing a midurethral sling operation.*

Methods: *The study which was designed as a retrospective study, and conducted between January 2017 - October 2018 in Rizgary Teaching Hospital and Clinic with 100 patients who were admitted with symptomatic Stress urinary incontinence The laboratory, gynecological examination and urodynamic examination results of the preoperative urogynecological evaluation of each patient were recorded. The pelvic organ prolapse grading of the patients was made according to the Baden Walker class.*

Results: *A total of 100 female patients were examined within the scope of the study. Of these 52% of them urodynamic study done before midurethralsling operation and they were named as "patient" group. 48% of them had no preoperative urodynamic study and were named "control" group. The patients asked about their postoperative satisfaction, 79.6% of the patient group defined their condition as "better" and 76.4% as "worse", which showed us that there was no significant difference postoperatively between the group in which urodynamic study was performed and the group that was not performed p> 0.05.*

Conclusion: *Performing urodynamic study in women with uncomplicated, pure stress incontinence before midurethral sling operations has no significant effect on postoperative long-term patient satisfaction.*

Keywords: *Urodynamic Study, Midurethral Sling, Stress Urinary Incontinence*

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1. INTRODUCTION

Stress incontinence is defined by the International Continence Society as involuntary leakage of urine on effort or exertion, or on sneezing or coughing'. It is usually caused by weak or damaged muscles and connective tissues of the pelvic floor, affecting urethral support, or by weakness of the urethral sphincter itself. It is the commonest cause of urinary incontinence in women, most common between the ages of 45 and 54 years, with urgency incontinence becoming more prevalent in older women. Patients may experience restriction of normal activities and embarrassment. Many women fail to present because of low awareness of availability of treatment or embarrassment. An accurate and detailed history and examination provide the framework for diagnosis and subsequent management. However, as stress incontinence and overactive bladder commonly coexist, diagnosis may be difficult, hence the widespread application of urodynamic study. It is important, however, to have insight into the pathophysiology underlying patients' most bothersome symptoms(1-5).

Urodynamic analysis provides an electromyographic measurement of the activities of the pelvic muscles in addition to graphically showing the effectiveness of the detrusor sphincter relationship in the function of storing and emptying urine through hydrodynamic methods based on numerical data. Urodynamic examination with uroflowmetry, cystometry, urethral pressure studies, pressure flow study, sphincter electromyelography and video urodynamic parts is an examination that allows the dynamical examination of the lower urinary system. Urodynamics used in the evaluation of lower urinary tract pathophysiology, it is a functional method. The urodynamic study includes a series of tests. The function to be evaluated should be well determined and the most appropriate test should be selected for the patient. Urodynamic examinations are the "gold standard" due to objective criteria in the diagnosis of urinary incontinence. In some cases, urodynamics may be useful and it is recommended to do:

- Situations where diagnosis is not clear after history and physical examination
- Patient's symptoms are not compatible with objective physical findings
- Unresponsive to treatment
- Situations where objective diagnosis is required, such as clinical studies

-If surgical treatment is planned

About this, American College of Obstetricians and Gynecologists (ACOG); If the history and

physical examination findings are complicated and inconsistent with the diagnosis, he recommends performing urodynamic tests in stress urinary incontinence patients scheduled for surgery(6).

The first sling operation done by Von Giordano using gracilis muscle in 1907 and the Goebell used pyramidalis muscle in 1910. Several techniques have been proposed including combined vaginal and abdominal route, vaginal route only, applying blind dissection and sling under the urethra and bladder floor. However, there is no consensus on which surgical intervention is superior to others. The material used more frequently and the tension of the sling affect the success of sling surgery(7). They have become popular because they both raise the bladder and provide stronger suburethral support. The main purpose of these procedures performed according to the hammock hypothesis is to provide output resistance in a way and in a way that prevents urinary incontinence during stress, but does not cause urethral obstruction and allows spontaneous urination. The purpose of these procedures is not to correct the position of the urethra, but to adjust the closing pressure with the suburethral hammock, especially during stress. For this reason, the best results are obtained with sling procedures, especially in cases with intrinsic sphincteric insufficiency and hypermobility. Indications include true stress incontinence due to internal sphincter failure and / or urethral mobility.

2. PATIENTS and METHODS

A retrospective study conducted between January 2017 - October 2018 in Rizgary Teaching Hospital and Clinic with 100 patients who were admitted with symptomatic Stress urinary incontinance The laboratory, gynecological examination and urodynamic examination results of the preoperative urogynecological evaluation of each patient were recorded. The pelvic organ prolapse grading of the patients was made according to the Baden Walker class. Preoperative urodynamic examination was performed according to the International Continence Association standards. Transobturator tape (TOT) and Tension-free Vaginal Tape (TVT) operations were applied to the patients as midurethral sling operations using the same type of mesh material 1.1 cm x 40 cm, polypropylene, monofilament braided. The 100 patients who were operated between 2017 and 2018 but did not undergo urodynamic study, 48% were called the "control group", and 52% of the patients who had urodynamic study were called the "patient group". As in the questionnaire, the postoperative satisfaction of the patients was

evaluated subjectively with the question `` much better, better, the same, worse and much worse ", better and much better responses have been regarded as subjective cure. The research data was uploaded to the computer environment using the ―SPSS Statistical Package for Social Sciences for Windows 22.0 SPSS. Categorical variables Pearson Chi-Square Test and Fisher's Exact Test were used for evaluation. The conformity of the variables to normal distribution was examined using visual histogram and probability charts and analytical methods, Kolmogorov-Smirnov / Shapiro-Wilk Test. The Mann-Whitney U Test was used as a statistical method for statistical significance between two independent groups for variables that were found to be inconsistent with normal distribution. Statistical significance level was accepted as $p < 0.05$.

3. RESULTS

A total of 100 female patients were examined within the scope of the study. Of these, 52 of them had urodynamic study before midurethral sling operation and they were named as "patient" group, No urodynamic study was performed preoperatively in 48 of them and it was named as "control" group. Patient and control groups were accepted as study groups. The distribution of some descriptive characteristics among the study groups is presented in Table 1.

A statistically significant difference was found between the patient and control groups in terms of gravida, parity, number of vaginal deliveries through normal birth canal, number of deliveries with Cesarean section, respectively; $p = 0.029$; 0.023; 0.002; 0.009. While the gravida, parity and vaginal deliveries numbers of the women in the patient group were significantly lower than the patients in the control group, the Cesarean section number was significantly higher. In addition, the percentage of those who gave birth with Cesarean section at least once in the patient group was significantly higher in the control group. On the other hand, no statistically significant difference was found between the study groups in terms of age, body mass index, BMI $p > 0.05$.

The distribution of the final situation among the study groups is presented, Accordingly, a statistically significant difference was found between the patient and control groups in terms of final status $p = 0.021$. The percentage of those who were much better among those in the patient group was significantly higher in the control group.Those whose last situation was

much worse and those who were worse and the same were combined and named "worse / same". Better ones were combined with those that were much better and were named 'better'. No statistically significant difference was found between the patient and control groups in terms of the grouping of the final condition p> 0.05.

4. DISCUSSION

Although urinary incontinence is not a life-threatening disease, it has significant socioeconomic effects on patients and the health system. Many examinations can be used in the evaluation of patients presenting with this complaint, the patient history and physical examination are the most important steps. Diagnostic results are obtained in two main ways; making a symptomatic diagnosis and making a specific diagnosis of the situation. The symptomatic diagnosis process is carried out by evaluating the patient's detailed history, questionnaires and urination habits. By using urodynamic tests, it is possible to make a specific diagnosis for the situation. In our study in which patient satisfaction after sling operations performed in patients with stress urinary incontinence was evaluated in terms of subjective parameters; If we take the cure rates differently according to the operation types, the subjective cure rates for TVT and TOT were 81.6% and 75.9%, respectively. (Patients who evaluated their postoperative condition as better and much better were accepted as subjective cure. 76.3% of the patients in the control group without urodynamic study reported subjective cure, while 79.5% of the patients in the urodynamic study group reported subjective cure.

The causes of failure after midurethral sling operation in women with stress incontinence were examined in a study of 1,225 patients by Stav et al. In the study, patients who underwent TVT and TOT were called for control at 6-week, 6-month, and 12-month intervals, the patients were evaluated in terms of postoperative urinary symptoms, pain, and whether they need another incontinence surgery. The minimum follow-up period of the patients was determined as 12 months. Subjective cure, back to continence after surgery, Six independent risk factors for sling failure were identified at the end of the study: BMI> 25, presence of urodynamic mixed incontinence, previous incontinence surgery, intrinsic sphincter failure, diabetes mellitus, and concurrent prolapse surgery. After an average of 50 months of follow-up of the patients, a cure rate of 84.7% was observed. One of the results was that 93% of the patients answered that they

would recommend this surgery to a relative. Interestingly, 63% of the patients in the group considered unsuccessful stated that they did not regret having the surgery because the severity of the symptoms decreased(8).

The role of UDS in the evaluation and treatment of stress urinary incontinence has been explored in many recent studies. The Value for Urodynamic Evaluation study (VaLUE) done in a multi-center randomized study, its primary purpose is to investigate the effect of performing only basic office evaluation before sling surgery and performing urodynamic study together with office evaluation in symptomatic, uncomplicated women(9). The objectives are: 1) how often physicians use preoperative urodynamic study results to change clinical and surgical decision-making, 2) to compare the amount of postoperative incontinence recovery and to compare the expected cost and benefit of performing versus not performing urodynamic study. It was observed that there was no significant difference between the 12-month results of women who were included in the office alone evaluation compared with those who supported office examination with urodynamic study. A secondary analysis of VaLUE showed that although performing urodynamic study after office examination widely changed the second clinical diagnosis, urodynamic study information rarely influenced surgeons to cancel, change, or replace planned surgery (10).

5. CONCLUSIONS

Stress urinary incontinence is a problem that we encounter more and more all over the world with increasing life expectancy, even if it does not cause mortality, it can have serious psychological and social effects. In order to obtain objective results in the diagnosis of Stress urinary incontinence, the routine use of urodynamic studies, which physicians frequently use before surgical treatment, is no longer recommended for every patient. Preoperative urodynamic testing is not required in uncomplicated women. In our study, no significant difference was found between the patient and control groups when the satisfaction rates of the groups with and without urodynamics were compared ($p > 0.005$). While 76.3% of the patients in the control group without urodynamic study reported subjective cure, 79.5% of the patients in the urodynamic study group reported subjective cure. This shows that performing urodynamic studies in uncomplicated urinary incontinence has no effect on patient satisfaction

in the postoperative period.

Ethical Clearance:

Ethical issues were taken from the research ethics committee. Informed consent was obtained from each participant. Data collection was in accordance with the World Medical Association (WMA) declaration of Helsinki for the Ethical Principles for Medical Research Involving Human Subjects, 2013 and all information and privacy of participants were kept confidentially.

Conflict of interest: Authors declared none

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