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Quality of life and sexual changes after double transobturator tension-free approach to treat severe cystocele

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ABSTRACT

Objectives: To study the quality of life and sexual function changes of women affected by severe cystocele and treated with the double transobturator tension-free approach.
Study design: 23 women (mean age 60.6) with third and fourth degree cystocele (according to Baden and Walker classification) were monitored by Short Form-36 (SF-36) and Pelvic Organ Prolapse/Urinary Incontinenece Sexual Questionnaire (PISQ-12) before and 12 months after surgical treatment.

Each woman also underwent translabial color Doppler ultrasonography to measure the Resistance Index (RI), Pulsatility Index (PI), Peak Systolic Velocity (PSV), and End-Diastolic Velocity (EDV) of the clitoral arteries, before surgery and 12 months postoperatively.
Results: SF-36 showed a considerable increase in all of the categories (physical functioning, physical role functioning, bodily pain, general health, vitality, social functioning, emotional role functioning, and mental health) compared to those obtained at baseline ($P < 0.05$).

PISQ-12 also showed a considerable increase in the behavioural emotive factor score, in the physical factor score, in the partner-related factor score and, consequently, in the total score compared to that obtained at baseline ($P < 0.05$).

Color Doppler measurement showed that the mean Pulsatility Index, Peak Systolic Velocity, Resistance Index and End-Diastolic Velocity were not significantly lower to those obtained at baseline (P = NS).
Conclusions: Double transobturator tension-free approach to treat severe cystocele considerably improves quality of life and sexual function, and does not significantly influence clitoral blood flow. Our data could add new information about sexual behaviour after prolapse treatment, particularly about the impact on clitoral blood flow changes.

1. Introduction

Sexual wellbeing is an important aspect of women's health, and sexual disorders can decrease the quality of life and affect marital relationships. Sexual function is affected by several factors, including couple relationship conflicts, socioeconomic level, sexual compatibility, and physical and psychiatric disorders of the couple. Prevalence of sexual dysfunction among women has been reported to be as high as 50% [1,2].

Although female sexual dysfunction is a common problem among the general population [3], it has been poorly studied in urogynecological patients [4]. Disorders of desire, arousal, lubrication and orgasm, as well as dyspareunia, are typical complaints reported by women [5]. Pelvic floor weakness and organ prolapse are common physical conditions negatively affecting sexual function and satisfaction [6,7].

Cystocele is the pathological herniation of the anterior vaginal wall and the associated bladder base that, due to anatomical continuity, follows the sliding of the vaginal wall. This sliding is due to laxity or a site-specific defect of pubo-vesico-cervical fascia and the other supporting and sustaining structures [8].

According to the most recent epidemiological data, urogenital prolapse affects about 45% of women after the menopause [9]. The incidence is increasing due to extension of the average lifespan,

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hence the use of surgical therapy is increasing too. The chance of surgery for prolapse and urinary incontinence has been estimated to be around 11.1% in a woman's life [10]. Over the last few years, new surgical techniques have been developed, and the use of prostheses has been introduced in urogynecological surgery. Access for positioning the meshes has changed from the classical abdominal approach to the simpler vaginal one, related to lower morbidity, a reduction of postoperative pain and a shorter period of hospitalization [11].

Particularly, the double transobturator tension-free approach in treating cystocele, developed thanks to mini-invasive procedures in the treatment of stress urinary incontinence described by Delorme in 2001, corresponds to the new concept of biosurgery and is simple and minimally invasive [12].

Some investigators have reported that the surgical treatment of pelvic floor weakness and organ prolapse improves sexual function in the patients [13]. However, the positive effect of treatment has not been confirmed in all studies [14,15].

The aim of this prospective study was to investigate the quality of life and sexual activity, as well as vascular changes using color Doppler sonography in the area surrounding the urethra and clitoris, before and 12 months after the double transobturator tension-free approach to treat severe cystocele.

2. Materials and methods

This prospective study was performed at the Urogynecologic Service of the Department of Microbiological and Gynecological Sciences, University of Catania School of Medicine, Catania, Italy. The institutional ethical committee of the department approved the study. All the subjects provided written informed consent before entering the study, which was conducted in accordance with the Declaration of Helsinki. The study was not advertised and no remuneration was offered.

Thirty-nine consecutive women, ranging in age from 44 to 75 years (mean age 65.3), affected by clinical cystocele and with symptoms of urge incontinence, stress incontinence, and/or voiding difficulty were enrolled in this prospective study. Subjects had been menopausal for between 4 months and 26 years. Enrollment was from January to August 2008. A single operator performed the clinical and instrumental diagnostic procedures to enrol the women affected by cystocele.

Each patient underwent a complete urogynecologic workup, including urodynamic assessment, micturition urethrocystography, pelvic ultrasonography, pelvic organ prolapse quantification, urine culture, cotton swab (Q-tip) test, pad test, and cystoscopy. All patients were examined vaginally with a speculum in the gynecologic position and sitting position with the Valsalva manoeuvre. Vaginal support was graded using the Baden–Walker halfway system [16].

Women who stated at the pretreatment sexual interview that they were not sexually active were excluded from the study. Moreover women with a history of hypertension, coronary artery disease, thromboembolic disorders, smoking, alcohol abuse or taking medications interfering with the correct functioning of the genitourinary apparatus; or affected by recurrent cystitis; or with anesthesiological contraindications to surgical treatment, and women with former cystopexy with prosthesis insertion were excluded from the study.

Short Form-36 (SF-36) was used to study the effects of prosthetic treatment on the quality of life. SF-36 contains 36 questions grouped into 8 categories: physical functioning, physical role functioning, bodily pain, general health, vitality, social functioning, emotional role functioning, and mental health [17]. The score in each category ranges from 0 to 100 points, and a mean value is calculated on the basis of individual items within a given category; the highest score means the highest evaluation of a given category of the quality of life.

To study the effects on sexual function the Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ-12) was used. PISQ-12 is a short form derived from long-form PISQ-31. It is composed of 12 items and examines three factors: the behavioural emotive factor with items 1–4, the physical factor with items 5–9, and the partner-related factor score with items 10–12. It is reportable on only a total or per item basis. Validity is retained with up to two missing values on the short form. If more than two of the 12 values are missing, then the short form no longer predicts long-form scores [18].

Finally, each woman underwent color Doppler sonography to measure blood flow in the clitoral area before surgical treatment. We performed the method based on the measurement of clitoral blood flow in previous studies [19,20]. Sonography was performed using a Technos MP (Esaote Rome, Italy), with a 7.5 MHz linear probe by the same investigator. Each woman was scanned in the gynecological position. The translabial Doppler probe was placed sagittally on the clitoris with an angle of $<20^{\circ}$ without exerting any significant pressure on the tissues. After using color flow mapping, the pulsed Doppler probe was positioned over the major identified vessel and at least three sequential Doppler wave forms were obtained. The peak systolic velocity (PSV), the end-diastolic velocity (EDV), the resistant index (RI = PSV-EDV/PSV) and the pulsatility index (PI = PSV-EDV/mean) were calculated.

A single urogynecologist performed the surgical technique for the treatment of all patients. Each woman underwent restoration of the prolapse by the double transobturator tension-free approach with polypropylene meshes of the Prolift type (Gynecare, Ethicon Inc., Somerville, NJ, USA). The anterior mesh approach was the only procedure used to treat cycstocele.

Twelve months after surgical treatment patients were submitted to urogynecological examination and medical check-up, and the same subjective and objective tests made as before restoration of the prolapse.

2.1. Statistical analysis

Assuming a Standard Deviation (SD) of 2 and a mean difference of 1.5 between before and after surgical treatment sexual changes at $P = 0.05$, the sample size calculation indicated that 20 subjects would be the minimum number required for the study to have 88% power. Statistical analysis was performed using a software package for Windows 95 (Grantz SA, Primer of Biostatistics, McGraw-Hill, New York, 1997). The paired Student t test was used to compare the changes between SF-36 categories and PISQ-12 scores before and after surgical treatment; it was also used to compare the changes within the group between the pretreatment clitoral arterial blood flow values and the values after treatment. The scores are presented as the mean $\pm$ SD. The result was statistically significant at $P < 0.05$.

3. Results

Of the original 39 women, 12 subjects (30.7%), ranging in age from 63 to 75 years, who said they were not sexually active, due to absence of partner (5 subjects = 12.8%) or to hypoactive desire disorder (7 subjects = 17.9%), were excluded from the study. Moreover, two women (5.1%) with second degree cystocele on clinical and urodynamic evaluation, according to the Baden and Walker classification, were excluded from the study. Finally, two women (5.1%) refused treatment because of fear of surgical therapy. Thus the sample consisted of 23 (69.3%) preoperatively sexually active women, ranging in age from 44 to 75 years (mean age 60.6 ± 8.9), with mean parity 3.1 ± 1.2, and BMI 26.2 ± 4.1.