ORIGINAL ARTICLE: ENDOMETRIOSIS

Surgical treatment affects perceived stress differently in women with endometriosis: correlation with severity of pain

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Objective: To investigate the amount of perceived stress in a group of women with different forms of endometriosis-related pain before and after surgical treatment.
Design: Prospective clinical trial.
Setting: University hospital.
Patient(s): A group of women (n = 98) referred to our center for chronic pain and suspected of having endometriosis.
Intervention(s): All women suspected of having endometriosis with ultrasonography underwent to a clinical evaluation including assessment of perception of stress. Endometriosis was confirmed histologically by laparoscopy. Painful symptoms and perception of stress were recorded 1 month after surgery.
Main Outcome Measure(s): Perceived stress scale (PSS) and visual analog scale for painful symptoms before and 1 month after surgery for endometriosis.
Result(s): The PSS score before surgery was perceived as "very high" in patients with deep endometriosis (n = 20) or deep endometriosis associated with endometrioma (n = 21); "high" or "medium" PSS was perceived in patients with endometrioma (n = 34) or endometrioma associated with peritoneal endometriosis (n = 23). After the surgical treatment a significant decrease of the "very high" PSS score was shown, as well as when the entire group of patients was considered. When evaluated before and after surgery, according to the severity of pain (dysmenorrhea, dyspareunia, and pelvic pain), a direct correlation was found with the level of PSS.
Conclusion(s): Patients with deep endometriosis-related pain (dysmenorrhea, pelvic pain, dyspareunia) showed the highest level of perceived stress, which significantly decreased after surgical treatment. (Fertil Steril® 2014;■:■–■. ©2014 by American Society for Reproductive Medicine.)
Key Words: Endometriosis, perceived stress, pain, surgery, emotional well-being

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Endometriosis is a gynecological disease affecting women of reproductive age. Typical symptoms are dysmenorrhea, chronic pelvic pain, dyspareunia, and infertility. Endometriosis is categorized in different types: peritoneal endometriosis, ovarian endometrioma (OMA), and deep endometriosis (DE). The types of pelvic pain are related to the anatomic location of endometriosis (1). A poor correlation between extent of disease and severity of symptoms was found (2). Pain symptoms negatively influence not only physical, but also psychological, well-being of women with endometriosis (3–5). Endometriosis-related pain is consistently reported as a central and destroying component of life in women. Several studies report a negative correlation between pain and quality of life, including difficulties in mobility, daily activities or self-care (6–8), and productivity at work, causing limitations in ability to perform work-related activities and a decrease in the quality of work, up to job loss (9). A significant delay from symptom onset to

Received August 5, 2014; revised October 21, 2014; accepted October 22, 2014.
L.L. has nothing to disclose. S.V. has nothing to disclose. C.O. has nothing to disclose. S.L. has nothing to disclose. E.Z. has nothing to disclose. R.E.N. has nothing to disclose. F.P. has nothing to disclose.
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Fertility and Sterility® Vol. ■, No. ■, ■ 2014 0015-0282/$36.00

http://dx.doi.org/10.1016/j.fertnstert.2014.10.036

diagnosis (range, 5–8.9 years) in some women with endometriosis (10, 11) may be associated with reduced health-related quality of life before adequate therapeutic management (medical or surgical) of the disease (12). The preoperative assessment of these patients gives the opportunity to better inform them about their pathology and to finalize the treatment options. Surgery is still as a crucial time to reach the definitive diagnosis and to treat the disease. The development of minimally invasive techniques has made laparoscopy the gold standard procedure to treat endometriosis. Strong evidence suggests that surgery reduces pain associated with endometriosis in all stages of the disease (13, 14) and may improve also the mental well-being. The present study aimed to investigate the amount of perceived stress in a group of women with different forms of endometriosis, before and after surgery, according to the location of the lesions and the severity of pain.

MATERIALS AND METHODS

A group of patients (n = 98) aged 36 ± 8 years (mean age ± SD) with chronic pain and suspected of having endometriosis was referred to our center from June 2012 through December 2013. The study was approved by the institutional review board of the University of Siena. Exclusion criteria were a previous surgical treatment with consequent histologic diagnosis of endometriosis, history of major neurological, psychiatric disease, and current or previous abuse of alcohol or recreational substances. Patients using hormone therapy (HT) were included, only if the treatment was interrupted at least 1 month before the surgery.

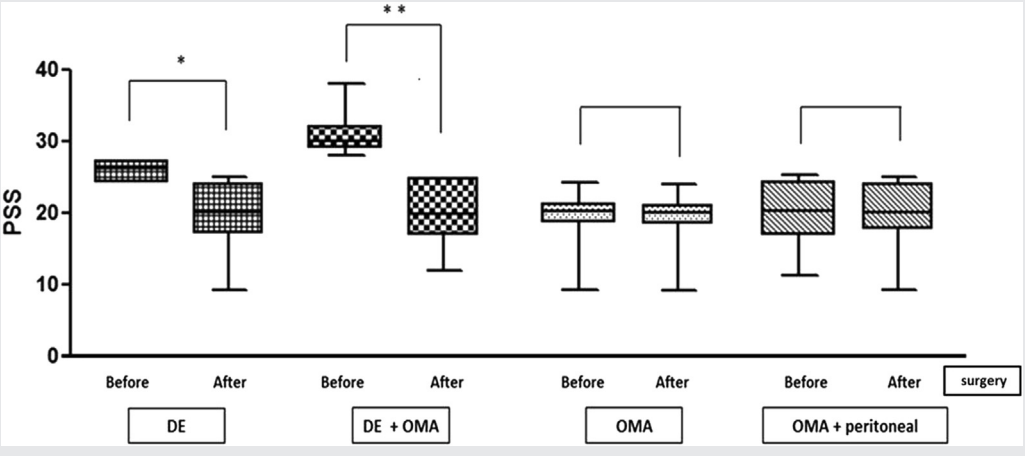
All women underwent to a clinical evaluation and a complete medical history was recorded. Mean height and weight were 164.3 ± 10.1 cm and 60 ± 10.4 kg, with a mean body mass index (BMI) of 23.7. Symptoms, such as dysmenorrhea, dyspareunia, and nonmenstrual pelvic pain, were evaluated by a visual analog scale (VAS) system using a 10-cm line with the extreme points 0 and 10 corresponding to "no pain" and "maximum pain", respectively.

The ultrasound scan was performed as a transvaginal examination at any phase of the menstrual cycle, regardless of HT. All potential locations for endometriosis in the anterior or posterior compartment of the pelvis were examined (15).

An Italian version of a validated questionnaire on stress perception, the perceived stress scale (PSS) (16), was administered to each patient during the visit and before the ultrasonographic examination. The phase of the menstrual cycle was not requested, but patients are required to reply to the questionnaire 5–7 days after the menstrual bleeding. The PSS is a widely used psychological instrument for measuring the global perception of stress; it is a measure of the degree to which situations in one's life are appraised as stressful. Items were designed to relay how unpredictable, uncontrollable, and overloaded respondents find their lives. The questionnaire includes direct queries about current levels of experienced stress. In addition, the questions are of a general nature and hence are relatively free of content specific to any population group. The PSS was designed for use in community sample with at least a junior high school education. The items are easy to understand, and the response alternatives are simple to grasp (Fig. 1). The PSS scores are obtained by reversing responses (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1, and 4 = 0) to the four positively stated items (items 4, 5, 7, and 8) and then summing across all scale items. The score is divided into four categories (range, 0–40 points): 0–6, low level of stress; 7–19, medium level of stress; 20–25, high level of stress; and ≥26, very high level of stress.

Surgical treatment confirmed the diagnosis of endometriosis as follows: OMA (n = 34), mix OMA and peritoneal (n = 23), mix OMA and DE (n = 21), and DE (n = 20). The surgical strategy consisted of the laparoscopic excision of all visually suspected endometriotic lesions, after extensive adhesiolysis when adhesions were present, performed by surgeons with experience in laparoscopic radical resection of

FIGURE 1



Changes in perceived stress scale (PSS) score before and after surgery according to different forms of endometriosis. *$P<.05$; **$P<.05$. DE = deep endometriosis; OMA = ovarian endometrioma.

Lazzeri. Endometriosis, pain, and perceived stress. Fertil Steril 2014.