

Pain cognition versus pain intensity in patients with endometriosis: toward personalized treatment

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Objective: To explore how pain intensity and pain cognition are related to health-related quality of life (HRQoL) in women with endometriosis.

Design: Cross-sectional questionnaire-based survey.

Setting: Multidisciplinary referral center.

Patient(s): Women with laparoscopically and/or magnetic resonance imaging-proven endometriosis (n = 50) and healthy control women (n = 42).

Intervention(s): For HRQoL, two questionnaires: the generic Short Form Health Survey (SF-36) and the Endometriosis Health Profile 30 (EHP-30). For pain cognition, three questionnaires: the Pain Catastrophizing Scale (PCS), the Pain Vigilance and Awareness Questionnaire (PVAQ), and the Pain Anxiety Symptoms Scale (PASS). For pain intensity, the verbal Numeric Rating Scale (NRS).

Main Outcome Measure(s): Association between pain intensity and pain cognition with HRQoL in women with endometriosis, and the differences in HRQoL and pain cognition between women with endometriosis and healthy controls.

Result(s): Health-related quality of life was statistically significantly impaired in women with endometriosis as compared with healthy control women. The variables of pain intensity and pain cognition were independent factors influencing the HRQoL of women with endometriosis. Patients with endometriosis had statistically significantly more negative pain cognition as compared with controls. They reported more pain anxiety and catastrophizing, and they were hypervigilant toward pain.

Conclusion(s): Pain cognition is independently associated with the HRQoL in endometriosis patients. Clinicians should be aware of this phenomenon and may consider treating pain symptoms in a multidimensional, individualized way in which the psychological aspects are taken into account. In international guidelines on management of women with endometriosis more attention should be paid to the psychological aspects of care. (Fertil Steril® 2017; ■:■-■. ©2017 by American Society for Reproductive Medicine.)

Key Words: Endometriosis, health-related quality of life, pain cognition, pain intensity

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Chronic pain is associated with an impairment of health-related quality of life (HRQoL) (1–3). It interferes with many aspects of a person's life and causes high levels of

physical and emotional stress (1–9). Chronic pelvic pain is defined as the presence of continuous or intermittent pain symptoms perceived in the pelvic area that last for at least 3 to

6 months (10, 11). Endometriosis, considered the most frequent reproductive tract-related cause of chronic pelvic pain (12), affects approximately 5% to 10% of women of reproductive age and up to 50% of women with subfertility (9, 13, 14). The presence of functional endometrial-like tissue outside the uterine cavity may result in formation of adhesions and chronic inflammation (13, 14). This provokes a variety of symptoms of which pain is the primary (12, 13, 15, 16). The negative

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impact on a woman's life of chronic pain caused by endometriosis is often substantial (16–19).

A purely physiologic approach to pain assumes that pain intensity relates to the degree of tissue damage, but this often cannot explain the wide range of reactions in humans in response to a painful stimulus (10, 20). The experience of pain is influenced by a complex interplay between physical, psychological, environmental, and social variables (1, 4, 21, 22). In past years it has become clear that psychological factors such as pain catastrophizing, pain anxiety, and pain vigilance are important determinants contributing to pain perception (1,20,21,23–25). These aspects refer to a negative appraisal of pain, in which a person is anxious of pain and has a constant awareness for pain sensations. As soon as these sensations appear, this person is not able to engage attention away from it, and consequently suffers from exaggerated feelings of helplessness and pessimism. This results in an inability to deal with the pain experience, disability, and distress (20, 23, 26). Moreover, these aspects are shown to negatively influence the effect of medical therapy in chronic pain patients (25,27–29). Psychological aspects of pain perception are referred to as pain cognition by Lame et al. (25), and our study uses this term for the psychological aspects pain catastrophizing, pain anxiety, and pain vigilance.

In the international guidelines on management of endometriosis from the European Society of Human Reproduction and Embryology (ESHRE) and American Society for Reproductive Medicine (ASRM), psychological aspects of care are not integrated in the recommendations about care for patients, indicating that treatment of endometriosis is still mainly pharmacologically and surgically targeted (14, 30).

We hypothesize that pain cognition plays an important role in the quality of life of women with endometriosis. We therefore explored the relationship between pain cognition and quality of life in endometriosis patients as well as in healthy control women. This relationship provides important information about whether patients with endometriosis indeed show distinct pain cognitions from controls. In addition, we explore to what extent pain intensity and pain cognition scores are independently associated with HRQoL. Based on the results of this study variables can be identified, which may help to improve HRQoL by introducing personalized pain treatment.

MATERIALS AND METHODS

Study Population

Fifty women with endometriosis confirmed by laparoscopy or magnetic resonance imaging (MRI) were included. All patients were treated in the multidisciplinary endometriosis referral center Rijnstate Hospital, the Netherlands. Healthy controls were recruited by advertisement on social media, the hospital's Web site, and a poster inside the hospital. All participating women (50 patients and 42 control women) were of fertile age (18–49 years) and used hormone treatment or hormone contraception, which suppresses the menstrual cycle, to rule out the influence of hormone cycles on the results of our study. The exclusion criteria were postmenopausal status, treatment

of current psychological disorders, and chronic pain other than endometriosis.

General characteristics of the participants were collected. Education level was rated with an ordinal scale (31), ranging from 1, less than primary education, to 7, university degree. The endometriosis disease severity was staged using the revised American Society for Reproductive Medicine (revised ASRM) classification (32).

Questionnaires

Participants were asked to complete five validated questionnaires in Dutch: two questionnaires addressing HRQoL and three questionnaires addressing pain cognition (33–40). The answers to the questionnaires were self-reported.

Health-related Quality of Life Questionnaires

To measure general HRQoL, we used the standardized Short Form Health Survey (SF-36), version 2.0. The SF-36 is a multi-purpose health survey which is applied to measure HRQoL on nine different health concepts (33). It consists of 36 questions concerning physical and mental health, covering in total the following nine domains: physical functioning, social functioning, role limitations due to physical health, role limitations due to emotional problems, emotional well-being, vitality, pain, general health, and health change. The scores on the subscales are transformed to a range of 0 to 100 (total SF-36 score 0–900) in which a high score corresponds to a high quality of life on the specific domain.

All participants also filled in the Endometriosis Health Profile 30 (EHP-30) (41). This disease-specific quality of life questionnaire is commonly used in endometriosis research (42). It measures the impact of the disease on physical, mental, and social aspects of life. The questionnaire is divided into two parts. The core questionnaire consists of five subscales: pain, control and powerlessness, emotional well-being, social support, and self-image. The second, modular part of the questionnaire is not always applicable. It consists of six subscales: work, relationship with children, sexual intercourse, infertility, medical profession and treatment. The scores are transformed in a range of 0 to 100 (total score EHP-30 core questionnaire 0–500), in which a higher score corresponds with a lower disease-specific quality of life. If an item in a subscale was not answered, no score could be calculated for that subscale. In the control participants, the standard question “Because of your endometriosis, how often did you ...” was adjusted into “How often did you ...,” as suggested by van de Burgt et al. (35).

Pain Cognition Questionnaires

Three questionnaires addressed pain cognition: the Pain Catastrophizing Scale (PCS), the Pain Vigilance and Awareness Questionnaire (PVAQ), and the Pain Anxiety Symptoms Scale (PASS). These questionnaires have been shown to be valid and reliable in the measurement of the variables assessed (36, 38, 43, 44).

The PCS measures the degree of pain catastrophizing of the participant (44, 45) by measuring elements of

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