## Sexual Functions and Depressive Symptoms after Photodynamic Therapy for Vulvar Lichen Sclerosus in Postmenopausal Women from the Upper Silesian Region of Poland

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#### ABSTRACT \_\_

*Introduction.* Although lichen sclerosus (LS) may affect women's physical functioning, mood, and quality of life, restricting their physical activities, sexual, and non-sexual contacts, there are limited data on the sexual functioning of women diagnosed with LS.

*Aims*. The aim of the study was to evaluate the influence of photodynamic therapy for vulvar LS on sexual functions and depressive symptoms in postmenopausal women from the Upper Silesian Region of Poland.

*Methods.* A total of 65 women aged 50–70 visiting an outpatient clinic for assessment of vulvar dermatoses were screened for the clinical trial. Finally, 37 women who met all the inclusion/exclusion criteria were included in the study. All the subjects were treated by topical laser therapy (photodynamic therapy). Sexual functions and depressive symptoms were assessed before and after the therapy using Female Sexual Function Index and Beck Depression Inventory, respectively.

Main Outcome Measures. Sexual behaviors, sexual functions, and depressive symptoms in females after photodynamic therapy for vulvar LS.

**Results.** The total FSFI score was significantly lower after the treatment of vulvar LS as compared with the baseline (median 24.6 vs. 15.9). However, the prevalence of clinically significant FSD was stable throughout the medical intervention except lubrication disorders (higher prevalence after the treatment: 40% vs. 68.57%). Although the scores of BDI at the baseline dropped significantly after the photodynamic therapy (median 12.0 and 9.0, respectively), there were no significant differences in the prevalence of depressive symptoms (48.65% vs. 45.94%).

Conclusions. Topical laser therapy for vulvar LS has a good clinical outcome, especially in the context of no major negative effects on sexual functioning and the positive impact on the severity of depressive symptoms in postmenopausal women. However, patients should be informed about the possible lubrication disorders following the treatment. Skrzypulec V, Olejek A, Drosdzol A, Nowosielski K, Kozak-Darmas I, and Wloch S. Sexual functions and depressive symptoms after photodynamic therapy for vulvar lichen sclerosus in postmenopausal women from the Upper Silesian region of Poland. J Sex Med 2009;6:3395–3400.

Key Words. Vulvar Lichen Sclerosus; Vulvar Pain; Sexuality; Sexual Functions; Depressive Symptoms; Photodynamic Therapy

#### Introduction

L ichen sclerosus (LS) is a chronic inflammatory dermatosis with a bimodal peak incidence in premenarcheal and postmenopausal

women (women in the fifth to sixth decade of life), which affects approximately 1:70 to 1:30 women. LS may also be seen in significant minority of premenopausal females. However, vulvear LS is predominantly diagnosed in postmenopausal

3396 Skrzypulec et al.

women. The etiology of this multifactorial condition is still unclear; however, an autoimmune process or genetics may play a crucial role in the mechanism of the disease [1–7]. Additionally, hormones may play a role in the etiology of LS. A partial block of the conversion of testosterone to dihydrotestosterone is suggested. A study by Clifton and colleagues [8] revealed a reduced level of androgen receptors in the lesions of LS. However, Clark and Murphy suggested that androgen receptors and hormone distribution are unimportant in LS pathogenesis [9].

In women, LS is usually localized symmetrically in the anogenital region (labia majora, minora, clitoris, perineum, and perianal skin). Patients with LS generally report pruritus, discomfort with separation of the labia minora, dyspareunia at the vestibular opening, point tenderness localized in the area surrounding the Skene gland orifices or the Bartholin gland openings within the vulvar vestibule [1–7]. On examination, typical lesions of LS are porcelain-white papules and plaques, often with areas of ecchymosis or purpura.

Because of similar symptomatology of different vulvar diseases, a biopsy of the lesions is necessary to confirm LS diagnosis [1–7]. High-potency topical steroid therapy is currently recommended for LS treatment [1]. Other therapies might also be applied (retinoids, potassium paraminobenzoate, photodynamic therapy with topical 5-aminolaevulinic acid and cryotherapy), however, the small number of uncontrolled studies do not provide sufficient data for their recommendation in general practice [1,10,11].

LS may affect women's physical functioning, mood and quality of life, restricting physical activities, sexual, and non-sexual contacts. However, there are limited data on sexual functioning of women diagnosed with LS [2,7,12–15].

#### Aims

The aim of the study was to evaluate the influence of photodynamic therapy for vulvar LS on sexual functions and depressive symptoms in postmenopausal women from the Upper Silesian Region of Poland.

#### Methods

A population of 65 women aged 50–70 visiting the outpatient clinic of the Department of Gynecology, Obstetrics and Gynecological Oncology, School of Medicine, Medical University of

Silesia, Poland for assessment of vulvar dermatoses were screened for the clinical trial. A routine gynecological examination, transvaginal ultrasound scan (TVS), Pap smear, and biopsy specimen of vulvar lesion were performed in each patient. The subjects were selected for further analysis according to the following inclusion criteria: vulvar LS diagnosed in histopathological specimen; lack of contraindications for laser therapy of vulvar LS (history of porphyria and allergy/photoallergy to active ingredients of the applied photosensitizer); postmenopausal state; lack of any pathologies in TVS, Pap smear, and gynecological examination; healthy patients without endocrinopathies and general diseases affecting sexual functions (PCOS, diabetes mellitus, thyroid disorders); stable relationship for more than 6 months; consent to participate and sign the informed consent approved by the Ethics Committee.

Thirty-seven women who met all the inclusion criteria were eligible for the final analysis. The minimal sample size was calculated at the level of 31 (statistical power—0.8). All the subjects were treated by topical laser therapy (photodynamic therapy) as described by Hillemanns et al. and Olejek et al. [10,16]—six cycles at 2-week intervals. Four to five hours before the photodynamic therapy, 10 mL of a 5% solution of 5-aminolevulinic acid was applied topically to the vulva. Photodynamic therapy was administered with an irradiation of 80 J/cm<sup>2</sup> at an irradiance of 40-70 mW/cm<sup>2</sup>. Light with a wavelength of 635 nm was delivered by an argon ion-pumped dye laser (Lasera Diomed 630). No additional treatment was used.

Before the therapy, all the women were asked to complete voluntarily a questionnaire assessing their demographic characteristics, marital state, education, general health, medical and sexual history, functional activity, sexual activity (vaginal intercourses), sexual distress, sexual functioning (Female Sexual Function Index [FSFI]) as well as depressive symptoms (Beck Depression Inventory [BDI]). Three months after the cessation of photodynamic therapy, sexual activity, sexual distress, sexual functioning (FSFI) and depressive symptoms (BDI) were re-evaluated.

Female sexual function was evaluated with a detailed 19-item questionnaire (FSFI) described by Rosen et al. [17]. The cutoff point for female sexual disorder (FSD) was 26.55 of total FSFI score as described by Ferenidou et al. [18]. Scores <65% of the maximum achievable score (<3.9 points) in each

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