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LASER TECHNOLOGIES IN TREATMENT OF PELVIC FLOOR DYSFUNCTIONS IN WOMEN

Hypothesis / aims of study

A decrease of estrogen level with aging results in the thinning of vulva vaginal epithelium, changes of the structure and quality of collagen and elastin fibers and causes development of atrophic vaginitis. Moreover, damage to epithelium isn't limited by the genital organs, but also spreads to the mucosa of the urinal tract. That explains why a patient with atrophic vaginitis will complain not only of the dryness, burning and discomfort in the vulva and vagina, dyspareunia, but also point to the symptoms of dysuria, painful bladder syndrome, burning sensation in the urethra, desire to urinate and urinary incontinence at severe urge.
Examination reveals smooth, pale and thinned epithelium, smoothed vaginal furrows and there may be sclerosis and adhesion of the labia, narrowing of the vaginal orifice, erosion of/and damage to the mucosa and yellowish scarce discharge with odour. Sometimes a urethral prolapse occurs – an ectropion of the urinary mucosa. In this case a more precise diagnosis can be obtained by using vaginal health index, which at the mucosa optimal condition equals 25 points and is calculated following the evaluation of the mucosa condition and pH-measurement of the vaginal discharge acidity. Besides, diagnostic value can be additionally found in the karyopyknotic index of the Pap-smear test: at atrophic vaginitis the number of surface cells decreases while the number of parabasal cells increases.
With the age-related estrogen deficit most women have prolapses of various degrees, caused mainly by pregnancy itself, as well as by overweight, chronic coughing, lifting of weights and constipation. Besides, dysplasia of the connective tissue is of no less importance.
Use of fractional CO2 laser helps to reduce all age-related manifestations of urino-genital disorders due to its effects on the connective tissue structure - collagen and elastin.
Age-related decrease of estrogen level bring about the thinning of vaginal epithelium, changes of the structure and quality of collagen and elastin fibers, and causes development of atrophic vaginitis. Besides, the damage of epithelium is not limited to the genitalia but spreads on to the mucosa of the urinal tract.
Aim of study to evaluate the effect of Laser minimally invasive technology in treating pelvic floor dysfunction.

Study design, materials and methods

The innovative laser technologies in the Center for obstetrics, gynecology and perinatology, the Ministry of Health of the RF, came into use from March, 2013. Fractional CO2 laser after MonaLisaTouch method was applied to 58 women aged 26-74 (average age 51.24).
The main indications for laser application were as follows: vulva-vaginal atrophy, 1-2 level of genital prolapse, stress urinary incontinence light degree, lichen sclerosis. 15 women (25,8%) had genital prolapse combined with stress urinary incontinence and cicatrix deformation of perineum after delivery. 86% of women received 2-3 procedures with 30-45 days interval; 4 women receive 1 procedure and 2 women of the latter became pregnant and decided to retain their pregnancy (application laser was discontinued), 2 patients didn't come. 7% of women with lichen sclerosis underwent 4-5 procedures.
Prior to the laser treatment, the biopsy of the vaginal side wall was performed in its lower third part and one month after 3 procedures following the laser treatment. Biopsy material of the vaginal mucosa 3 mm in diameter together with the underlying connective tissue stroma was taken. Morphological samples were coloured with hematoxylin eosin; immunohystochemical investigation was carried out with the use of antibodies to elastine, collagens of types 1 and 3, proliferation Ki-67 marker.

Results

The treatment revealed positive clinical effect in 70,9%. Most patients were satisfied with the results, namely, those with vulva-vaginal atrophy, cicatrix deformation of perineum and lichen sclerosis. But 25% of the patients with prolapse had expected more.

Interpretation of results

Collagen formation and proliferation processes came to normal; the quality of epithelial lining and vascular blood supply improved.

Concluding message

Thus, the advantages of innovative laser treatment are as follows: minimally invasive, painless, selective reconstruction of collagen, stimulating the formation of fibroblasts and synthesis of elastin. Such minimally invasive technologies can be considered as an alternative to a non-surgical treatment of pelvic floor dysfunctions, of various clinical indications, in women.

Disclosures

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