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SmartXide Touch V²LR

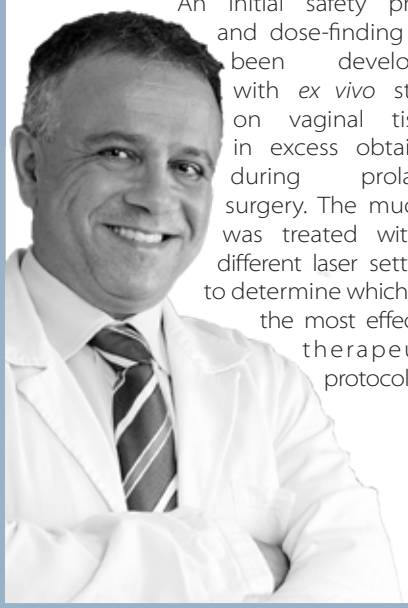


Editorial

When I first came across the world of laser application in gynecology about 7 years ago, I had to overcome a great deal of skepticism and apprehension due to lack of knowledge in this field.

Through the procedure, validation and evaluation of MonaLisa Touch®, involving the use of DEKA fractional CO_2 laser, I have seen incredible regenerative capacity of this emerging therapy.

MonaLisa Touch® validation was divided into various stages, mirroring the steps used in pharmaceutical industry for new medicinal products. Such approach is unusual even when it comes to many innovative surgical techniques.



An initial safety phase and dose-finding has been developed with *ex vivo* study on vaginal tissue in excess obtained during prolapse surgery. The mucosa was treated with 5 different laser settings to determine which was the most effective therapeutic protocol.

The preliminary research successfully identified which parameters ensure maximum safety and efficacy, as well as to observe its mechanism of action in the vaginal lamina propria. Subsequent studies helped determine the average number of treatments to be administrated (i.e. 3 sessions) in women being treated for post-menopausal vaginal atrophy.

We also objectively and subjectively described the very high treatment efficacy related to vaginal atrophy symptoms. As a matter of fact, women reported a new outlook on their sexual life and improved quality of life.

Other studies are currently under way at San Raffaele Hospital in Milan and may lead to further possible indications for this therapeutic approach.

To conclude, I would never have been able to gather the data published on Monalisa Touch® until now without the contribution and support from my team who deserve my sincere thanks. I am also very grateful to Prof. Alberto Calligaro, Prof. Nicola Zerbinati and Prof. Rossella Nappi for their indispensable collaboration.

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President of the European Urogynaecological Association (EUGA)



Climacteric - Vol. 17, No. 4, 2014. Epub 2014 Jun 5

A 12-week treatment with fractional CO_2 laser for vulvovaginal atrophy: a pilot study

Salvatore S, Nappi RE, Zerbinati N, Calligaro A, Ferrero S, Origoni M, Candiani M, Leone Roberti Maggiore U

Abstract

Objective

This pilot study aimed to assess the efficacy and feasibility of fractional CO_2 laser in the treatment of vulvovaginal atrophy (VVA) in postmenopausal women.

Methods

VVA symptoms were assessed before and after three applications of laser over 12 weeks in 50 women (age 59.6 ± 5.8 years) dissatisfied with previous local estrogen therapies. Subjective (visual analog scale) and objective (Vaginal Health Index Score, VHIS) measures were used during the study period to assess VVA. Quality of life was measured by using the SF-12. A subjective scale to evaluate the degree of pain related to the laser application and the degree of difficulty to perform the laser procedure was used.

Results

Fractional CO_2 laser treatment was effective to improve VVA symptoms (vaginal dryness, vaginal burning, vaginal itching, dyspareunia, dysuria; $p < 0.001$) at 12-week follow-up, as well as the VHIS (13.1 ± 2.5 at baseline vs. 23.1 ± 1.9; $p < 0.001$). Both physical and mental scores of quality of life were significantly improved in comparison with baseline ($p < 0.001$). Satisfaction with the laser procedure was reported by 42 women (84%) and a minimal discomfort was experienced at the first laser application, mainly because of the insertion and the movements of the probe. Finally, the technique was very easy to perform in all women starting from the second application at week 4 and no adverse events were recorded during the study period.

Conclusions

A 12-week treatment with the fractional CO_2 laser was feasible and induced a significant improvement of VVA symptoms by ameliorating vaginal health in postmenopausal women. Further controlled studies should be performed to confirm the present data and to assess the long-term effects of the laser procedure on vaginal tissues.



Journal of Endometriosis and Pelvic Pain Disorders - Vol. 6, No. 3, 2014

Microablative fractional CO_2 laser improves dyspareunia related to vulvovaginal atrophy: a pilot study

Salvatore S, Leone Roberti Maggiore U, Origoni M, Parma M, Quaranta L, Sileo F, Cola A, Baini I, Ferrero S, Candiani M, Zerbinati N

Abstract

This pilot study aimed to assess the efficacy in treating sexually active menopausal patients who had dyspareunia related to vulvovaginal atrophy (VVA).

The intensity of VVA symptoms was recorded for each patient. Patients were administered the Short Form 12 (SF-12) and the female sexual function index (FSFI) to assess quality of life and sexual function, respectively. An objective evaluation of female urogenital health was performed using the Gloria Bachman Vaginal Health Index (VHI).

At 12-week follow-up, the laser treatment was efficacious in improving dyspareunia in 100% of patients included in the study (n = 15). The intensity of dyspareunia significantly decreased from baseline (8.7 ± 1.0) to 12-week follow-up (2.2 ± 1.0; $p < 0.001$). In addition, all other VVA symptoms significantly ameliorated at the same follow-up. Furthermore, after the treatment, a significant improvement in quality of life (QoL) and sexual function were shown.

This pilot study demonstrated that treatment with the microablative fractional CO_2 laser of patients with dyspareunia related to VVA was efficacious at 12-week follow-up.



Lasers in Medical Science - Vol. 30, No. 1, 2015. Epub 2014 Nov 20

Microscopic and ultrastructural modifications of postmenopausal atrophic vaginal mucosa after fractional carbon dioxide laser treatment

Zerbinati N, Serati M, Origoni M, Candiani M, Iannitti T, Salvatore S, Marotta F, Calligaro A

Abstract

Vaginal atrophy occurring during menopause is closely related to the dramatic decrease in ovarian estrogens due to the loss of follicular activity.

Particularly, significant changes occur in the structure of the vaginal mucosa, with consequent impairment of many physiological functions. In this study, carried out on bioptic vaginal mucosa samples from postmenopausal, nonestrogenized women, we present microscopic and ultrastructural modifications of vaginal mucosa following fractional carbon dioxide (CO_2) laser treatment. We observed the restoration of the vaginal thick squamous stratified epithelium with a significant storage of glycogen in the epithelial cells and a high degree of glycogen-rich shedding cells at the epithelial surface.

Moreover, in the connective tissue constituting the lamina propria, active fibroblasts synthesized new components of the extracellular matrix including collagen and ground substance (extrafibrillar matrix) molecules.

Differently from atrophic mucosa, newly-formed papillae of connective tissue indented in the epithelium and typical blood capillaries penetrating inside the papillae, were also observed. Our morphological findings support the effectiveness of fractional CO_2 laser application for the restoration of vaginal mucosa structure and related physiological trophism. These findings clearly coupled with striking clinical relief from symptoms suffered by the patients before treatment remodeling of vaginal connective tissue without causing damage to surrounding tissue.



Climacteric - Vol.18, No. 2, 2015. Epub 2014 Dec 16

Sexual function after fractional microablative CO_2 laser in women with vulvovaginal atrophy

Salvatore S, Nappi RE, Parma M, Chionna R, Lagona F, Zerbinati N, Ferrero S, Origoni M, Candiani M, Leone Roberti Maggiore U

Abstract

Objective

To investigate the effects of fractional microablative CO_2 laser on sexual function and overall satisfaction with sexual life in postmenopausal women with vulvovaginal atrophy (VVA).

Method

This prospective study included 77 postmenopausal women (mean age 60.6 ± 6.2 years) treated for VVA symptoms with the fractional microablative CO_2 laser system (SmartXide^2 V^{2}LR, MonaLisa Touch®, DEKA, Florence, Italy). Sexual function and quality of life were evaluated with the Female Sexual Function Index (FSFI) and the Short Form 12 (SF-12), respectively, both at baseline and at 12-week follow-up. A 10-mm visual analog scale was used to measure the overall satisfaction with sexual life and the intensity of VVA symptoms (vaginal burning, vaginal itching, vaginal dryness, dyspareunia and dysuria) before and after the study period.

Results

We observed a significant improvement in the total score and the scores in each specific domain of the FSFI at 12-week follow-up compared to baseline ($p < 0.001$). After concluding the laser treatment, the overall satisfaction with sexual life significantly improved ($p < 0.001$). Seventeen (85%) out of 20 (26%) women, not sexually active because of VVA severity at baseline, regained a normal sexual life at the 12-week follow-up. Finally, we also found a significant improvement in each VVA symptom ($p < 0.001$) and in quality-of-life evaluation, both for the scores in the physical ($p = 0.013$) and mental ($p = 0.002$) domains.

Conclusions

Fractional microablative CO_2 laser treatment is associated with a significant improvement of sexual function and satisfaction with sexual life in postmenopausal women with VVA symptoms.



Maturitas - Vol. 80, No. 3, 2015. Epub 2014 Dec 25

Vulvo-vaginal atrophy: A new treatment modality using thermo-ablative fractional CO_2 laser

Perino A, Calligaro A, Forlani F, Tiberio C, Cucinella G, Svelato A, Saitta S, Calagna G

Abstract

Objective

To evaluate the efficacy and feasibility of thermo-ablative fractional CO_2 laser for the treatment of symptoms related to vulvo-vaginal atrophy (VVA) in post-menopausal women.

Methods

From April 2013 to December 2013, post-menopausal patients who complained of one or more VVA-related symptoms and who underwent vaginal treatment with fractional CO_2 laser were enrolled in the study. At baseline (T0) and 30 days post-treatment (T1), vaginal status of the women was evaluated using the Vaginal Health Index (VHI), and subjective intensity of VVA symptoms was evaluated using a visual analog scale (VAS). At T1, treatment satisfaction was evaluated using a 5-point Likert scale.

Results

During the study period, a total of 48 patients were enrolled. Data indicated a significant improvement in VVA symptoms (vaginal dryness, burning, itching and dyspareunia) ($P < 0.0001$) in patients who had undergone 3 sessions of vaginal fractional CO_2 laser treatment. Moreover, VHI scores were significantly higher at T1 ($P < 0.0001$). Overall, 91.7% of patients were satisfied or very satisfied with the procedure and experienced considerable improvement in quality of life (QoL). No adverse events due to fractional CO_2 laser treatment occurred.

Conclusions

Thermo-ablative fractional CO_2 laser could be a safe, effective and feasible option for the treatment of VVA symptoms in post-menopausal women.



Menopause - Vol. 22, No.8, 2015

Histological study on the effects of microablative fractional CO_2 laser on atrophic vaginal tissue: an ex vivo study

Salvatore S, Leone Roberti Maggiore U, Athanasiou S, Origoni M, Candiani M, Calligaro A, Zerbinati N

Abstract

Objective

Microablative fractional CO_2 laser has been proven to determine tissue remodeling with neoformation of collagen and elastic fibers on atrophic skin. The aim of our study is to evaluate the effects of microablative fractional CO_2 laser on postmenopausal women with vulvovaginal atrophy using an ex vivo model.

Methods

This is a prospective ex vivo cohort trial. Consecutive postmenopausal women with vulvovaginal atrophy managed with pelvic organ prolapse surgical operation were enrolled. After fascial plication, the redundant vaginal edge on one side was treated with CO_2 laser (SmartXide^2; DEKA Laser, Florence, Italy). Five different CO_2 laser setup protocols were tested. The contralateral part of the vaginal wall was always used as control. Excessive vagina was trimmed and sent for histological evaluation to compare treated and nontreated tissues. Microscopic and ultrastructural aspects of the collagenic and elastic components of the matrix were studied, and a specific image analysis with computerized morphometry was performed. We also considered the fine cytological aspects of connective tissue proper cells, particularly fibroblasts.

Results

During the study period, five women were enrolled, and 10 vaginal specimens were finally retrieved. Four different settings of CO_2 laser were compared. Protocols were tested twice each to confirm histological findings. Treatment protocols were compared according to histological findings, particularly in maximal depth and connective changes achieved. All procedures were uneventful for participants.

Conclusions

This study shows that microablative fractional CO_2 laser can produce a remodeling of vaginal connective tissue without causing damage to surrounding tissue.



Current Opinion in Obstetrics and Gynecology - Vol. 27, No. 6, 2015

The use of pulsed CO_2 lasers for the treatment of vulvovaginal atrophy

Salvatore S, Athanasiou S, Candiani M

Abstract

Purpose of review

This article reviews the literature regarding the safety and efficacy of the use of a pulsed CO_2 laser for the treatment of vulvovaginal atrophy (VVA).

Recent findings

Prospective observational studies have demonstrated histological changes after the use of pulsed CO_2 laser vaginally in atrophic conditions. Increased collagen and extracellular matrix production has been reported together with an increase in the thickness of the vaginal epithelium with the formation of new papilla. Three different observational studies reported a significant improvement of VVA assessed subjectively (with a 10-point visual analogue scale) and objectively (using the Vaginal Health Index) after a cycle of three treatments of pulsed CO_2 laser. Also sexual function (assessed with the Female Sexual Function Index) and quality of life (evaluated with the SF12 questionnaire) significantly improved. No complications or sideeffects were reported during or after the laser procedure that was performed in an outpatient setting.

Summary

Increasing evidence with histological and clinical data supports the use of pulsed CO_2 lasers in the treatment of VVA; however, no randomized control trial (sham versus treatment) has yet been produced and no data on the duration of therapy are currently available.



Archives of Obstetrics and Gynecology - Vol. 249, No. 4, 2016. Epub 2016 May 12

Fractional CO_2 laser for vulvovaginal atrophy (VVA) dyspareunia relief in breast cancer survivors

Pieralli A, Fallani MG, Becorpi A, Bianchi C, Corioni S, Longinotti M, Tredici Z, Guaschino S

Abstract

Purpose

The aim of this study was to evaluate the efficacy of fractional CO_2 laser therapy in breast cancer survivors as a therapeutic method for vulvovaginal atrophy (VVA) dyspareunia.

Methods

50 patients (mean age 53.3 years) underwent fractional microablative CO_2 laser treatment for dyspareunia in oncological menopause (mean time of menopause 6.6 years). The Gloria Bachmann's Vaginal Health Index (VHI) score was chosen as system to evaluate the presence of VVA and its improvement after the treatment. Intensity of dyspareunia was evaluated using a visual analog scale (VAS).

Results

Data indicated a significant improvement in VVA dyspareunia ($p < 1.86e-22$) in breast cancer survivors who had undergone 3 sessions of vaginal fractional CO_2 laser treatment. Moreover, VHI scores were significantly higher 30 days post-treatment (T4) ($p < 0.0001$). 76 % of patients were satisfied or very satisfied with the treatment results. The majority (52 %) of patients were satisfied after a long-term follow-up (mean time 11 months). No adverse events due to fractional CO_2 laser treatment occurred.

Conclusions

The treatment with fractionated CO_2 laser appeared to be a feasible and effective treatment for VVA dyspareunia in breast cancer survivors with contraindications to hormonal treatments.



European Review for Medical and Pharmacological Sciences – Vol. 20, No. 12, 2016

Is vaginal fractional CO_2 laser treatment effective in improving overactive bladder symptoms in post-menopausal patients? Preliminary results

Perino A, Cucinella G, Gugliotta G, Saitta S, Polito S, Adile B, Marci R, Calagna G

Abstract

Objective

To evaluate the role of vaginal fractional CO_2 laser treatment in the relief of Overactive Bladder (OAB) symptoms in post-menopausal women.

Patients and Methods

Post-menopausal women who complained of one or more symptoms related to vulvo-vaginal atrophy (VVA), who experienced symptoms of OAB and who underwent vaginal treatment with fractional CO_2 laser were enrolled in the study. At baseline (T0) and 30 days post-treatment T1), vaginal status (using Vaginal Health Index - VHI), subjective intensity of VVA symptoms (using a visual analog scale - VAS) and micturition diary were evaluated. OAB symptoms were also assessed using a validated questionnaire.

Results

Thirty patients were enrolled. A statistically significant improvement in VVA symptoms was observed and in VHI at T1 ($p < 0.0001$). A significant improvement was also identified in the micturition diary, in number of urge episodes and OAB-q ($p < 0.0001$). Nine of the 30 patients suffered from incontinence episodes and had improved at T1.

Conclusions

We showed that fractionated CO_2 laser vaginal treatment has proved to be effective in improving OAB symptoms in post-menopausal women. Moreover, it is a safe and efficacious measure for the relief of VVA related conditions. Further long-term studies are needed to confirm these preliminary results.



Climacteric – Vol. 19, No. 5, 2016. Epub 2016 Aug 2

The effect of microablative fractional CO_2 laser on vaginal flora of postmenopausal women

Athanasiou S, Pitsouni E, Antonopoulou S, Zacharakis D, Salvatore S, Falagas ME, Grigoriadis T

Abstract

Objectives

To assess the effect of microablative fractional CO_2 laser ($MFCO_2$-Laser) therapy on the vaginal microenvironment of postmenopausal women.

Methods

Three laser therapies at monthly intervals were applied in postmenopausal women with moderate to severe symptoms of genitourinary syndrome of menopause, pH of vaginal fluid >4.5 and superficial epithelial cells on vaginal smear <5%. Vaginal fluid pH values, fresh wet mount microscopy, Gram stain and aerobic and anaerobic cultures were evaluated at baseline and 1 month after each subsequent therapy. Nugent score and Hay-Ison criteria were used to evaluate vaginal flora.

Results

Fifty-three women (mean age 57.2 ± 5.4 years) participated and completed this study. $MFCO_2$-Laser therapy increased Lactobacillus ($p < 0.001$) and normal flora ($p < 0.001$) after the completion of the therapeutic protocol, which decreased vaginal pH from a mean of 5.5 ± 0.8 (initial value) to 4.7 ± 0.5 ($p < 0.001$). The prevalence of Lactobacillus changed from 30% initially to 79% after the last treatment. Clinical signs and symptoms of bacterial vaginosis, aerobic vaginitis or candidiasis did not appear in any participant.

Conclusions

$MFCO_2$-Laser therapy is a promising treatment for improving the vaginal health of postmenopausal women by helping repopulate the vagina with normally existing Lactobacillus species and reconstituting the normal flora to premenopausal status.



Menopause – Vol. 23, No. 10, 2016

An assessment of the safety and efficacy of a fractional CO_2 laser system for the treatment of vulvovaginal atrophy

Sokol ER, Karram MM

Abstract

Objective

The aim of the study was to assess the safety and efficacy of a novel fractional CO_2 laser for the treatment of genitourinary syndrome of menopause (GSM).

Patients and Methods

Women presenting with GSM and meeting study criteria were enrolled. Examinations at baseline and follow-up (3 mo after final treatment) evaluated dilator tolerance and vaginal pH. Visual analog scales were used to assess pain, vaginal burning, vaginal itching, vaginal dryness, dyspareunia, and dysuria; Vaginal Health Index scores were completed before each treatment and at follow-up; Female Sexual Function Index and Short Form 12 questionnaires were also completed. Participant satisfaction was measured on a 5-point Likert scale (1=very dissatisfied, 5=very satisfied). Women received three laser treatments, 6 weeks apart.

Results

Thirty women participated (mean age 58.6±8.8 y). None withdrew or were discontinued due to an adverse event; three were lost to follow-up. Average improvement in visual analog scale scoring was 1.7±3.2 for pain, 1.4±2.9 for burning, 1.4±1.9 for itching, 6.1±2.7 for dryness, 5.1±3.0 for dyspareunia, and 1.0±2.4 for dysuria; improvement in average Vaginal Health Index and Female Sexual Function Index scores were statistically significant ($P<0.001$). Twenty-five of 30 participants (83%) showed increase in comfortable dilator size at 3-month follow up. Before the second and third treatments, 86.6% (26 of 30) of women reported they were better or much better than at the previous treatment; 26 of 27 women (96%) were reportedly satisfied or extremely satisfied at follow-up.

Conclusions

In this sample, the data suggest that the fractional CO_2 laser is effective and safe for treatment of the symptoms associated with GSM.



Menopause – Vol. 23, No. 10, 2016

Fractional microablative CO_2 laser for vulvovaginal atrophy in women treated with chemotherapy and/or hormonal therapy for breast cancer: a retrospective study

Pagano T, De Rosa P, Vallone R, Schettini F, Arpino G, De Placido S, Nazzaro G, Locci M, De Placido G

Abstract

Objectives

Breast cancer is one of the most common malignancies in women. Hormonal treatment and chemotherapy induce a transient or permanent menopause status. Vulvovaginal atrophy (VVA) is a frequent debilitating symptom of menopause that is best treated with local or systemic estrogen formulations. Because estrogens drive the growth of the majority of breast cancers, most effective VVA therapies are precluded. The aim of this study was to evaluate the effects of fractional microablative CO_2 laser on sexual function and in relieving symptoms in women with breast cancer and VVA induced or exacerbated by iatrogenic menopause.

Methods

This retrospective study included 26 women affected by hormone-receptor positive breast tumors and treated for VVA symptoms with the fractional microablative CO_2 laser system. Every 30 to 40 days, women underwent a cycle of treatment for a total of three cycles. During each cycle, women underwent a gynecological examination and completed visual analog scale questionnaires designed to assess (1) the degree of symptoms and (2) procedure-related discomfort.

Results

Treatment resulted in a significant regression of VVA symptoms and procedure-related discomfort versus baseline ($P<0.001$ in almost all cases). No adverse reactions were observed nor reported by women.

Conclusions

Fractional microablative CO_2 laser treatment is associated with a significant improvement of VVA symptoms in women affected by hormone-driven breast cancer. This procedure has the advantage of relieving iatrogenic/physiological VVA symptoms without resorting to contraindicated estrogen preparations, which have been the most effective therapy thus far.



Chinese Journal of Clinical Obstetrics and Gynecology – Vol. 17, No. 4, 2016

The curative effect and feasibility analysis of fractional CO_2 laser in the treatment of vulvovaginal in postmenopausal women

Miao Y, Li J, Wang J

Abstract

Objective

This prospective study aimed to assess the curative efficacy and feasibility of fractional CO_2 laser in the treatment of vulvo-vaginal atrophy (VVA) in postmenopausal women.

Methods

30 patients with VVA recruited in this study, fractional CO_2 laser treatment was applied, visual analogue scale (VAS) and vaginal health index score (VHIS) measures were used to assess VVA, and degree of pain before and after the treatment, additionally, satisfaction survey was done post treatment.

Results

Fractional CO_2 laser treatment was significant improved VVA symptoms (vaginal itching, 6.00±2.60 vs. 1.38±0.97, P<0.001; vaginal dryness 7.04±2.26 vs. 1.88±1.03, P<0.001; vaginal burning, 6.25±2.13 vs. 1.50±0.88, P<0.001; dyspareunia, 7.54±2.54 vs. 2.04±1.15, P<0.001), as well as the VHIS (9.79±2.76 vs. 16.33±2.06, P<0.001). Satisfaction with the laser procedure was reported by 28 women (93.33%) and a minimal discomfort was experienced at the laser application. No adverse events were recorded.

Conclusions

The fractional CO_2 laser treatment can improve the VVA symptoms in postmenopausal patients with vulvo-vaginal atrophy and was proved to be a simple, outpatient therapy for VVA patients.



Chinese Journal of Clinical Obstetrics and Gynecology – Vol. 17, No. 4, 2016

The application of fractional CO_2 laser in the treatment of vulvar lichen sclerosus

Li J, Miao Y, Wang J

Abstract

Objectives

To investigate the efficacy and side effects for fractional CO_2 laser in the treatment of vulvar lichen sclerosus (VLS).

Methods

31 patients with VLS symptoms were enrolled prospectively from July 2015 to April 2016 in Peking University People's Hospital. The fractional CO_2 laser was used for VLS lesions, a total of 3-5 times, each time per-month. Visual analogue scale (VAS) was assessed the degree of vulvar pruritus, skin chapping, dyspareunia before and after treatment. After the treatment, satisfaction survey was done.

Results

The rate improvement of VLS symptoms was 90.32% (28/31) with fractional CO_2 laser ($P<0.001$). Compare with before treatment, there were significant difference in pruritus score at the first and the third after treatment one month (8.07±1.97 vs. 3.43±0.94 and 1.93±0.62, $P<0.001$), vulvar skin chapping score (3.5±1.79 vs. 1.36±1.22 and 0.64±0.84, $P<0.005$), respectively. The dyspareunia score (4.29±2.70 vs. 1.14±0.95, $P<0.05$) were improved significantly at the third after treatment one month. After treatment 48h, there were 2 cases with mild pain, 6 cases with local mils hyperemia, 4 cases with mild swelling. No adverse events due to fractional CO_2 laser treatment occurred. During 3-7 months follow-up, 4 cases (12.9%) with the skin color from white to gray, 2 cases recovered sex from 6 cases. The overall satisfaction rate was 96.77% (30/31).

Conclusions

The fractional CO_2 laser is effective, minimal injury and acceptable side effects for vulvar lichen sclerosus, and may be a new treatment for it.

MEETINGS & CONGRESSES: PAPERS ACCEPTED FOR PRESENTATION AND PUBLICATION

Microablative Fractional CO_2 Laser for Vulvovaginal Atrophy in Women with a History of Breast Cancer

Leone Roberti Maggiore U., Parma M., Candiani M., Salvatore S. Journal of Minimally Invasive Gynecology. 2015 Nov–Dec; 22(6) Supplement: p. S100. doi:10.1016/j.jmig.2015.08.269. [Abstracts of the 44th AAGL Global Congress of Minimally Invasive Gynecology].

An Assessment of the Safety and Efficacy of the SmartXide² V²LR CO_2 Laser for the Treatment of Vulvovaginal Atrophy

Sokol E.R., Karram M.
[Poster presented at North American Menopause Society (NAMS) - Annual Meeting, Las Vegas 2015.]

Treatment of Coexistent Lichen Sclerosus and Vulvo-Vaginal Atropgy with Fractional CO_2 Laser Therapy

Dell J. Lasers Surg. Med. 2016 April; 48(4):433 #LB39. doi: 10.1002/lsm.22526.
[Late-breaking abstracts for the 36th American Society for Laser Medicine and Surgery (ASLMS) annual conference 2016].

An Assessment of the Safety and Fractional CO_2 Laser for the Treatment of Vulvovaginal Atrophy

Lang P., Hussain S., Karram M. Lasers Surg. Med. 2016 April; 48(4):433 #LB40. doi: 10.1002 lsm.22526.
[Late-breaking abstracts for the 36th American Society for Laser Medicine and Surgery (ASLMS) annual conference 2016]


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