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Vulvo-Vaginal Laser Reshaping (V2LR)

TRE DI ESPERIENZA DELLO
OSPEDALE DELLA REPUBBLICA DI SAN MARINO





TRATTAMENTO CON LETTERATURA SCIENTIFICA VALIDATA

Journal of Endometriosis and Pelvic Pain Disorders 2014; 00 (00): 000-000
ORIGINAL ARTICLE
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Microablative fractional CO₂ laser improves dyspareunia related to vulvovaginal atrophy: a pilot study

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Objective: This pilot study aimed to assess the efficacy in treating sexually active women who had dyspareunia related to vulvovaginal atrophy (VVA).
Materials and methods: The intensity of VVA symptoms was recorded for each patient using the Short Form 12 (SF-12) and the female sexual function index (FSFI). An objective evaluation of female sexual function was performed using the Gloria Bachman Vaginal Health Index (VHI).
Results: At 12-week follow-up, the laser treatment was efficacious in improving quality of life and sexual function, respectively. An objective evaluation of female sexual function was performed using the Gloria Bachman Vaginal Health Index (VHI).
Conclusions: This pilot study demonstrated that treatment with the microablative fractional CO₂ laser was efficacious in treating sexually active women who had dyspareunia related to VVA.

Keywords: Dyspareunia, Fractional CO₂ laser, Menopause, Vaginal atrophy

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Histological study on the effects of microablative fractional CO₂ laser on atrophic vaginal tissue: an ex vivo study

Stefano Salvatore MD,¹ Umberto Leone Roberti Maggiore, MD,¹ Stavros Athanasiou, MD,² ID,¹ Alberto Calligaro, MD,³ and Nicola Zerbinati MD,¹

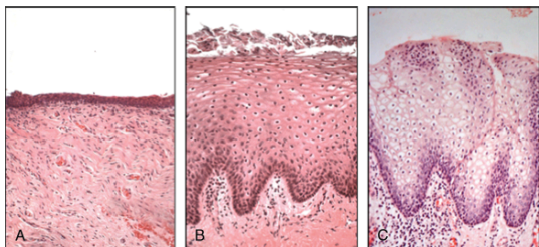


FIG. 3. Morphological findings from clinical practice. (A) Atrophic vaginal mucosa before fractional CO₂ laser treatment. (B) Vaginal mucosa of the same person 2 months after treatment. Note the lamina propria newly formed connective tissue with vessel-rich papillae, the thick stratified squamous epithelium, and normally shedding superficial cells. (C) Normal vaginal mucosa of a fertile-age woman (reported for comparison).

ORIGINAL ARTICLE
1007/10103-014-1677-2

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

Nicola Zerbinati¹, Maurizio Serati¹, Massimo Origoni¹, Massimo Candiani¹, Tommaso Iannitti¹, Stefano Salvatore¹, Francesco Marotta¹, Alberto Calligaro¹

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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 biopsied vaginal mucosa samples from postmenopausal, nonsteroidized women, we present microscopic and ultrastructural modifications of vaginal mucosa following fractional carbon dioxide (CO₂) 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 collagen-rich shed- ding 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. Differently from atrophic mucosa, we observed blood capillaries penetrating inside the vaginal mucosa structure and related findings. These findings clearly coupled with stratum corneum from symptoms suffered by the patients before treatment.

Keywords Vaginal atrophy · Regenerative medicine · Fractional carbon dioxide laser

Introduction Vaginal mucosa atrophy is one of the most common consequences accompanying menopause. It is due to the related hormonal decline including the constitutive decrease in estrogen levels, resulting in severe atrophy of the vaginal mucosa.

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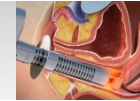
Vulvo-vaginal atrophy: A new treatment modality using thermo-ablative fractional CO₂ laser

Antonino Perino^a, Alberto Calligaro^b, Francesco Forlani^{a,c}, Corrado Tiberio^a, Gaspare Cucinella^a, Alessandro Svetato^a, Salvatore Saitta^a, Gloria Calagna^a

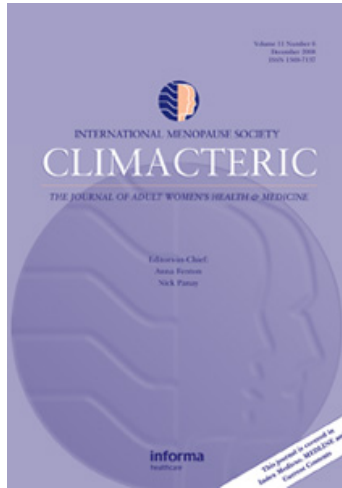
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ABSTRACT
Objective: To evaluate the efficacy and feasibility of thermo-ablative fractional CO₂ laser for the treatment of vulvo-vaginal atrophy (VVA) in post-menopausal women.
Methods: From April 2013 to December 2013, post-menopausal patients who complained of one or more of symptoms related to vulvo-vaginal atrophy (VVA) and who underwent vaginal treatment with fractional CO₂ laser were enrolled in the study.
Results: At baseline (T0) and 30 days post-treatment (T1), vaginal status of the women was evaluated using the VVA-related symptoms and the subjective intensity of VVA symptoms was evaluated using a 5-point Likert scale.
Conclusions: At T1, treatment satisfaction was significantly improved (P < 0.0001) in patients who underwent fractional CO₂ laser treatment. Moreover, VHI scores were significantly improved (P < 0.0001) in patients who underwent fractional CO₂ laser treatment. No adverse events due to the laser treatment were reported.

Fig. 1. Haematoxylin and eosin staining of a patient's vaginal mucosa before treatment (a, c) and 2 months after treatment (b, c). (a) In the atrophic mucosa, the epithelium is very thin since it is formed by few layers of cells, and the epithelial-connective junction presents an even feature; (b) the epithelium appears much thicker since it is constituted by many layers with visible large superficial cells. The underlying connective tissue is provided with papillae indenting the epithelial-connective junction. (c) Comparative microphotographs (before and 2 months after treatment) of atrophic vaginal mucosa biopsies demonstrating striking structural recovery features 2 months after treatment in all the patients.



DUE ARTICOLI SU RIVISTA AD ELEVATO IMPACT FACTOR



CLIMACTERIC 2014;17:1-7

A 12-week treatment with fractional CO₂ laser for vulvovaginal atrophy: a pilot study

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Key words: FRACTIONAL CO₂ LASER, MENOPAUSE, VAGINAL DRYNESS, DYSpareunia, VULVOVAGINAL ATROPHY

ABSTRACT

Objective This pilot study aimed to assess the efficacy and feasibility of fractional CO₂ 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 CO₂ 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 CO₂ 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.

INTRODUCTION

Vulvovaginal atrophy (VVA) is an involution of the mucous membranes and tissues of the vulva and vagina caused by the drop of estrogen that occurs in women during menopause¹⁻³. In particular, the vagina becomes narrower and shorter and the introitus can constrict⁴. These modifications are commonly associated with the absence of sexual activity and/or with female sexual dysfunction^{5,6}. Other typical changes are represented by the progressive loss of elasticity and of rugal folds of the vaginal lining which becomes thin-

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Sexual function after fractional microablative CO₂ laser in women with vulvovaginal atrophy

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Key words: FRACTIONAL CO₂ LASER, MENOPAUSE, VAGINAL DRYNESS, DYSpareunia, SEXUAL FUNCTION, SEXUAL INTERCOURSE, VULVOVAGINAL ATROPHY

ABSTRACT

Objective To investigate the effects of fractional microablative CO₂ 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 CO₂ laser system (SmartXide² V²LR, 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.

CO₂ laser treatment is associated with a significant improvement of sexual life in postmenopausal women with VVA symptoms.

the vulva and in the vagina^{11,12}, such as thinning, reduced vascularization and elasticity, decreased engorgement and lubrication. All these changes are likely to produce an altered response to sexual stimuli and to dyspareunia¹³. VVA is therefore generally associated with female sexual dysfunction (FSD)¹⁴; pain during sexual intercourse, in fact, often co-exists with a decline in women's desire, arousal, orgasm and frequency of sexual activity throughout the menopausal transition and beyond¹⁵⁻¹⁷.

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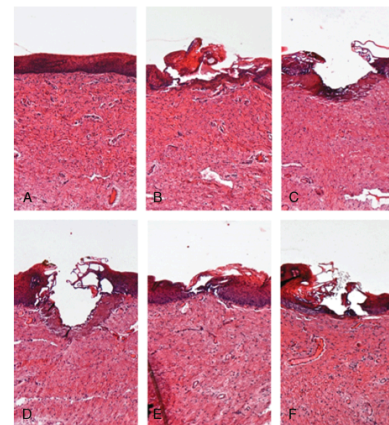
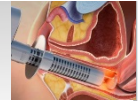


FIG. 1. Vaginal mucosa under a light microscope. (A) Atrophic control (B-F) Treatment protocols 1, 2, 3, 4, and 5.

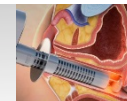




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**« NON E’
UN TRATTAMENTO ESTETICO
MA FUNZIONALE »**





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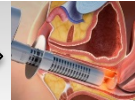
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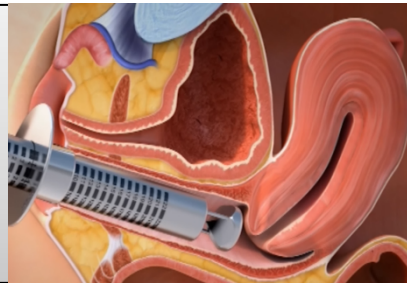
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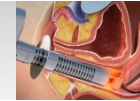
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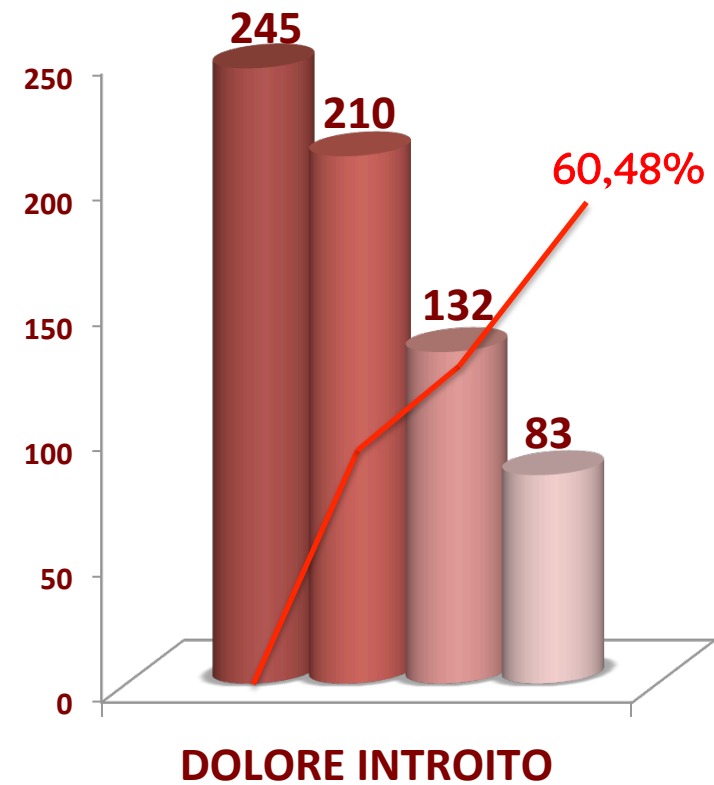
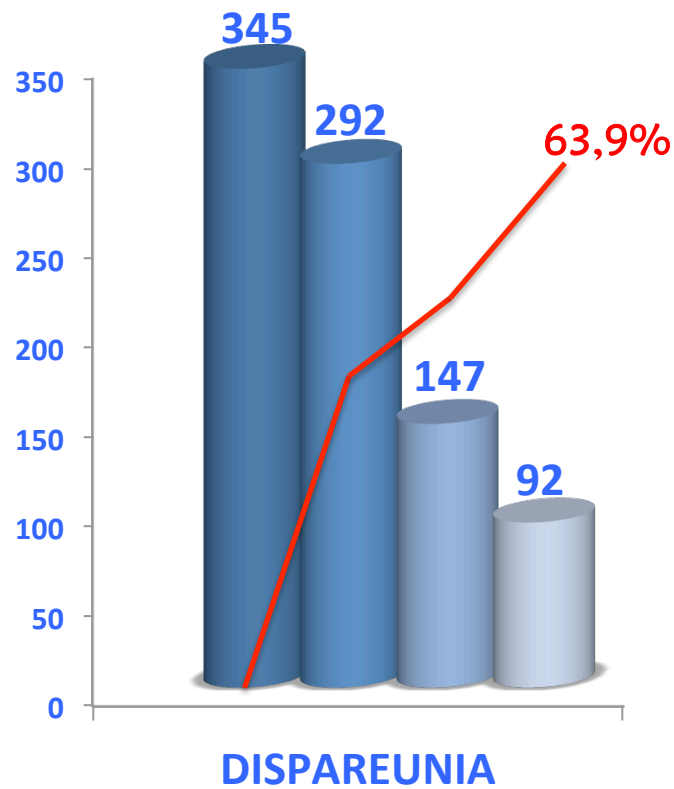


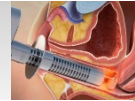
RIDUZIONE IN PERCENTUALE DI TUTTI I SINTOMI DOPO 3 TRATTAMENTI



Ospedale di Stato della Repubblica di San Marino

Riduzione del sintomo (%)
2 mesi dopo trattamento



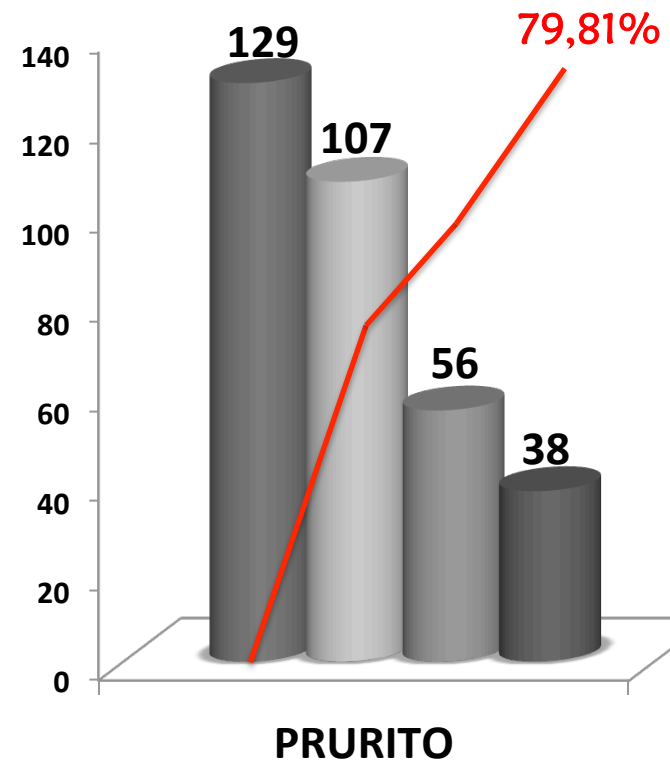
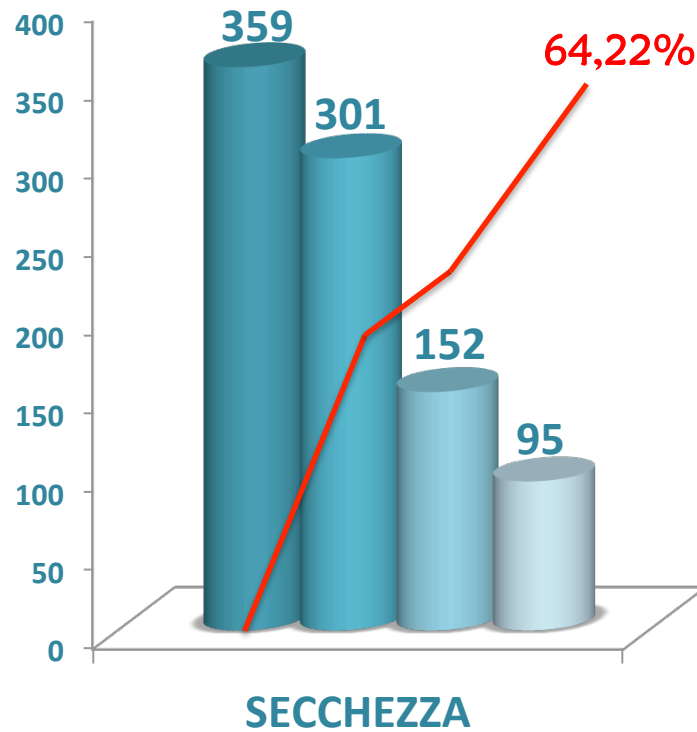


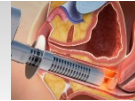
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Ospedale di Stato della Repubblica di San Marino

Riduzione del sintomo (%)
2 mesi dopo trattamento



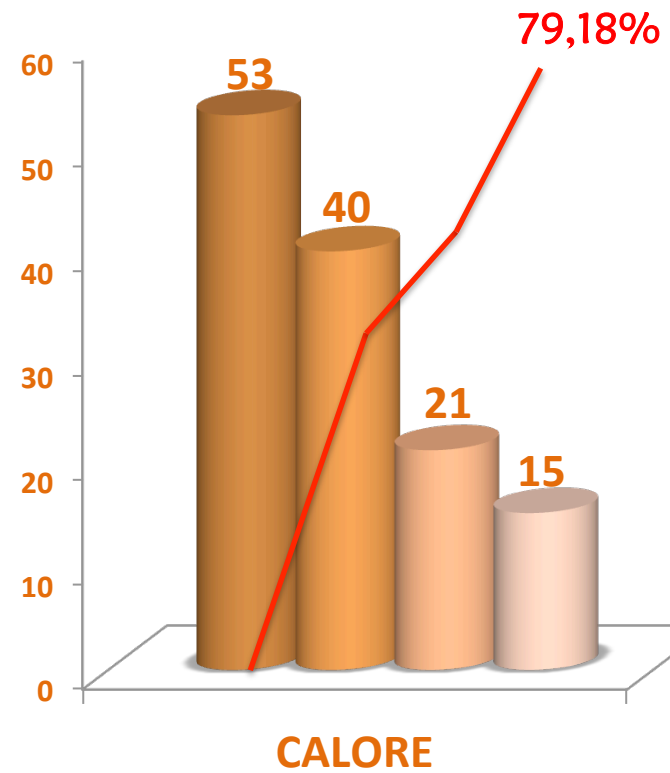
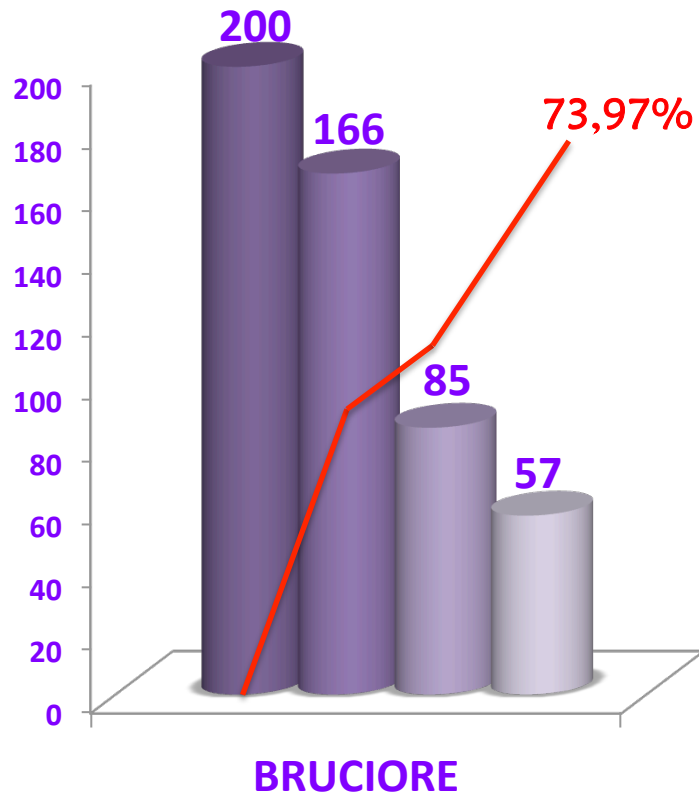


RIDUZIONE IN PERCENTUALE DI TUTTI I SINTOMI DOPO 3 TRATTAMENTI



Ospedale di Stato della Repubblica di San Marino

Riduzione del sintomo (%)
2 mesi dopo trattamento





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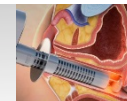
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PATOLOGIA NEOPLASTICA



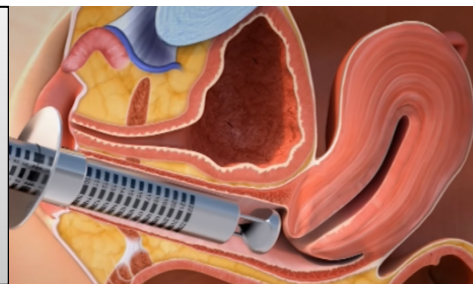


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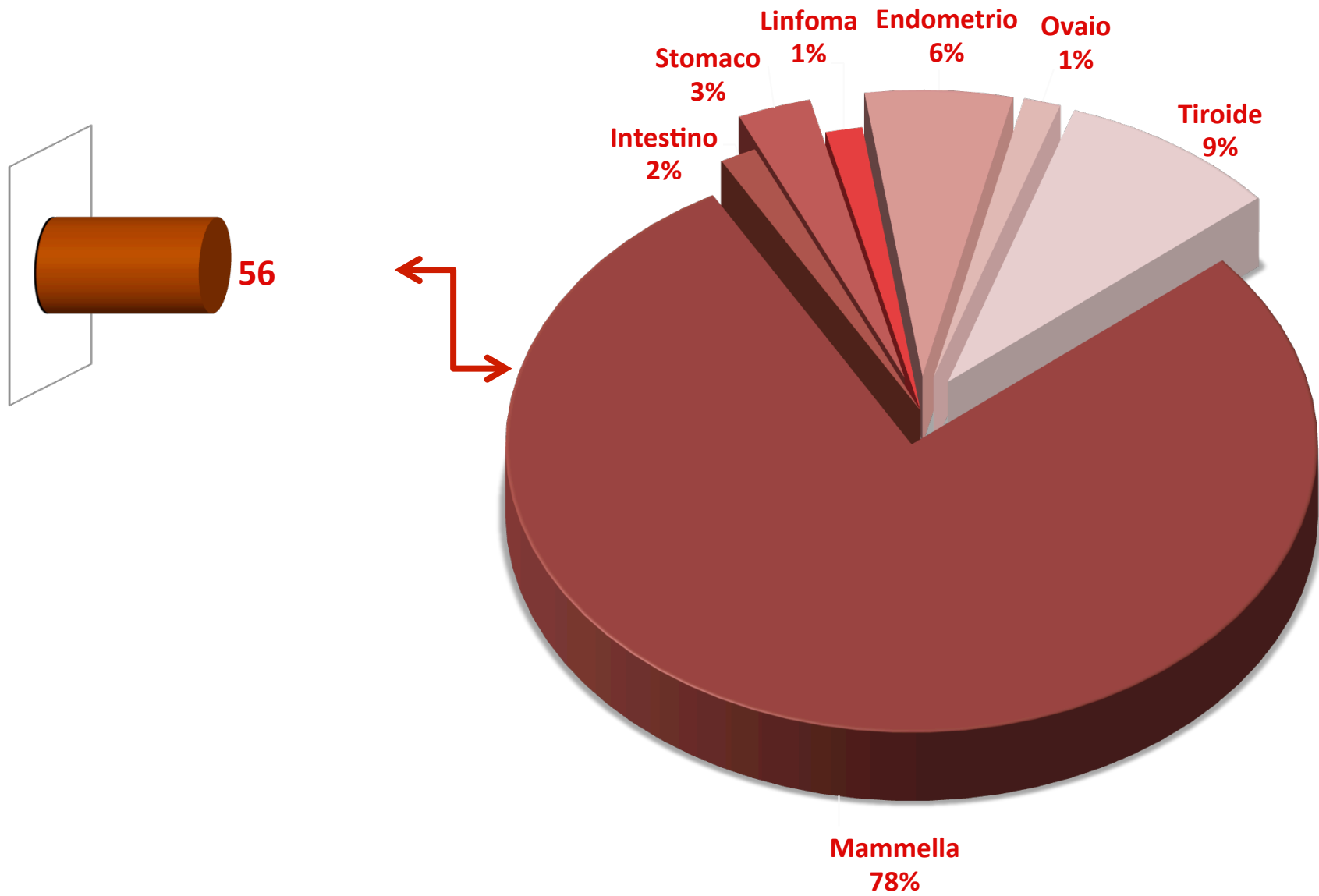
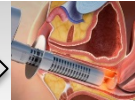


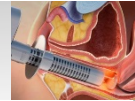
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PATOLOGIE NEOPLASTICHE ASSOCIATE



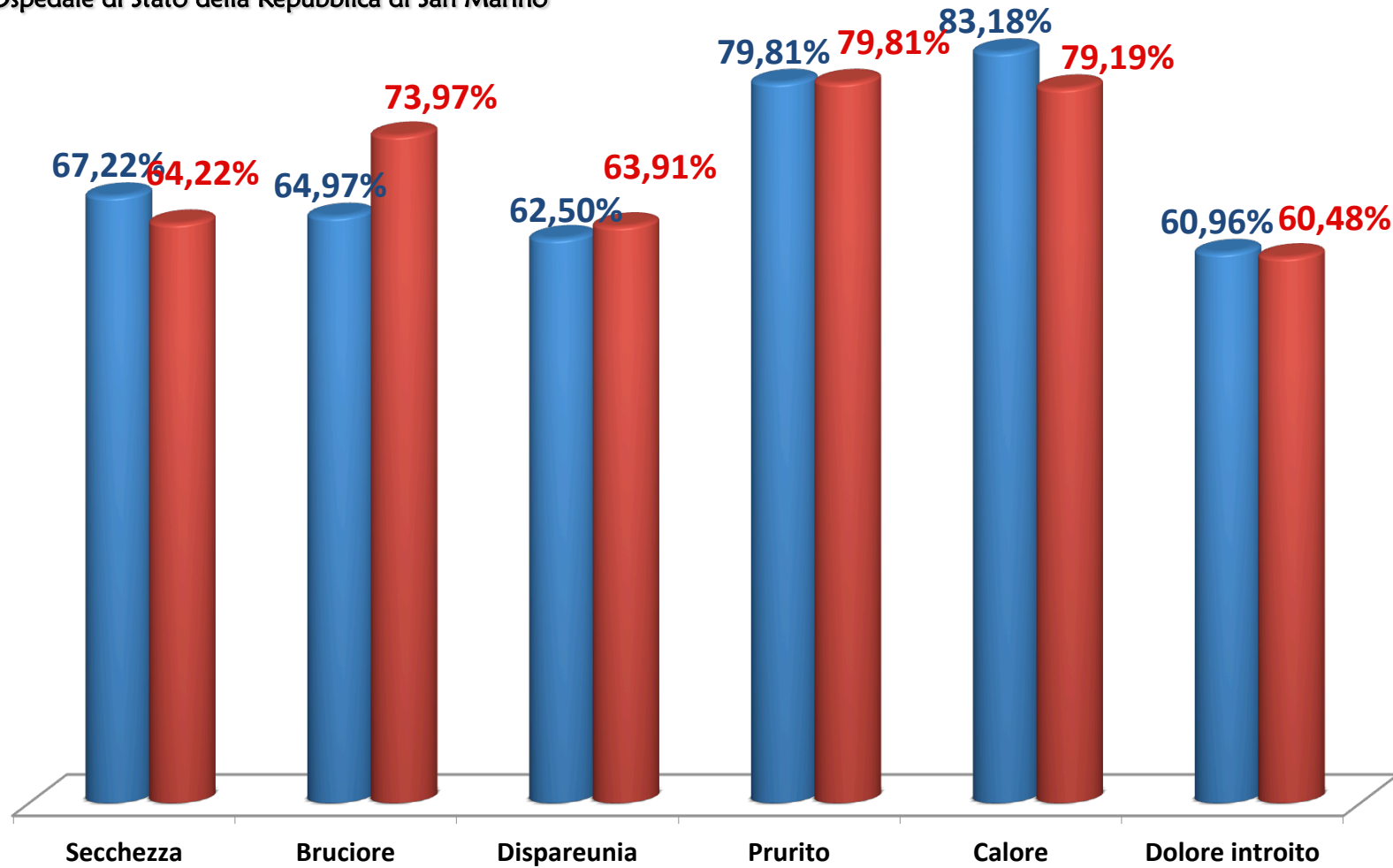


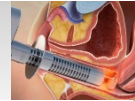
RIDUZIONE IN PERCENTUALE DI TUTTI I SINTOMI DOPO 3 TRATTAMENTI



Ospedale di Stato della Repubblica di San Marino

Riduzione del sintomo (%)
2 mesi dopo trattamento





Use of the *MonaLisa Touch*® Treatment on Cancer Patients

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Gynaecological Endoscopy Functional Unit of the Republic of San Marino State Hospital

Objectives: This pilot study aimed to assess the efficacy in treating atrophic vaginitis symptoms in those women who cannot receive local or systemic hormone-based therapies, since they have had a hormone-sensitive tumour.

Materials and methods: 46 treatments with the *MonaLisa Touch*® were performed from 01/23/2013 to 10/31/2014 at the Republic of San Marino State Hospital involved patients with neoplasias. The intensity of atrophic vaginitis symptoms was recorded for each patient.

Results: About two months after the first treatment the percent reduction of the individual symptoms was very significant, not unlike that obtained from patients who received the treatment but without neoplastic pathologies. Furthermore, after the treatment, a significant improvement in quality of life was shown.

Conclusions: Considering the absence of complications and especially the absence of contraindications, the *MonaLisa Touch*® laser treatment is a valuable and irreplaceable aid for all patients who cannot and prefer not to receive hormone replacement therapy.

Key words: vaginal atrophy, oestrogen-sensitive tumour, induced menopause, laser

INTRODUCTION

Vaginal atrophy, also called atrophic vaginitis, affects many women throughout the world, occurring almost always after menopause, but also in all cases where there is a lack of oestrogen, such as after childbirth, during the breastfeeding stage when ovulation is blocked or after an oestrogen-sensitive tumour (such as in the breasts, endometrium or the ovaries) where a chemotherapeutic or surgical "castration" of the menstrual cycle occurs. In these cases the use of hormone replacement therapies, even local or at low dosage, are therefore absolutely contraindicated¹.

The symptoms related to vaginal atrophy normally begin to appear between the ages of 45 and 55. Unlike other symptoms of menopause, such as the hot flashes which often decrease over time, these usually continue and can worsen as time progresses.

This condition can cause dryness, irritation, burning or pain during sexual intercourse, affecting up to 40% of postmenopausal women^{1,2}.

Until now, treatment for this condition involved the prescribing of vaginal oestrogens in the form of tablets, ovules or creams to insert into the vaginal canal using an applicator, infiltrations with substances

that have a stimulating or revitalizing action such as natural hyaluronic acid.

Borrowing from dermatological treatment for collagen stimulation which has been done for many years using CO₂ fractional laser scanning systems, scientific research has come up with a very effective therapeutic solution to improve the symptoms of vulvo-vaginal atrophy³⁻⁶.

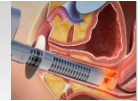
This new therapeutic opportunity is an excellent chance for all women who suffer from these disorders, especially women who do not want to take hormones for personal or psychological reasons, believing that they are the cause of the pathology.

The importance of this treatment is all the more reason to be considered for those women who cannot receive local or systemic hormone-based therapies, since they have had a hormone-sensitive tumour^{7,8}.

MATERIALS AND METHODS

359 treatments with the *MonaLisa Touch*® using the CO₂ laser system SmartXide² (DEKA - Florence, Italy) were performed from 01/23/2013 to 10/31/2014 at the Republic of San Marino State Hospital; 46 of these treatments involved patients with neoplasias (36





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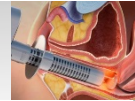
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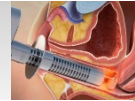


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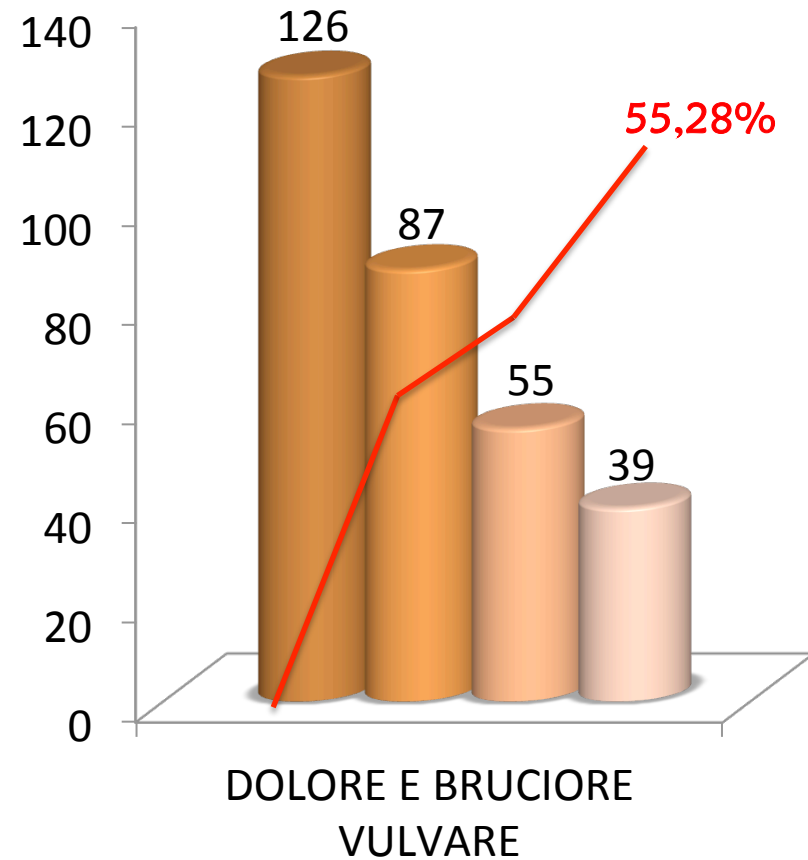


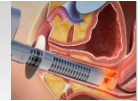
RIDUZIONE IN PERCENTUALE DI TUTTI I SINTOMI DOPO 3 TRATTAMENTI



Ospedale di Stato della Repubblica di San Marino

Riduzione del sintomo (%)
2 mesi dopo trattamento





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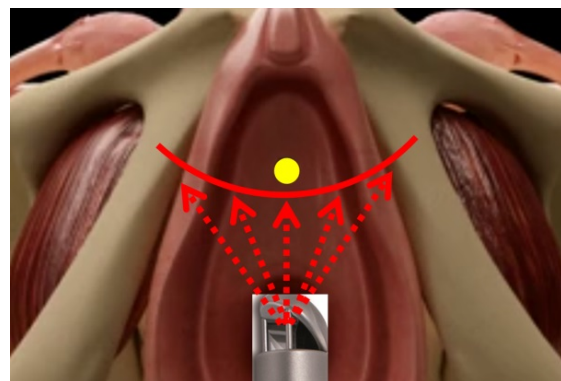


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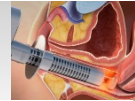


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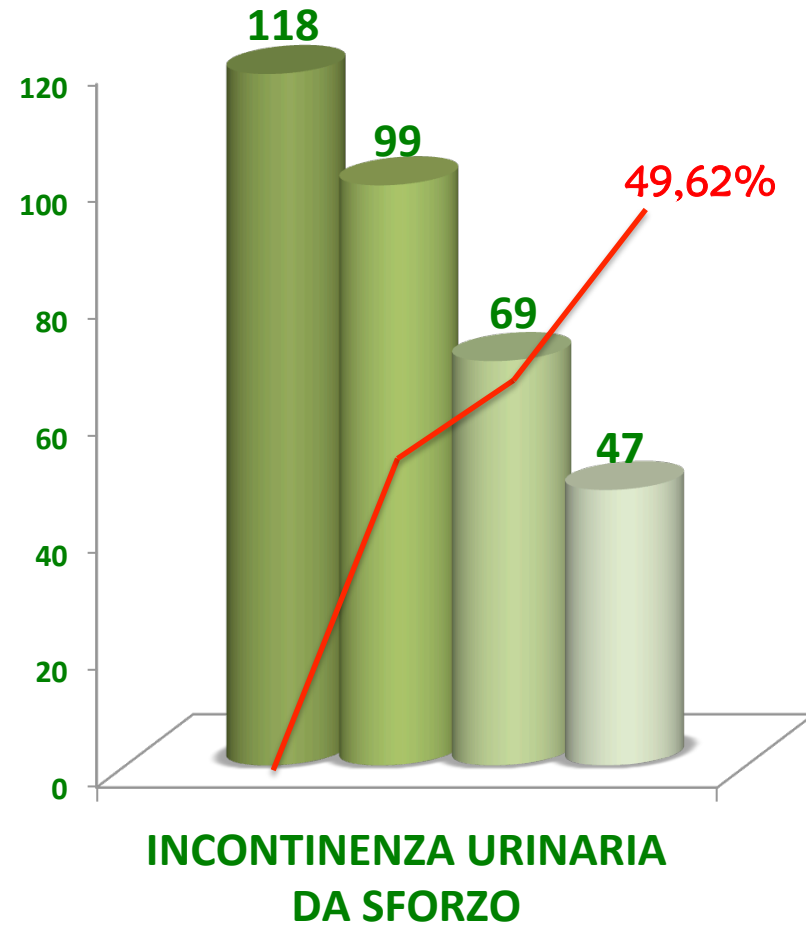


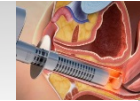
RIDUZIONE IN PERCENTUALE DI TUTTI I SINTOMI DOPO 3 TRATTAMENTI



Ospedale di Stato della Repubblica di San Marino

Riduzione del sintomo (%)
2 mesi dopo trattamento



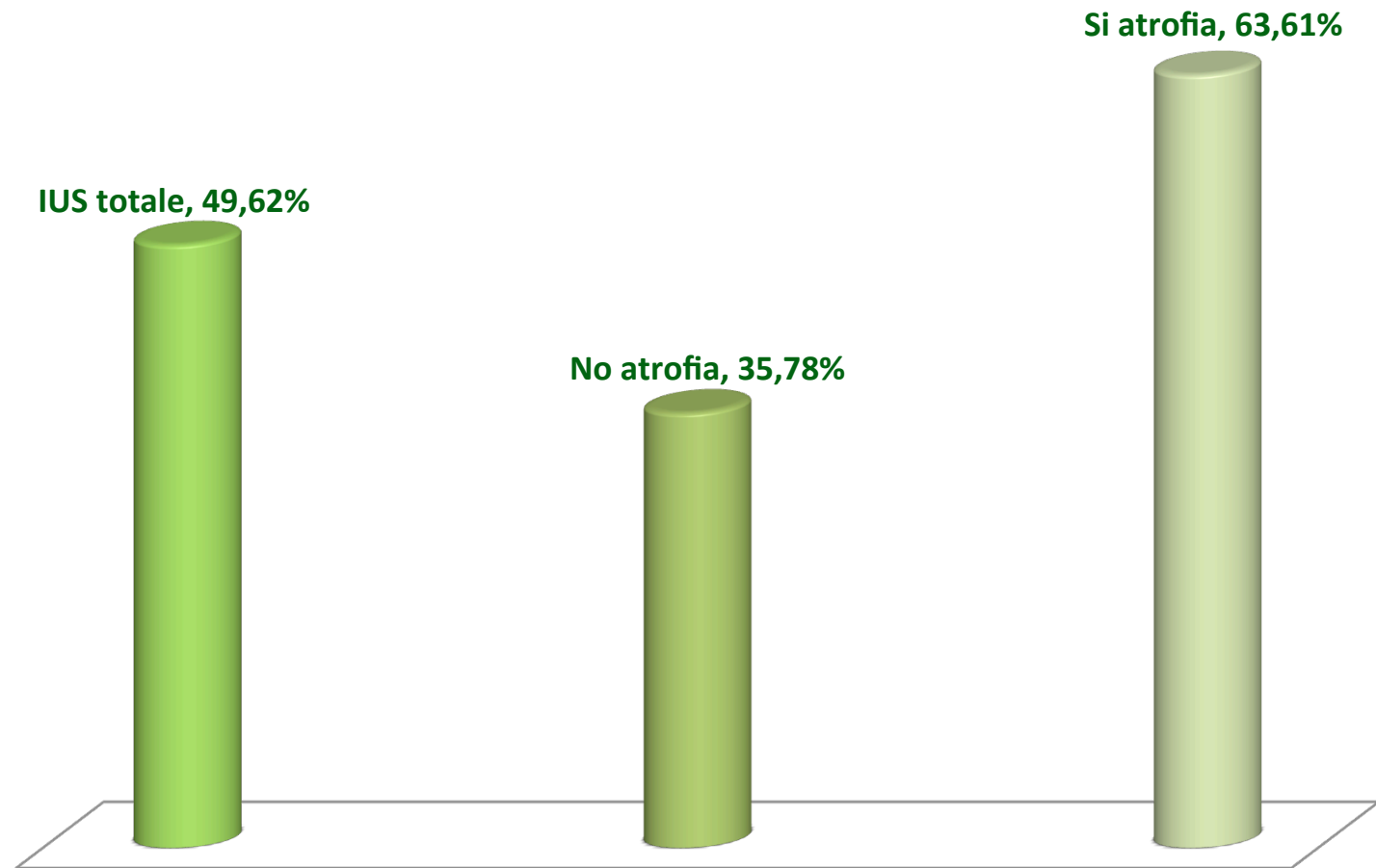


RIDUZIONE IN PERCENTUALE DELLA IUS



Ospedale di Stato della Repubblica di San Marino

Riduzione del sintomo (%)
2 mesi dopo i trattamenti





**NUOVA TECNOLOGIA
LASER PER IL
GINECOLOGO**

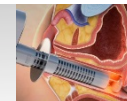
Sconfiggere l'atrofia vaginale
in maniera naturale

MonnaLisa Touch™



DOLORE PERINEALE POST-PARTUM



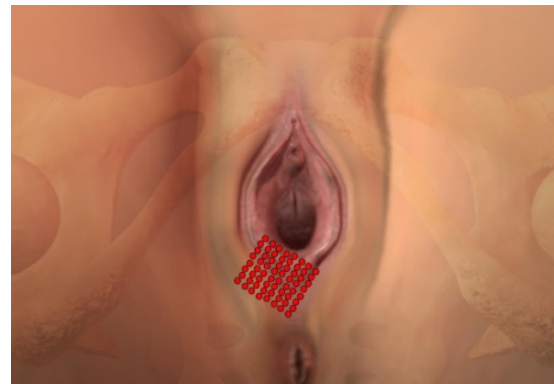


TRATTAMENTI ESEGUITI DAL 06.03.2013 AL 03.02.2016

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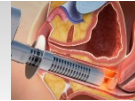


21



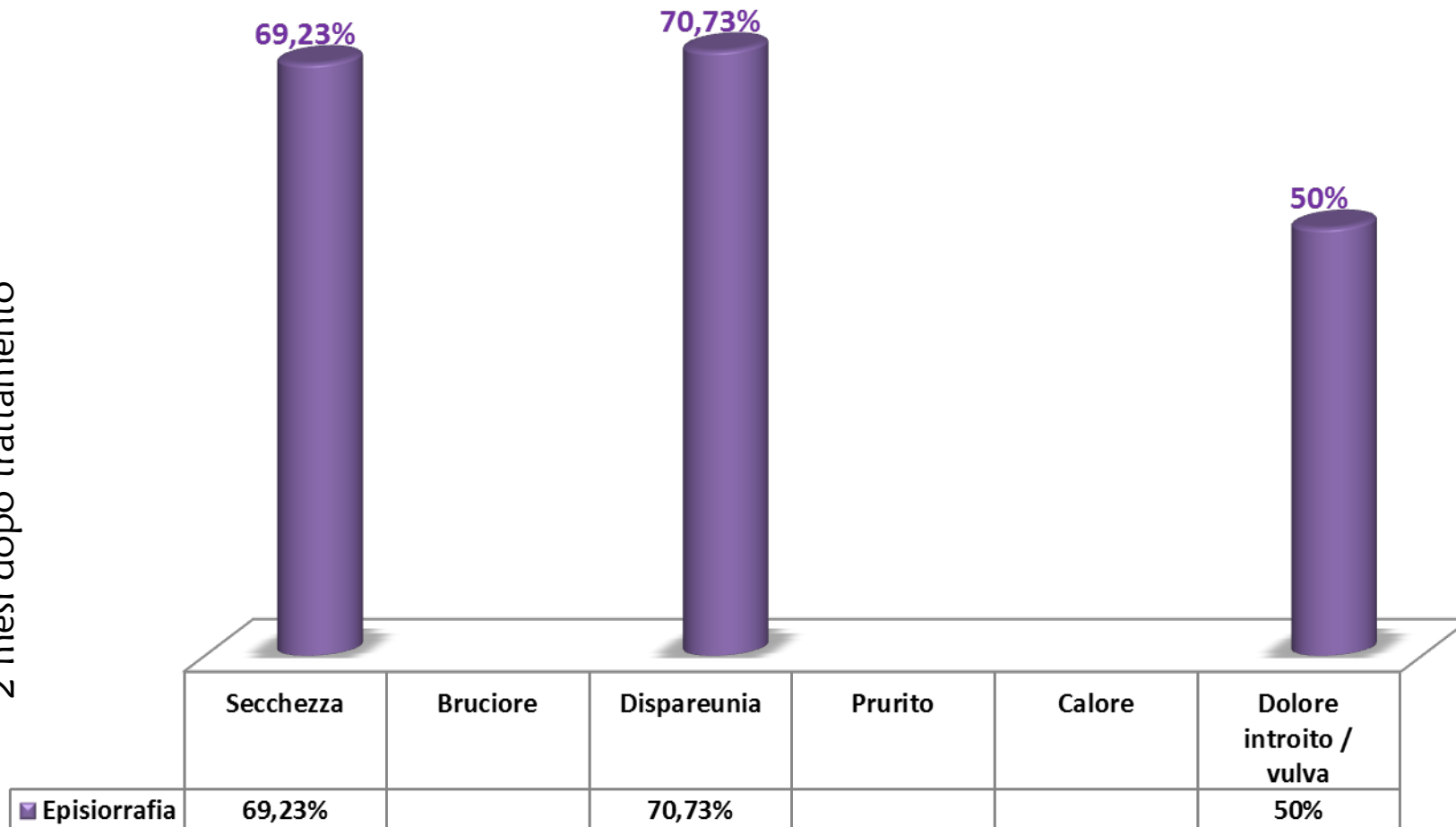
15





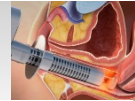
RIDUZIONE IN PERCENTUALE DELLA SINTOMATOLOGIA NEL POST-PARTUM

Riduzione del sintomo (%)
2 mesi dopo trattamento





PRURITO ANALE

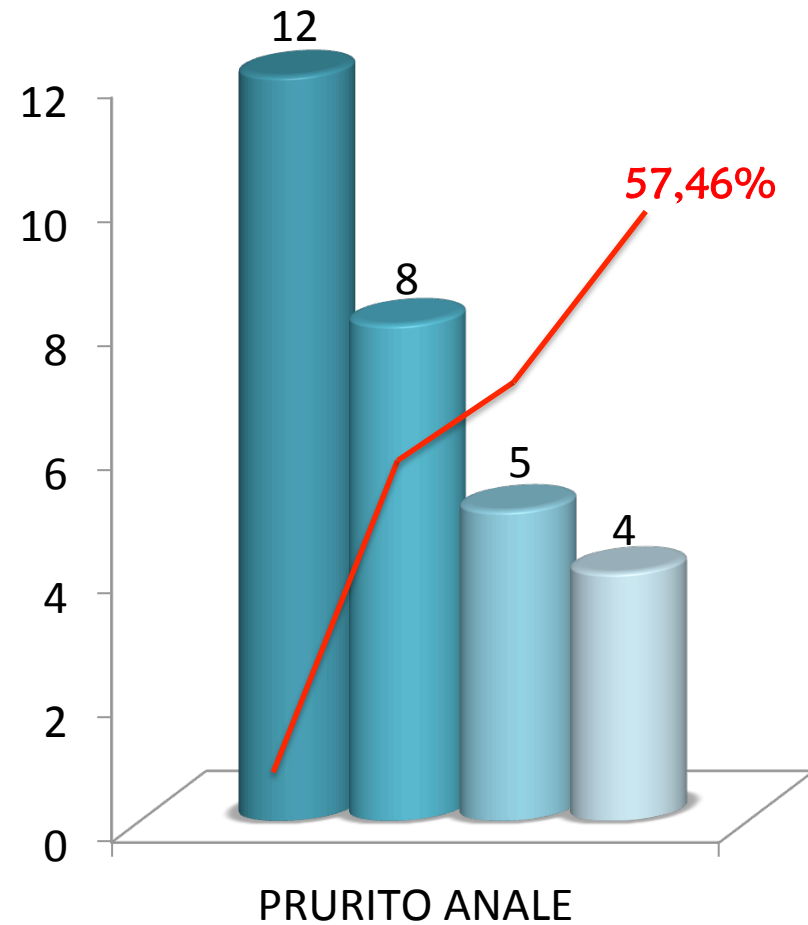


RIDUZIONE IN PERCENTUALE DI TUTTI I SINTOMI DOPO 3 TRATTAMENTI



Ospedale di Stato della Repubblica di San Marino

Riduzione del sintomo (%)
2 mesi dopo trattamento



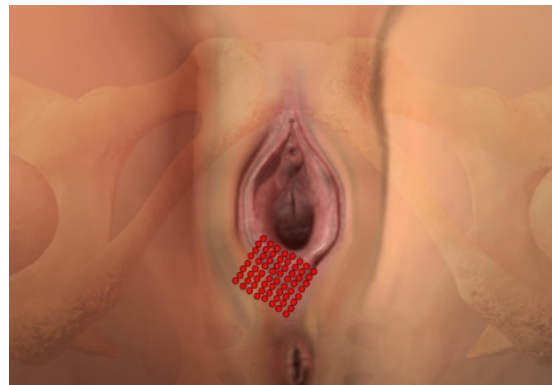


TRATTAMENTI ESEGUITI DAL 06.03.2013 AL 03.02.2016

12

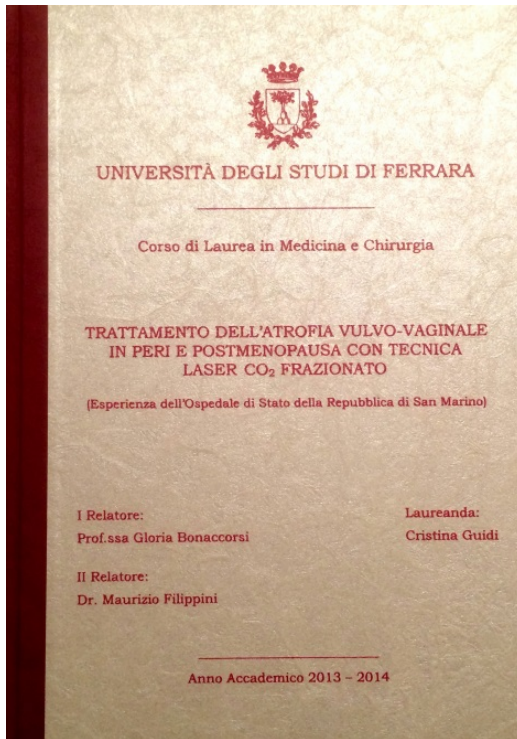
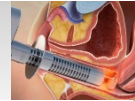


18



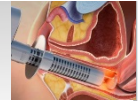
14





22.07.2014 PRIMA TESI DI LAUREA UNIVERSITA' DI FERRARA





21.01.2015 PRIMA TESI MASTER CHIRURGIA ESTETICA UNIVERSITA' DI PERUGIA

