

Trattamento laser dell'atrofia genitale

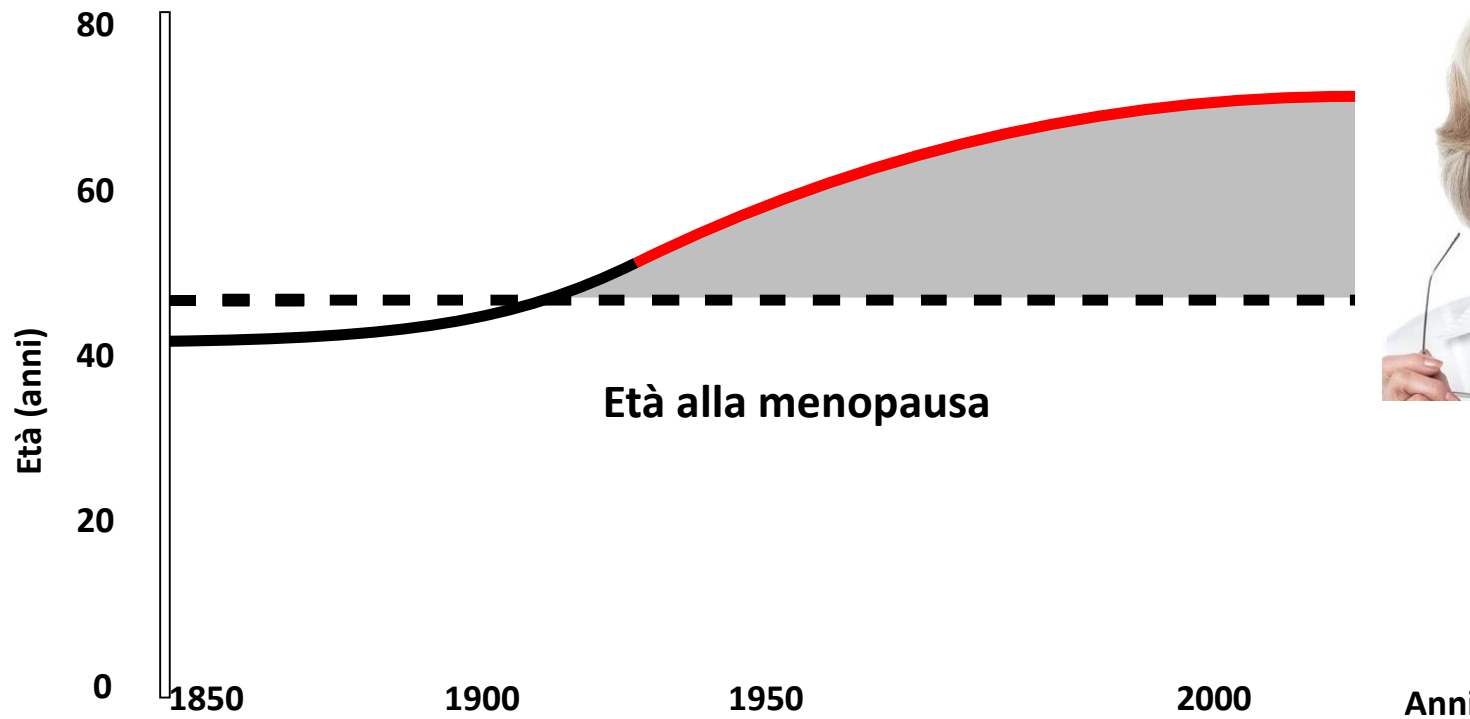
Dott. Maurizio Filippini

*Responsabile del Modulo Funzionale di Endoscopia Ginecologica
Ospedale di Stato
della Repubblica di San Marino*



ATROFIA VAGINALE UN PROBLEMA MONDIALE

Soules et al. *J Am Geriatr Soc.* 30:548,1982.



> 65 years
1999: 37 mln
2030: 70 mln

> 80 years
1999: 9.3 mln
2030: 25 mln

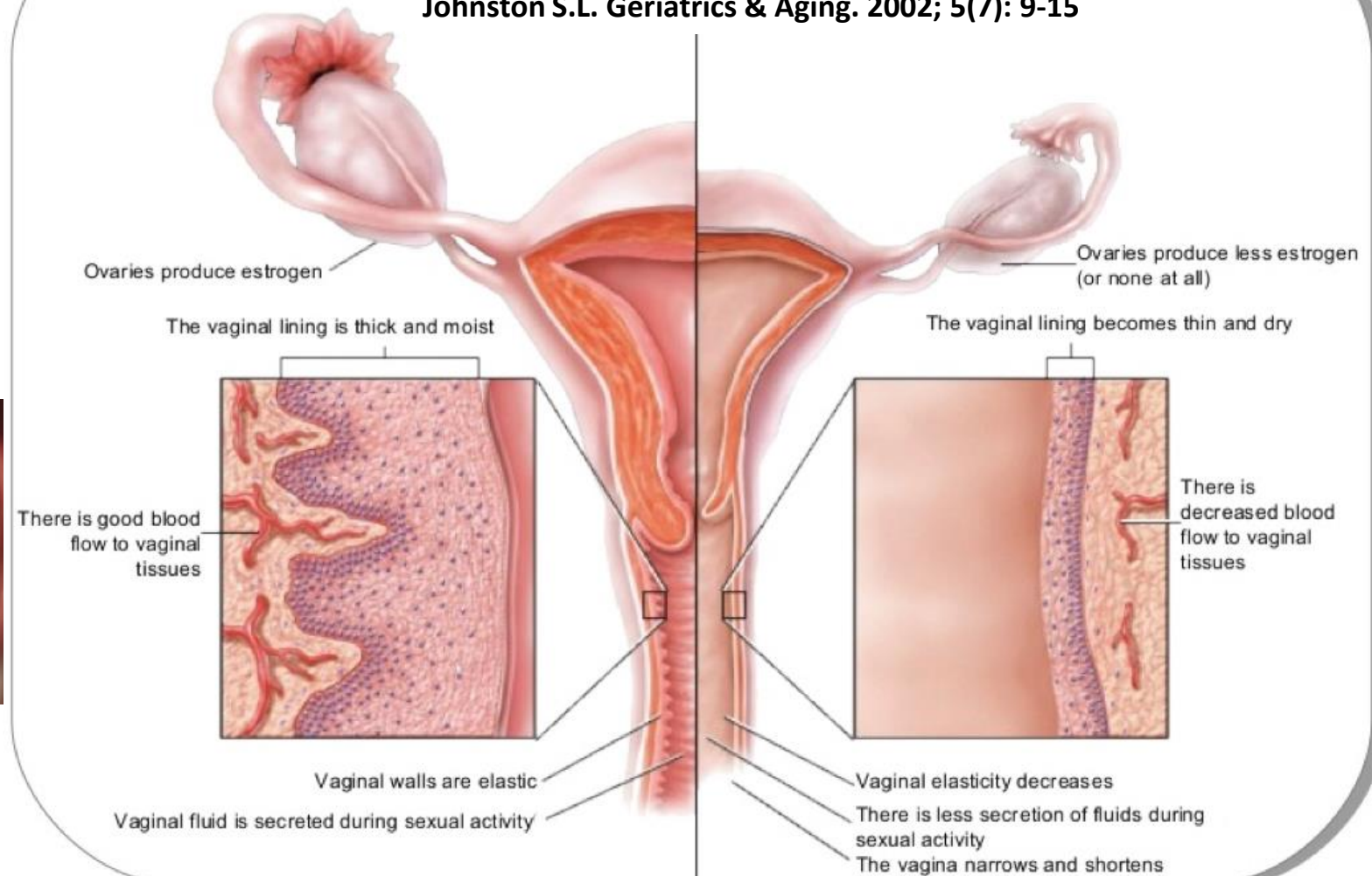
U.S. Census Bureau,
Census of Population and Housing 2010,
Yancik R.
Cancer 2010

ATTUALMENTE LE DONNE VIVONO UN TERZO DELLA LORO VITA IN POST-MENOPAUSA

Vaginal environment before menopause

Vaginal environment after estrogen loss

Johnston S.L. Geriatrics & Aging. 2002; 5(7): 9-15



SPERIMENTAZIONE NEL 2010 - PRIMI STUDI NEL 2011

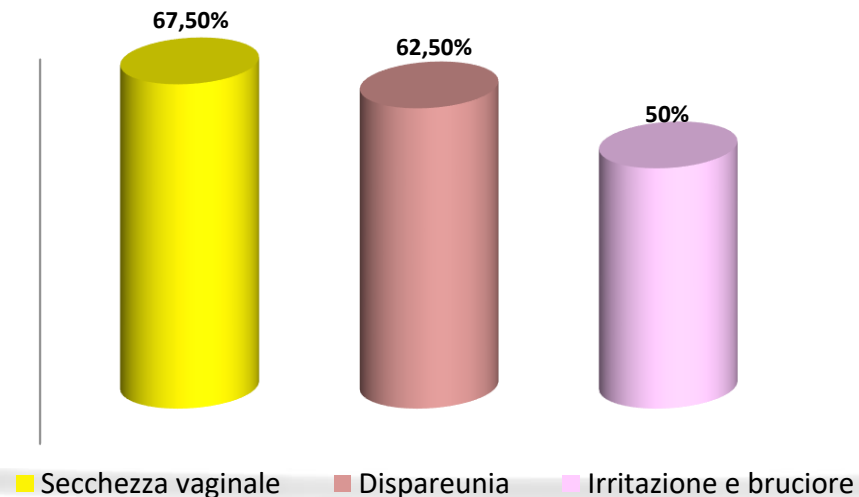


Adrian Gaspar , MD; Gabriel Addamo , MD; Hugo Brandi , PhD
Vaginal Fractional CO₂ Laser: A Minimally Invasive Option for Vaginal Rejuvenation
Am Journal Cosmetic Surgery:
September 2011, Vol. 28, No. 3, pp. 156-162.

Nel 2011 un gruppo di ginecologi dell'Università di Mendoza in Argentina pubblica un articolo su "The American Journal of Cosmetic Surgery" relativo all'esperienza, un protocollo preliminare (92 donne in menopausa dal dicembre 2009 al dicembre 2010)

Dai questionari di valutazione dello studio emersero importanti miglioramenti

- Secchezza vaginale (nel 67,5%)
- Dispareunia (nel 62,5%)
- Irritazione o bruciore (nel 50%)



CONFERMA ISTOLOGICA



Prof. Stefano Salvatore



Prof. Alberto Calligaro



La collaborazione con l'Ospedale IRCCS San Raffaele di Milano e l'Università di Pavia, conduce allo sviluppo di un apposito studio per valutare l'effetto del laser a CO₂ sulla mucosa vaginale

- **POTENZA DI USCITA (watt)**
- **TEMPO DI ESPOSIZIONE (msec)**
- **DISTANZA DEI SINGOLI PUNTI (Dot in mcm)**
- **LIVELLO DI PENETRAZIONE NEL TESSUTO (Stack)**
- **FLUENZA ENERGETICA COMPLESSIVA**



LETTERATURA SCIENTIFICA SUL LASER CO2 MICROFRAZIONATO

Journal of Endometriosis and Pelvic Pain Disorders 2014; 00 (00): 000-000
ORIGINAL ARTICLE

Microablative fractional CO₂ laser improves dyspareunia related to vulvovaginal atrophy: a pilot study

Stefano Salvatore¹, Umberto Leone Roberti Maggiore¹, Massimo Orignoni¹, Marta Parma¹, Lavinia Quaranta¹, Filomena Sileo¹, Alice Cola¹, Ilaria Bainsi¹, Simone Ferrero², Massimo Candiani¹, Nicola Zerbinati³
¹ Obstetrics and Gynaecology Unit, Vita-Salute San Raffaele University and IRRCS San Raffaele Hospital, Milan - Italy
² Department of Obstetrics and Gynaecology, IRRCS San Martino Hospital and National Institute for Cancer Research, Genoa - Italy
³ Department of Surgical and Morphological Sciences, University of Insubria, Varese - Italy

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 vaginal atrophy was performed using the Vaginal Health Index (VHI).

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

Nicola Zerbinati¹, Maurizio Serati¹, Massimo Orignoni¹, Massimo Candiani¹, Tommaso Iannitti¹, Stefano Salvatore¹, Francesco Marotta¹, Alberto Calligaro¹

Received: 13 December 2013 / Accepted: 16 October 2014
© Springer-Verlag London 2014

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 biopsies of vaginal mucosa samples from postmenopausal, nonestrogenized women, we present microscopic and ultrastructural modifications of vaginal mucosa after fractional carbon dioxide (CO₂) laser treatment. We observed the restoration of vaginal mucosa stratified epithelium.

collagen and ground substance (extracellular matrix). Differently from atrophic mucosa, the layer of connective tissue indented in the mucosa was observed. Our morphological analysis of fractional CO₂ laser treatment showed a restoration of vaginal mucosa structure and function, with clear improvements in women suffering from vaginal atrophy. Results suggest that fractional CO₂ laser treatment is a safe and effective option for the treatment of VVA symptoms in post-menopausal women.

Original Research

31 ARTICOLI

ARTICLE IN PRESS

G Model
MAT-6301; No. of Pages 6
Maturitas xxx (2015) xxx-xxx
Contents lists available at ScienceDirect
Maturitas
journal homepage: www.elsevier.com/locate/maturitas

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 Svetlato^a, Salvatore Saitta^a, Gloria Calagna^a

^a Department of Obstetrics and Gynaecology, University Hospital "P. Giaccone", Palermo, Italy
^b Department of Public Health, Experimental and Forensic Medicine, Unit of Histology and Embryology, University of Pavia, Pavia, Italy
^c Department of Human Pathology, School and Division of Allergy and Clinical Immunology, University of Messina, Messina, Italy

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) were enrolled in a prospective study. The treatment was performed using a fractional CO₂ laser. The study included 10 patients. At baseline (T0) and 30 days post-treatment (T1), vaginal status was evaluated using the Vaginal Health Index (VHI), treatment satisfaction was evaluated using a 5-point Likert scale. The study included 10 patients. At baseline (T0) and 30 days post-treatment (T1), vaginal status was evaluated using the Vaginal Health Index (VHI), treatment satisfaction was evaluated using a 5-point Likert scale. The study included 10 patients. At baseline (T0) and 30 days post-treatment (T1), vaginal status was evaluated using the Vaginal Health Index (VHI), treatment satisfaction was evaluated using a 5-point Likert scale. The study included 10 patients. At baseline (T0) and 30 days post-treatment (T1), vaginal status was evaluated using the Vaginal Health Index (VHI), treatment satisfaction was evaluated using a 5-point Likert scale.

Fractional CO₂ Laser: From Skin Rejuvenation to Vulvo-Vaginal Reshaping

Maurizio Filippini, MD¹, Ester Del Duca, MD², Francesca Negosanti, MD^{3,4}, Diletta Bonciani, Luca Negosanti, MD⁵, Mario Sannino, MD⁴, Giovanni Cannarozzo, MD⁴, and Steven Paul Nisticò

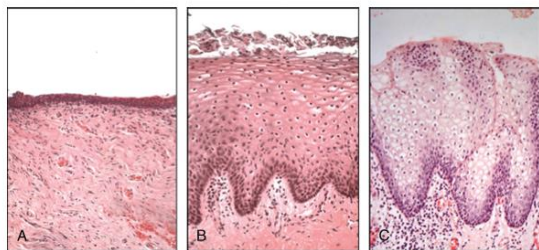


FIG. 3. Morphological findings from clinical practice. (A) Atrophic vaginal mucosa before fractional CO₂ laser treatment. (B) Vaginal mucosa of the same person 2 months after treatment. Note the lamina propria newly formed connective tissue with vessel-rich papillae, the thick stratified squamous epithelium,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

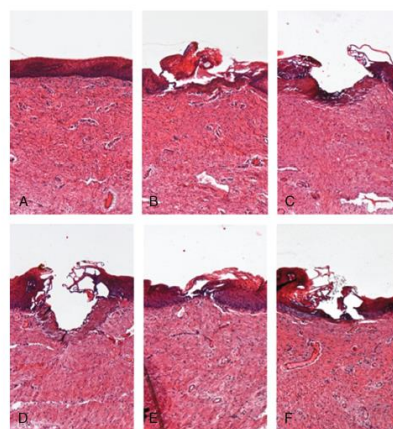


FIG. 1. Vaginal mucosa under a light microscope. (A) Atrophic control. (B-E) Treatment protocols 1, 2, 3, 4, and 5.

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

Stefano Salvatore¹, Umberto Leone Roberti Maggiore, MD¹, Stavros Athanasiou, MD², Nicola Zerbinati, MD³, Massimo Candiani, MD¹, Alberto Calligaro, MD³, and Nicola Zerbinati, MD³

Objective: Microablative fractional CO₂ 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 CO₂ 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 undergoing pelvic organ prolapse surgical operation were enrolled. After fascial plication, the redundant vaginal wall on one side was treated with CO₂ laser (SmartXide2; DEKA Laser, Florence, Italy). Five different CO₂ protocols were tested. The contralateral part of the vaginal wall was always used as control. Excessive tissue was trimmed and sent for histological evaluation to compare treated and nontreated tissues. Microscopic and histological aspects of the collagenic and elastic components of the matrix were studied, and a specific image analysis computerized morphometry was performed. We also considered the fine cytological aspects of connective tissue cells, particularly fibroblasts.
Results: During the study period, five women were enrolled, and 10 vaginal specimens were finally retrieved. Tissues of CO₂ laser were compared. Protocols were tested twice each to confirm histological findings. Results were compared according to histological findings, particularly in maximal depth and connective tissue. All procedures were uneventful for participants.
Conclusion: This study shows that microablative fractional CO₂ laser can produce a remodeling of vaginal tissue without causing damage to surrounding tissue.

Key words: Microablative fractional CO₂ laser – Menopause – Pelvic organ prolapse – Vulvovaginal atrophy.

Genetically determined and environmental factors influence the development of the female genital tract. Estrogen deficiency occurring after menopause leads to a series of modifications in the female genital tract, including the pelvic floor and the vaginal wall. These changes have been identified in the urinary tract.¹ Menopausal atrophy or urinary symptoms may be related to the changes occurring after menopause are due to the aging process per se.

Vulvovaginal atrophy (VVA) involves histological, morphological, and clinical changes such as alteration in collagen type I fibrils-to-collagen type III fibrils ratio with loss of their trabecular disposition (collagen fibrils become flattened); decreased quantity of elastic fibers; reduced vascularization; and thinning and flattening of the vaginal epithelium, which can superficially turn into a keratinized layer.² As a consequence, the vaginal canal becomes shorter and narrower, and the vaginal epithelium becomes paler and more likely to develop telangiectasia. Women with VVA commonly complain of vaginal dryness, burning, irritation or itching, and dyspareunia.³

Local estrogens represent the first-line therapy for VVA. However, due to the preference for non-hormonal and non-systemic treatments, such as local creams or gels, are commonly used.

Microablative fractional CO₂ laser has been proposed as a precise, and safe system, particularly for the treatment of skin lesions (ie, seborrheic keratosis, actinic keratosis, warts, and skin tags).⁴ CO₂ laser has already been used in the regenerative properties of scar tissue remodeling in connective tissue.

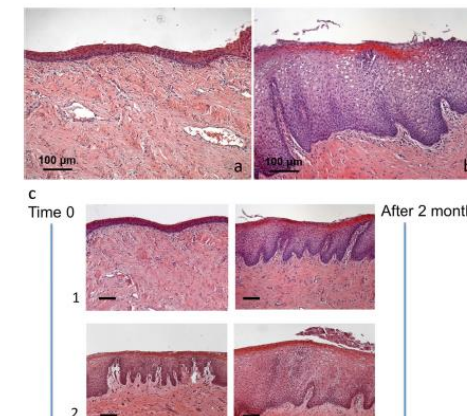


Fig. 1. Haematoxylin and eosin staining of a patient's vaginal mucosa before treatment (a, c) and 2 months after treatment (b, d). a) In the atrophic mucosa, the epithelium is very thin since it is formed by few layers of cells, and the epithelial-connective junction presents an even feature; b) the epithelium appears much thicker since it is constituted by many layers with visible large intermediate and shedding 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.



ASSIOMA FONDAMENTALE

*La terapia con laser
del basso tratto genitale femminile
non è un trattamento estetico...
ma funzionale*



[International Urogynecology Journal](#)

February 2015, Volume 26, [Issue 2](#), pp 163–164

Laser vaginal rejuvenation: not ready for prime time

Authors

[Authors and affiliations](#)

Anand Singh, Steven Swift, Vik Khullar, G. Alessandro Digesu 



Int Urogynecol J (2015) 26:785

DOI 10.1007/s00192-015-2647-3

LETTER TO THE EDITOR

Laser vaginal rejuvenation: not ready for prime time—response to comments by Maggiore et al.

Alex Digesu



NEL 2015 APPROVAZIONE E COLLABORAZIONE AOGOI

MonnaLisa TouchTM

www.monnalistouch.it - www.dekalaser.com - Maggio 2015 - N° 2

La procedura **MONNALISA TOUCHTM** è approvata dall'associazione **AOGOI**.

IL PROFESSOR CHIÀNTERA spiega la nascita di questa COLLABORAZIONE

**MONNALISA TOUCHTM DIVENTA UNA
OPZIONE TERAPEUTICA CONSIGLIATA
DA AOGOI.**
QUALI PECULIARITÀ AVETE RICONO-
SCIUTO DETERMINANTI PER AVVIARE
QUESTA COLLABORAZIONE?

Durante la menopausa, con il cessare dell'attività ovarica, la donna deve affrontare un deficit di nutrimento da parte degli ormoni e le conseguenti problematiche.

La tecnica laser **MonnaLisa TouchTM** ha senza alcun dubbio un validissimo effetto terapeutico, perché stimola la produzione di collagene, ringiovanisce le pareti della vagina ed esercita un'azione di sostentamento del pavimento pelvico. Inoltre, questo innovativo laser ha un effetto esclusivamente locale stimolante e non presenta effetti collaterali, a differenza della tradizionale terapia a base di estrogeni. Il trattamento è indicato anche per le donne giovani che, sottoposte a radio o chemioterapia dopo cure oncologiche, si trovano in una condizione di menopausa indotta.



**COME NASCE LA COLLABORAZIONE
TRA L' ASSOCIAZIONE AOGOI E
DEKA?**

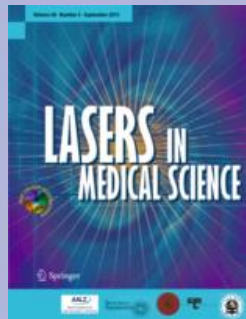
La collaborazione tra **DEKA** e **AOGOI** è motivata dalla condivisione degli stessi obiettivi e principi. La nostra associazione si pone il compito di tutelare la salute della donna e del suo bambino, quindi di sostenere la donna in tutte le fasi della sua vita: dall'adolescenza alla fase riproduttiva e poi dalla fase della menopausa fino alla terza età. In particolare durante la menopausa, **AOGOI** intende supportare il desiderio legittimo di una serena attività sessuale della donna, sostenuto da un approccio terapeutico che gli strumenti, le tecniche o i farmaci possono fornire.

L'associazione **AOGOI** riconosce le caratteristiche di questo laser e sostiene la sua efficacia che è comprovata da ottimi risultati terapeutici.
... continua a pagina 2

Procedura **MonnaLisa TouchTM**
approvata dai Ginecologi Italiani



VALIDAZIONE ISTOLOGICA



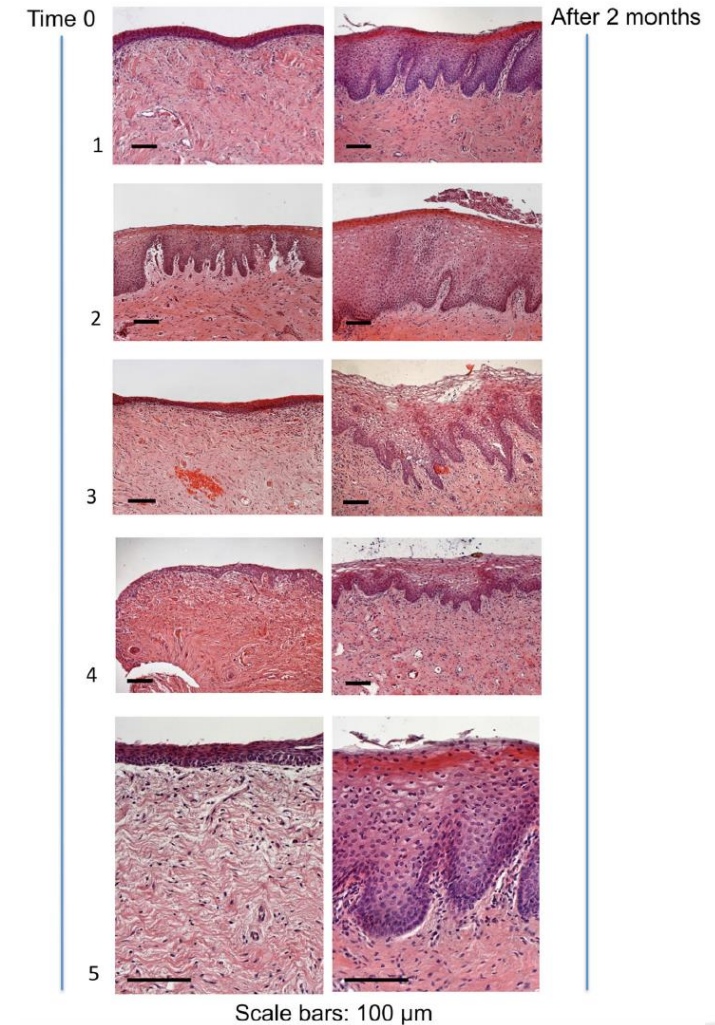
Lasers in Medical Science - Vol. 30, No. 1, 2015. Epub 2014 Nov 20

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

Zerbinati N¹, Serati M¹, Origoni M², Candiani M², Iannitti T³,
Salvatore S², Marotta F⁴, Calligaro A⁵

1: University of Insubria, Varese – Italy. 2: San Raffaele Hospital, Milan – Italy. 3: University of Leeds, Leeds – United Kingdom.

4: ReGenera Research Group for Aging Intervention, Milan – Italy. 5: University of Pavia, Pavia – Italy.

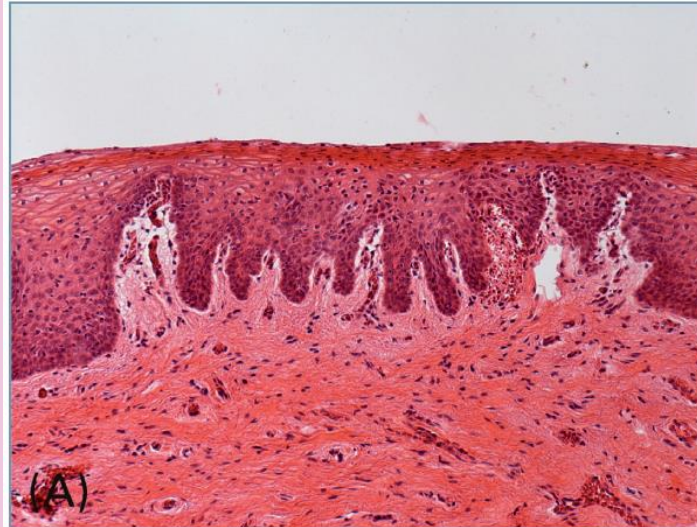


Menopause - Vol. 22, No.8, 2015

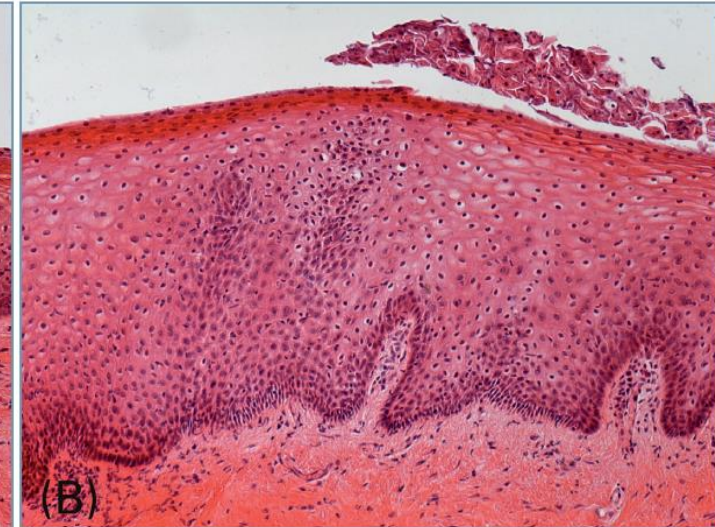
Histological study on the effects of microablative fractional CO₂ laser on atrophic vaginal tissue: an ex vivo study

Salvatore S¹, Leone Roberti Maggiore U¹, Athanasiou S², Origoni M¹,
Candiani M¹, Calligaro A³, Zerbinati N⁴

1: San Raffaele Hospital, Milan – Italy; 2: National and Kapodistrian University of Athens, Athens – Greece;
3: University of Pavia, Pavia – Italy; 4: University of Insubria, Varese – Italy.



Mucosa vaginale in condizione basale.



Mucosa vaginale a un mese da una seduta di trattamento laser

1. Epitelio vaginale aumentato di spessore, trofico ricco di vasi
2. Matrice connettivale (fibre collagene e sostanza amorfa) aumentata con numerosi fibroblasti
3. Distacco superficiale di cellule di grosse dimensioni, globose e ricche di glicogeno
4. Glicogeno ben evidente nelle cellule epiteliali e in quantità maggiore rispetto alla condizione basale
5. Le papille ben indentate con l'epitelio ed estese
6. Non essendo mai gli epiteli vascolarizzati, assume un ruolo molto importante la matrice extraconnettivale

MODIFICHE SUL PH VAGINALE

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

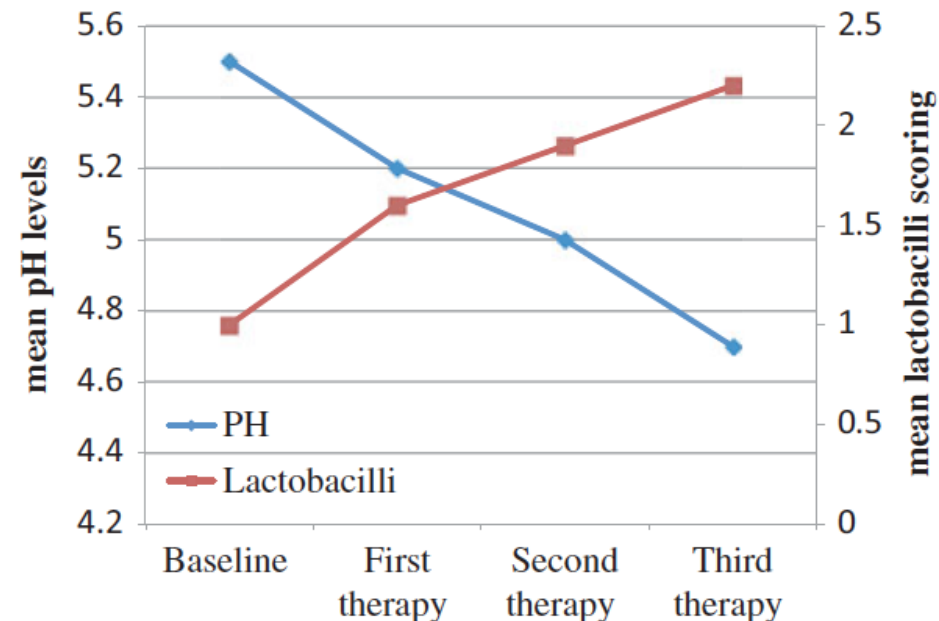
The effect of microablative fractional CO₂ laser on vaginal flora of postmenopausal women

Athanasίου S¹, Pitsouni E^{1,2}, Antonopoulou S³, Zacharakis D¹,
Salvatore S⁴, Falagas ME^{2,5,6}, Grigoriadis T⁷

1: National and Kapodistrian University of Athens, Athens – Greece. 2: AIBS, Athens – Greece.
3: "G. Gennimatas" General Hospital, Athens – Greece. 4: San Raffaele Hospital, Milan – Italy. 5: IASO General Hospital, Athens – Greece.
6: Tufts University School of Medicine, Boston, MA - USA. 7 : Alexandra Hospital", Athens - Greece.

The effect of microablative fractional CO₂ laser on vaginal flora of postmenopausal women

S Athanasίου, E Pitsouni, S Antonopoulou, D Zacharakis, S Salvatore, M E Falagas, T Grigoriadis



53 donne con GSM

aumento Lactobacillus (p <0,001)
aumento flora normale (p <0,001)

Percentuale di Lactobacillus è cambiata
dal 30% iniziale al 79%

Maturitas - Vol. 94, 2016. Epub 2016 Sep 16

Microablative fractional CO₂-laser therapy and the genitourinary syndrome of menopause: An observational study

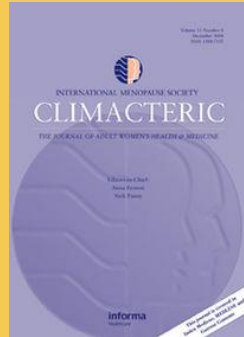
Pitsouni E¹, Grigoriadis T¹, Tsiveleka A², Zacharakis D¹, Salvatore S³, Athanasiou S¹

1: National and Kapodistrian University of Athens, Athens - Greece.
2: "Alexandra Hospital", Athens - Greece. 3: San Raffaele Hospital, Milan - Italy.

53 donne con GSM
Età media 57,2
Anni dalla menopausa 8,9

	Baseline (n = 53) ^b	12 weeks follow-up (n = 53) ^b	Mean of difference ± SD of difference (n = 53) ^b
VMV ^a	11.7 ± 15.6	44.2 ± 13.7	32.4 ± 15.2
Parabasal epithelial cells ^a	74.6 ± 31.6	16.2 ± 23.9	-57.6 ± 29.9
Intermediate epithelial cells ^a	24.6 ± 31.7	80.0 ± 23.4	55.6 ± 30.6
Superficial epithelial cells ^a	0 ± 0	3.3 ± 4.9	3.3 ± 4.9
VHIS ^a	8.4 ± 2.5	20.1 ± 3.0	11.6 ± 2.9
Elasticity	1.6 ± 0.8	4.2 ± 0.9	2.6 ± 0.9
Fluid Volume	1.0 ± 0	3.1 ± 0.9	2.1 ± 0.9
pH	2.7 ± 1.1	4.2 ± 1.7	1.5 ± 1.0
Epithelial Integrity	1.3 ± 0.9	4.1 ± 1.7	2.8 ± 1.8
Moisture	1.8 ± 1.2	3.1 ± 0.9	2.7 ± 1.2

	Baseline ^a	12 weeks follow-up ^a	Mean of difference ± SD of difference
Dyspareunia	7.7 ± 2.5 (98)	2.3 ± 2.2 (71)	5.4 ± 2.6
Genital dryness	6.1 ± 3.1 (87)	1.7 ± 1.9 (53)	4.3 ± 2.9
Burning	1.3 ± 2.9 (22)	0.3 ± 0.9 (12)	1.1 ± 2.4
Itching	1.7 ± 3.2 (22)	0.3 ± 1.2 (8)	1.6 ± 3.1
Dysuria	0.9 ± 1.7 (34)	0.3 ± 0.7 (13)	0.7 ± 1.1
Total	7.4 ± 2.1	1.8 ± 1.8	5.6 ± 1.9
Pain during the insertion of the speculum	4.9 ± 2.6	1.5 ± 1.9	3.4 ± 2.7
FSFI			
Desire	2.4 ± 0.9	3.8 ± 1.0	1.5 ± 1.0
Arousal	2.1 ± 1.5	3.9 ± 0.9	1.7 ± 1.4
Lubrication	2.5 ± 1.9	4.5 ± 0.9	2.0 ± 1.6
Orgasm	2.2 ± 1.8	4.4 ± 1.0	2.2 ± 1.7
Satisfaction	2.6 ± 1.3	4.6 ± 0.9	1.9 ± 1.4
Pain	1.9 ± 1.6	4.7 ± 1.0	2.8 ± 1.8
Total	13.7 ± 8.1	25.9 ± 4.6	12.1 ± 8.1
Overall satisfaction with sexual life	2.3 ± 2.8	6.5 ± 2.3	3.5 ± 3.6



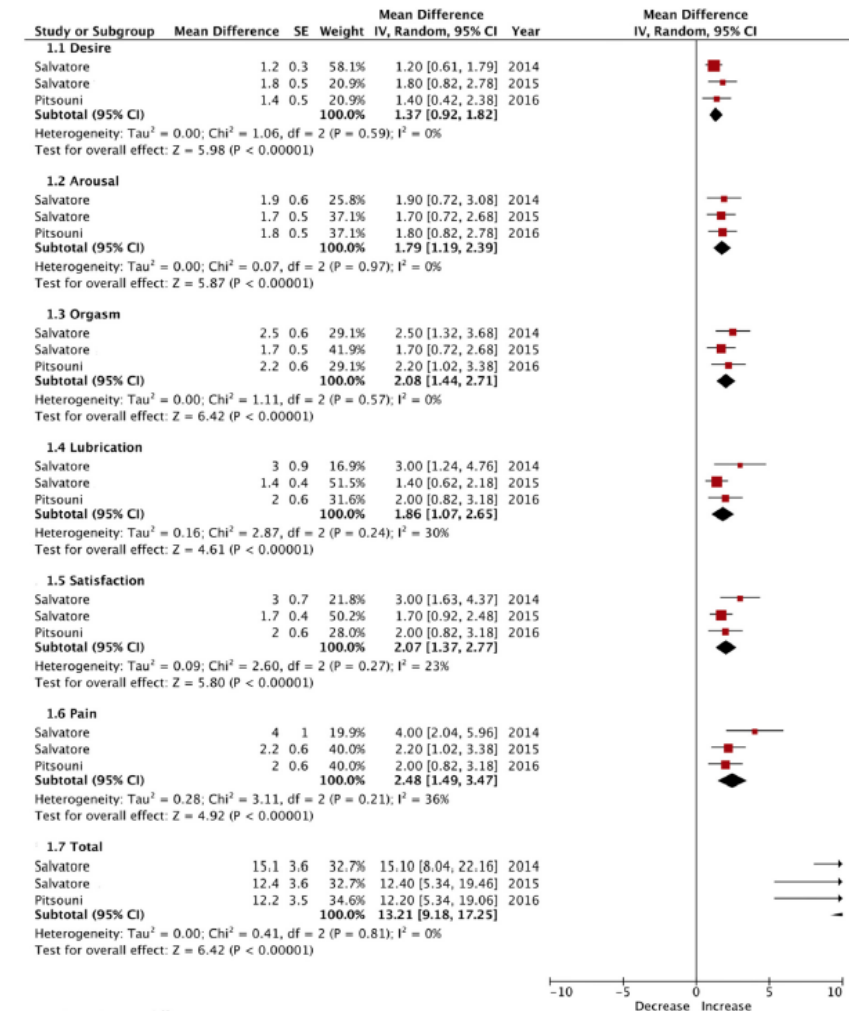
Climacteric - Vol.18, No. 2, 2015. Epub 2014 Dec 16

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

Salvatore S¹, Nappi RE², Parma M¹, Chionna R¹, Lagona F¹, Zerbinati N³, Ferrero S⁴, Orioni M¹, Candiani M¹, Leone Roberti Maggiore U¹

1: San Raffaele Hospital, Milan – Italy. 2: Policlinico S. Matteo, University of Pavia, Pavia – Italy. 3: University of Insubria, Varese – Italy. 4: San Martino Hospital, University of Genoa, Genoa, Italy.

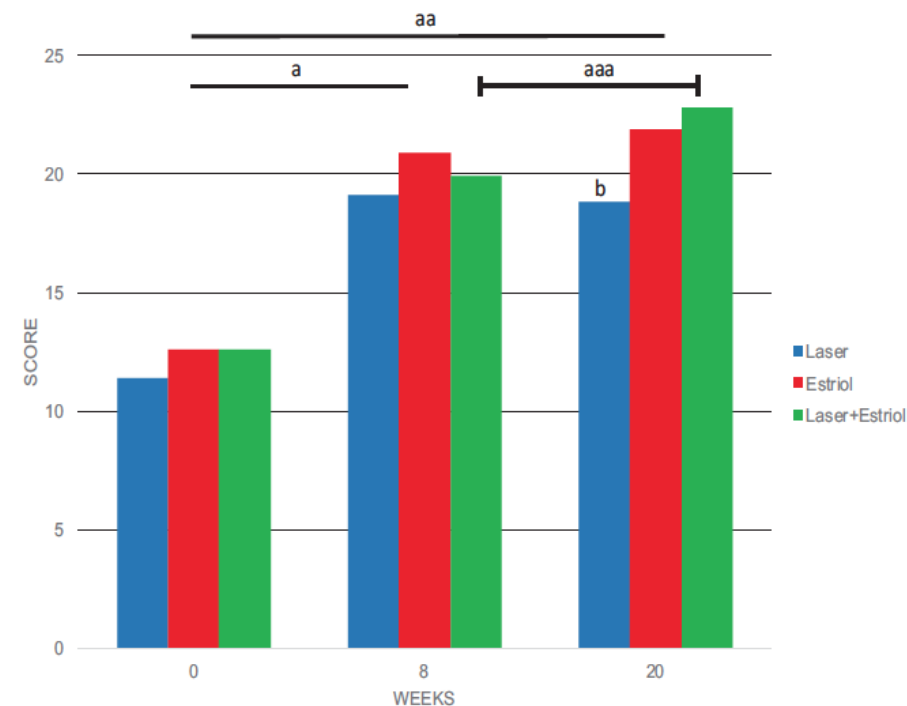
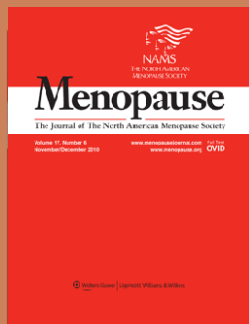
273 donne
Età media 57.8 anni
Review di 6 articoli
FSFI (Female Sexual Function Index)



Menopause – Epub 2017 Jul 31

Randomized, double-blind, placebo-controlled clinical trial for evaluating the efficacy of fractional CO₂ laser compared with topical estriol in the treatment of vaginal atrophy in postmenopausal women

Cruz VL, Steiner ML, Pompei LM, Strufaldi R, Fonseca FLA, Santiago LHS, Wajsfeld T, Fernandes CE
ABC School of Medicine, São Bernardo do Campo, São Paulo – Brazil.



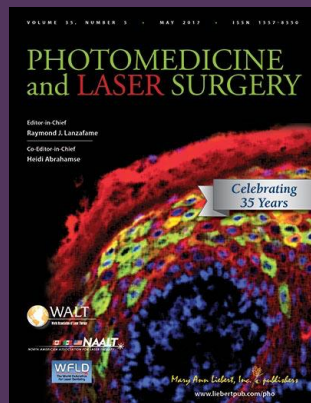
45 donne

Età media 45-70 anni

Studio che ha avuto lo scopo di valutare l'efficacia del laser frazionato Co₂ (L) comparato con terapia locale all'Estriolo (E) (1 mg) e la combinazione di entrambi i trattamenti (L+E)

La conclusione è che il laser Co₂ da solo o in combinazione con Estriolo è un buon trattamento per i sintomi VVA.

NOSTRI RISULTATI

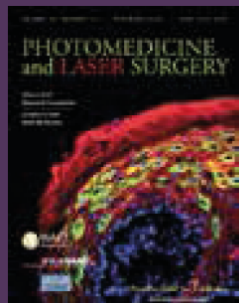


Photomedicine and Laser Surgery. Epub 2016 Dec 30

Fractional CO₂ laser: from skin rejuvenation to vulvo-vaginal reshaping

Filippini M¹, Del Duca E², Negosanti F^{2,3}, Bonciani D⁴, Negosanti L⁵,
Sannino M², Cannarozzo G², Nisticò SP^{2,6}

1: Hospital State of Republic of San Marino - Republic of San Marino. 2: University of Rome Tor Vergata, Rome - Italy.
3: Dermatology Center, Bologna - Italy . 4: Piero Palagi University Hospital, Florence - Italy.
5: S.Orsola-Malpighi University Hospital, Bologna - Italy. 6: Magna Grecia University of Catanzaro - Italy .



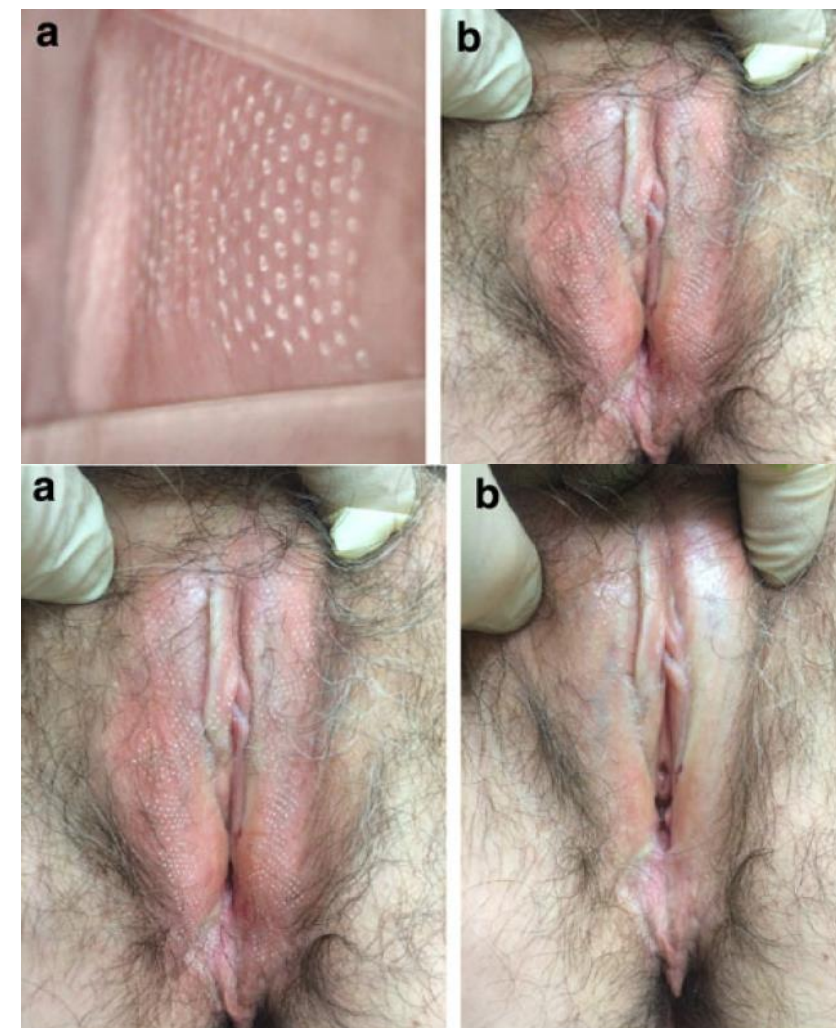
Photomedicine and Laser Surgery. Epub 2016 Dec 30
**Fractional CO₂ laser: from skin
rejuvenation to vulvo-vaginal
reshaping**

Filippini M¹, Del Duca E², Negosanti F^{2,3}, Bonciani D⁴, Negosanti L⁵,
Sannino M², Cannarozzo G², Nisticò SP^{2,6}

1: Hospital State of Republic of San Marino - Republic of San Marino. 2: University of Rome Tor Vergata, Rome - Italy.
3: Dermatology Center, Bologna - Italy. 4: Piero Palagi University Hospital, Florence - Italy.
5: S.Orsola-Malpighi University Hospital, Bologna - Italy. 6: Magna Grecia University of Catanzaro - Italy.

386 donne
Range età 48-56 anni

Symptom	n (%)
Vaginal dryness	231 (59.94)
Vaginal burning sensation	216 (56.26)
Dyspareunia	190 (48.75)
Itching	220 (56.37)
Soreness	281 (73.15)
Vaginal introitus pain	185 (48.79)



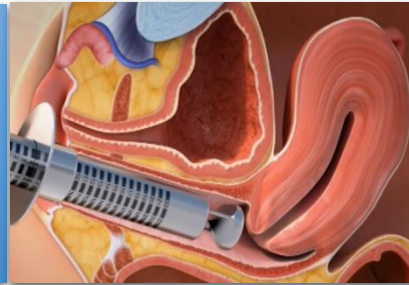


Ospedale di Stato della
Repubblica di San Marino

652



1447



1085



Dal 26.06.2013
anche INTROITO

1194

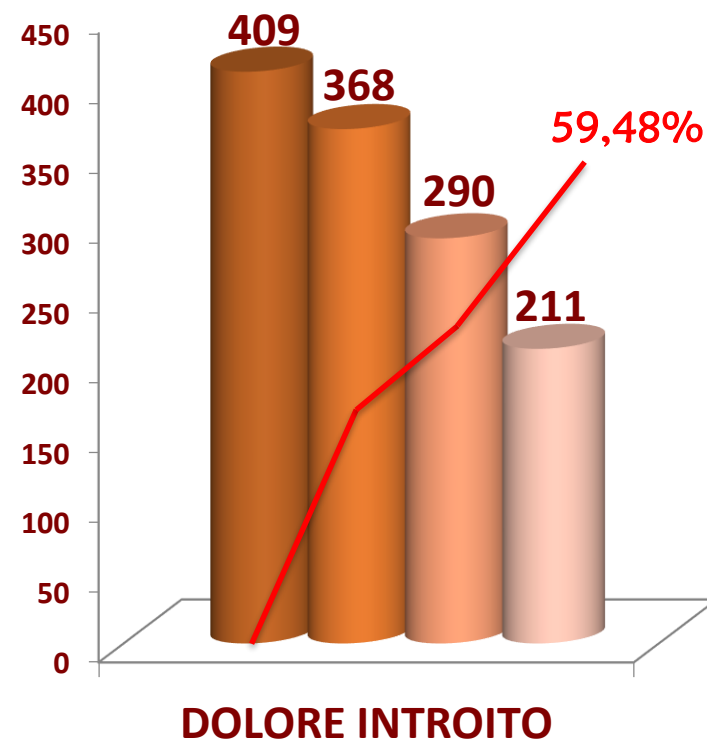
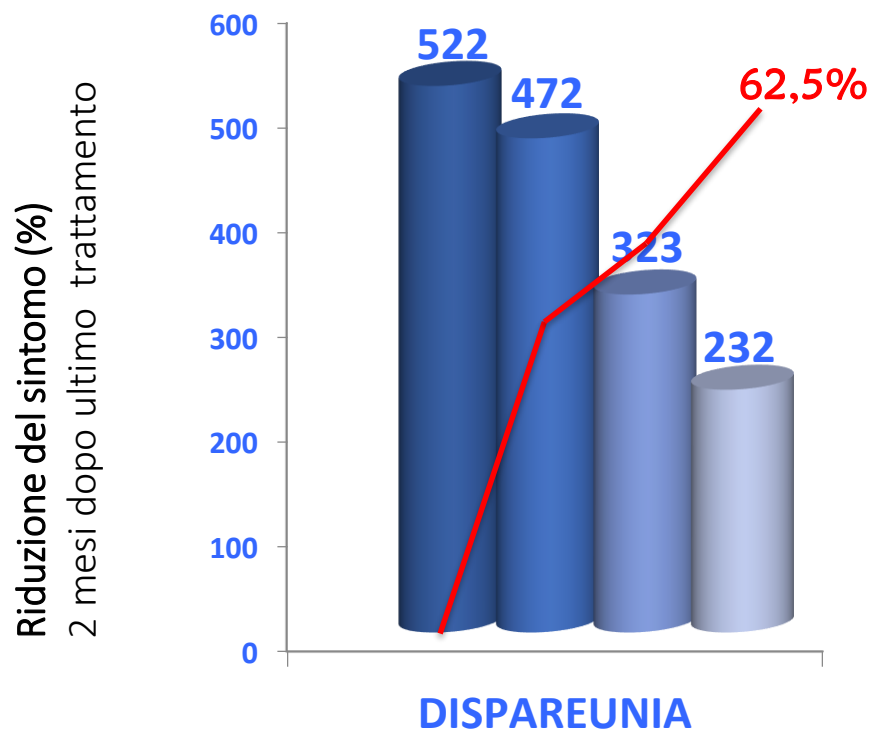




RIDUZIONE IN PERCENTUALE DI TUTTI I SINTOMI DOPO 3 TRATTAMENTI



Ospedale di Stato della Repubblica di San Marino



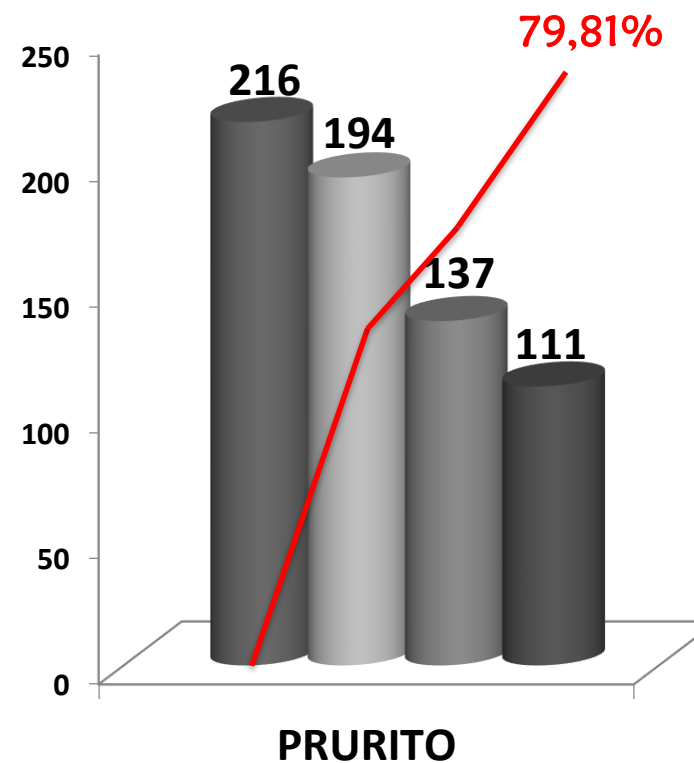
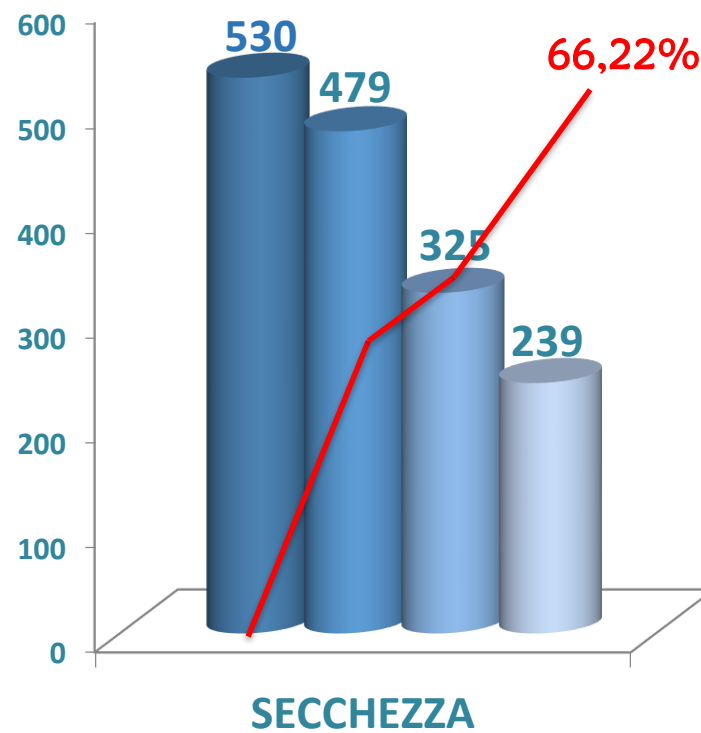


RIDUZIONE IN PERCENTUALE DI TUTTI I SINTOMI DOPO 3 TRATTAMENTI



Ospedale di Stato della Repubblica di San Marino

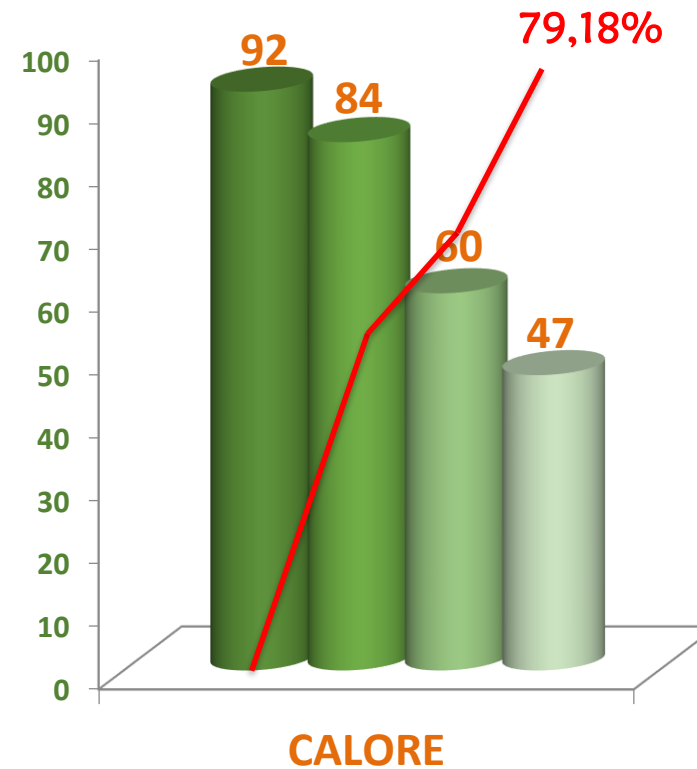
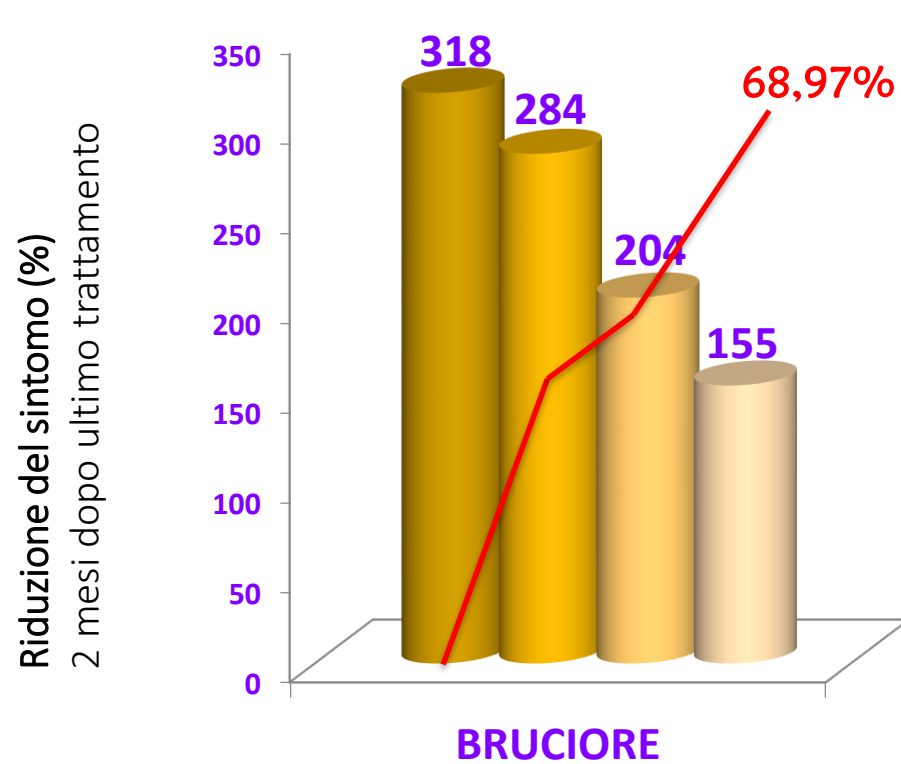
Riduzione del sintomo (%)
2 mesi dopo ultimo trattamento



RIDUZIONE IN PERCENTUALE DI TUTTI I SINTOMI DOPO 3 TRATTAMENTI



Ospedale di Stato della Repubblica di San Marino



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

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

Salvatore S¹, Nappi RE², Zerbinati N³, Calligaro A⁴, Ferrero S⁵,
Origoni M¹, Candiani M¹, Leone Roberti Maggiore U¹

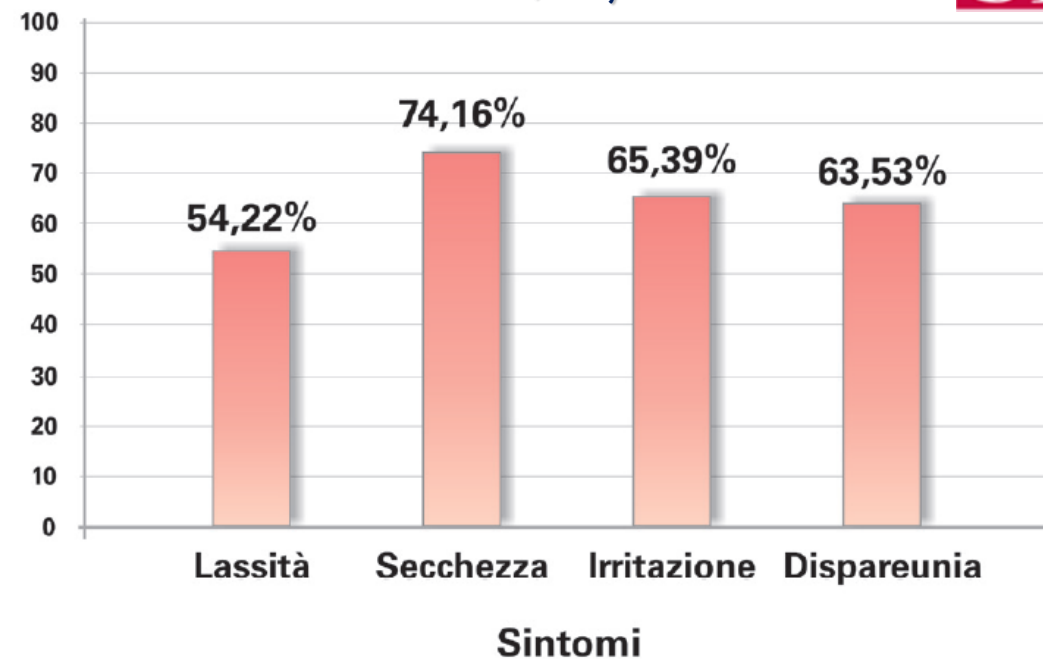
1: San Raffaele Hospital, Milan - Italy. 2: Policlinico S. Matteo, University of Pavia, Pavia - Italy.
3: University of Insubria, Varese - Italy. 4: University of Pavia, Pavia - Italy.
5: San Martino Hospital, University of Genoa, Genoa - Italy.



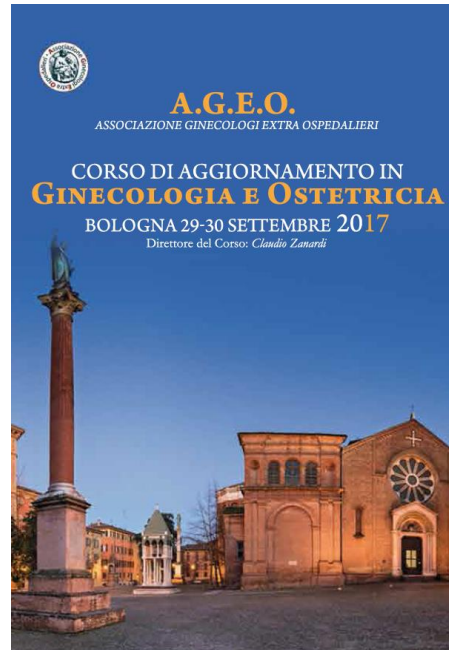
San Raffaele Scientific Institute
Vita-Salute San Raffaele University
Milan, Italy



Riduzione del sintomo (%)
1 mese dopo 1 trattamento



Courtesy by Stefano Salvatore



Patologia neoplastica

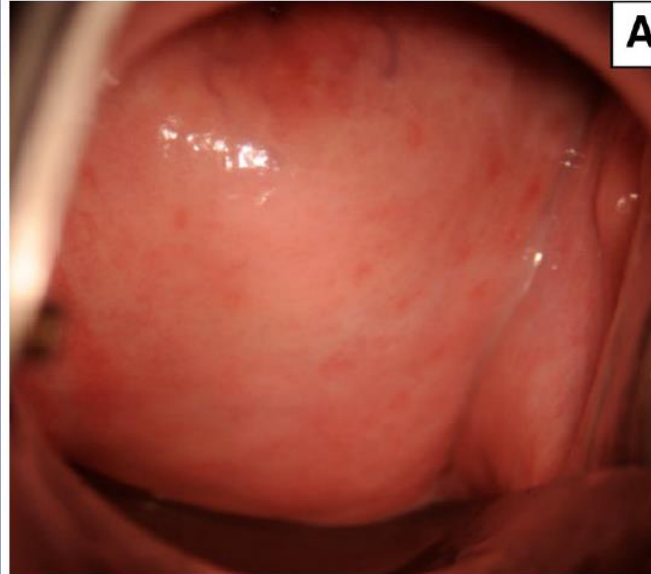
TRATTAMENTO EFFICACE ANCHE SU ONCOLOGICHE

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

Fractional CO₂ laser for vulvovaginal atrophy (VVA) dyspareunia relief in breast cancer survivors

Pieralli A¹, Fallani MG¹, Becorpi A¹, Bianchi C¹, Corioni S¹,
Longinotti M¹, Tredici Z¹, Guaschino S¹

¹: Careggi University Hospital, Florence - Italy.

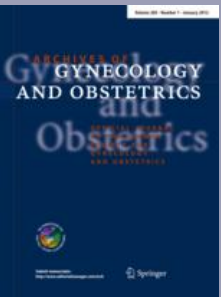


50 patients (mean age 53.3 years)

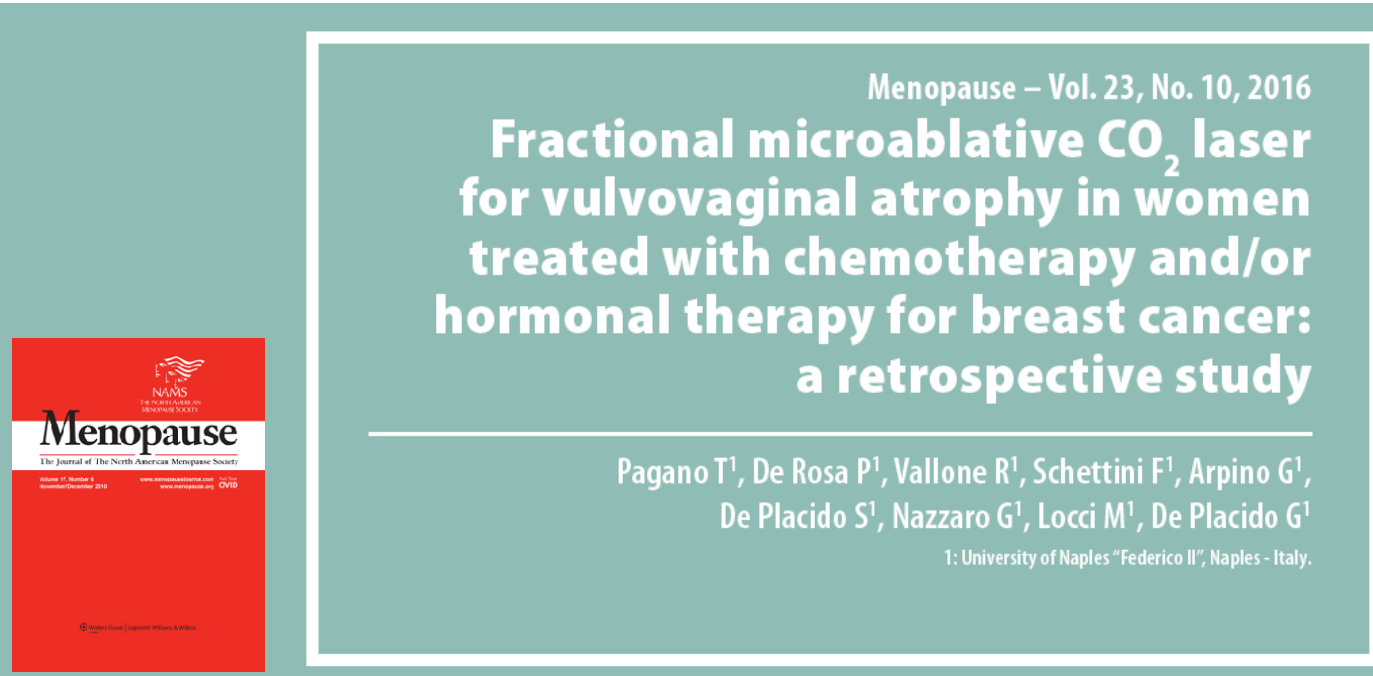
Data indicated a significant improvement in VVA dyspareunia ($p < 1.86e-22$) in breast cancer survivors

76 % of patients were satisfied or very satisfied with the treatment results ($p < 0.0001$).

The majority (52 %) of patients were satisfied after a long-term follow-up (mean time 11 months).



TRATTAMENTO EFFICACE ANCHE SU ONCOLOGICHE



Retrospective study included 26 women affected by hormone-receptor positive breast tumors
Fractional microablative CO₂ laser treatment is associated with a significant improvement of VVA symptoms in women affected by hormone-driven breast cancer.



NUMERO TRATTAMENTI ESEGUITI DAL 06.03.2013 AL 25.10.2017



Ospedale di Stato della
Repubblica di San Marino

80



239

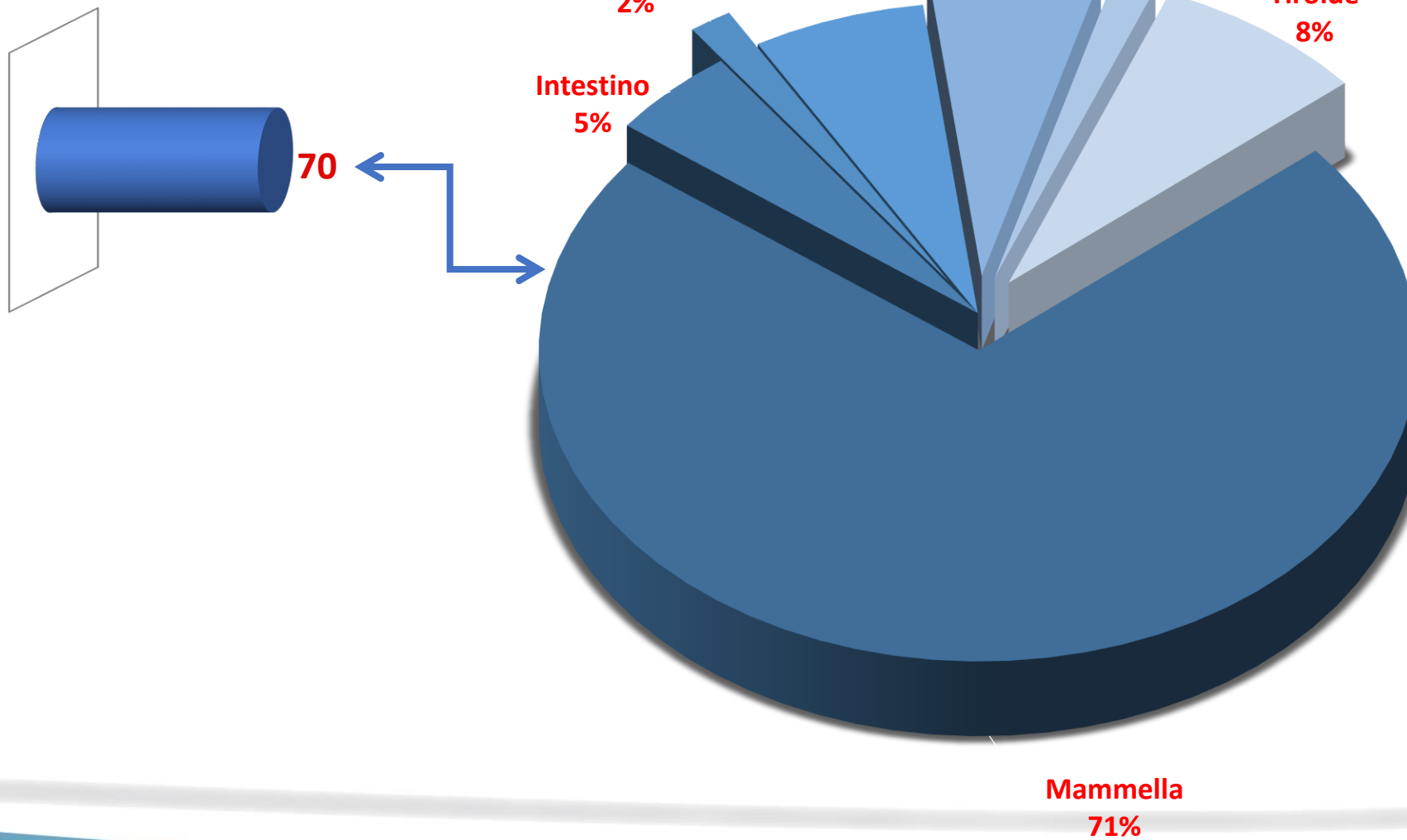


184





Ospedale di Stato della Repubblica di San Marino

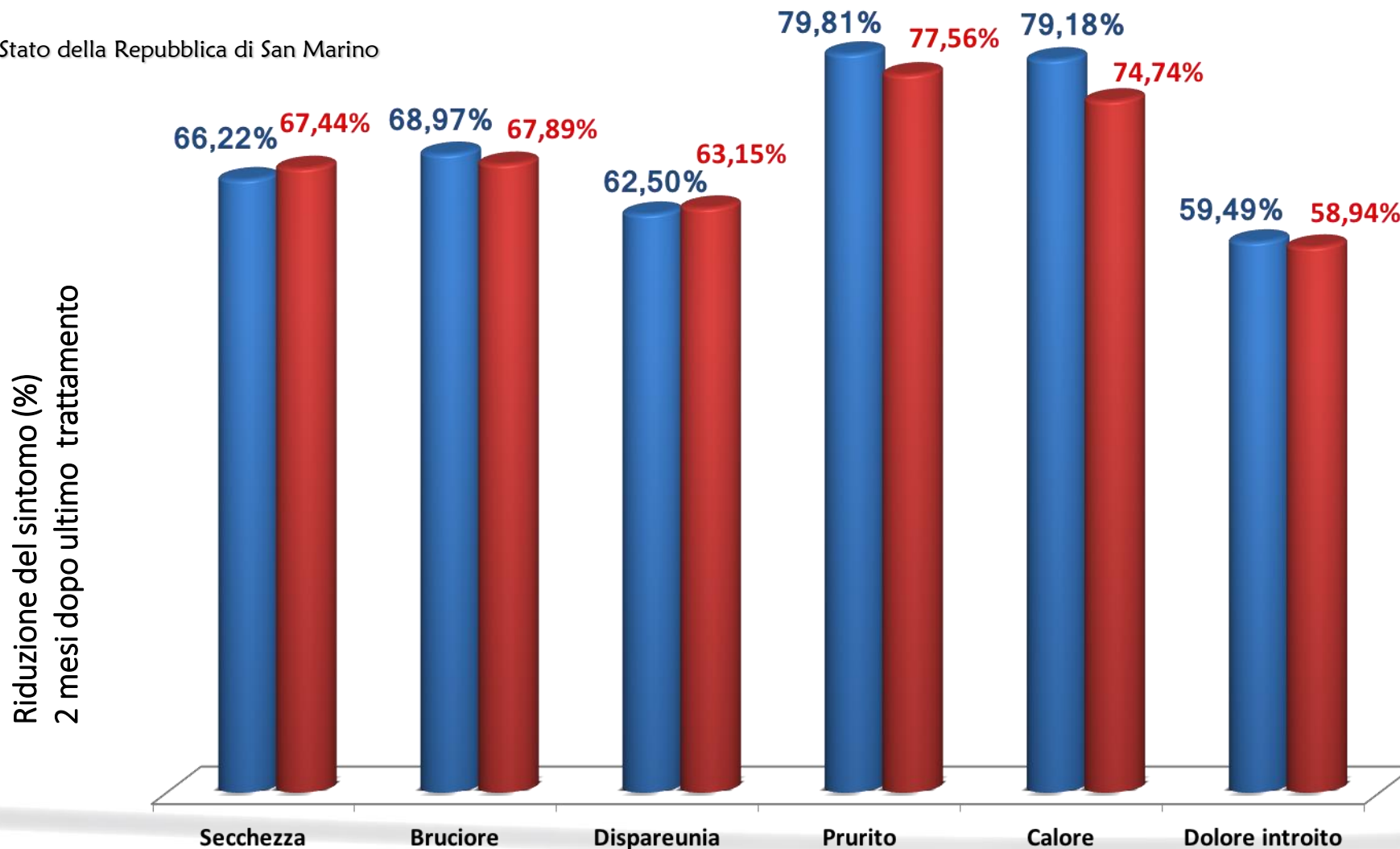


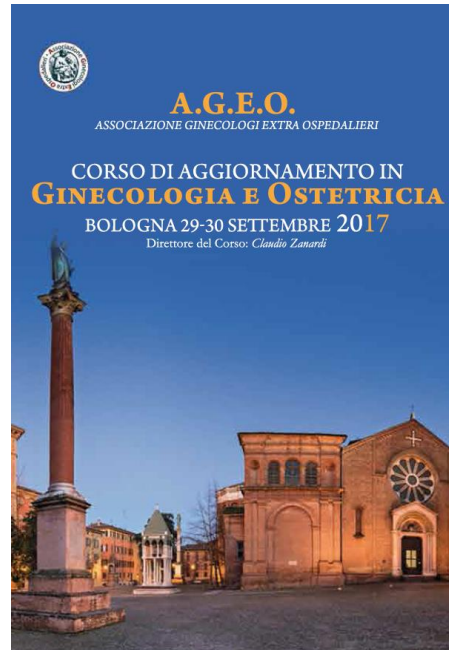


RIDUZIONE IN PERCENTUALE DI TUTTI I SINTOMI DOPO 3 TRATTAMENTI



Ospedale di Stato della Repubblica di San Marino





Vestibulo-vulvodinia

The Journal of Sexual Medicine – Vol.13, No.12, 2016. Epub 2016 Nov 15

Fractional CO₂ laser treatment of the vestibule for patients with vestibulodynia and genitourinary syndrome of menopause: a pilot study

Murina F¹, Karram M², Salvatore S³, Felice R¹

1: V. Buzzi Hospital, Milan - Italy. 2: The Christ Hospital, Cincinnati, OH – USA.

3: San Raffaele Hospital, Milan – Italy.

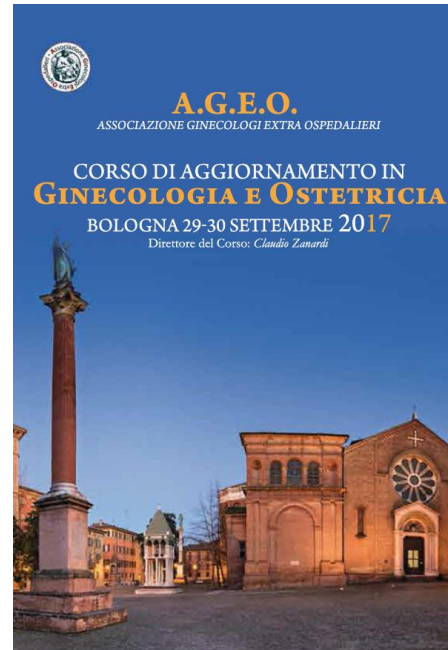


70 Patients

37 vestibular pain plus vestibulodynia

33 genitourinary syndrome of menopause

67.6% of patients stated significant improvement from the laser procedure.



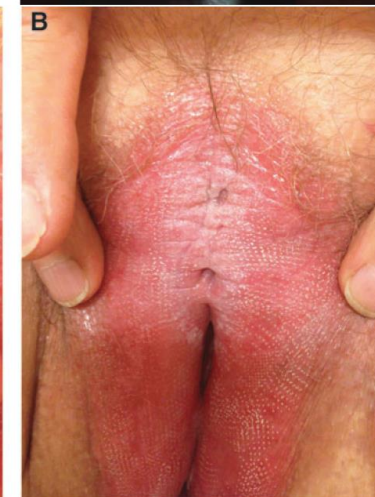
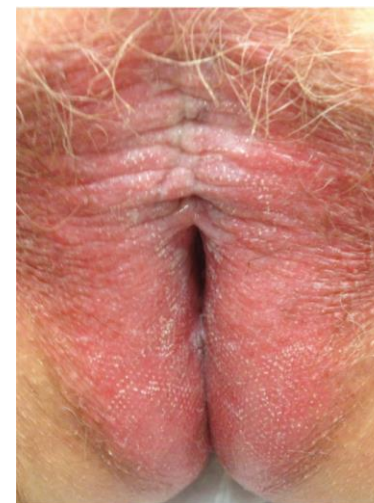
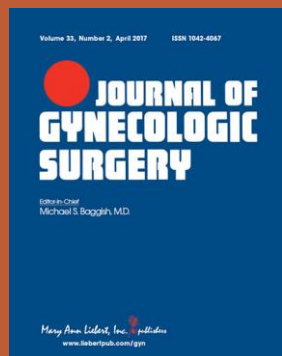
Lichen sclero-atrofico

Journal of Gynecologic Surgery – Vol. 32, No. 6, 2016. Epub 2016 Nov 21

Fractional CO₂ laser treatment for vaginal atrophy and vulvar lichen sclerosis

Baggish M S¹

¹: University of California, San Francisco, CA – USA.



23 postmenopausal women with vaginal atrophy (30, 1000, 1000)

27 postmenopausal women with lichen sclerosis (20, 1000, 1000)

Parameter	# of patients
No progression	27/27
No itching/vulvitis	24/27
Visually noted improvement	26/27
Continued pruritus/vulvitis	3/27



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

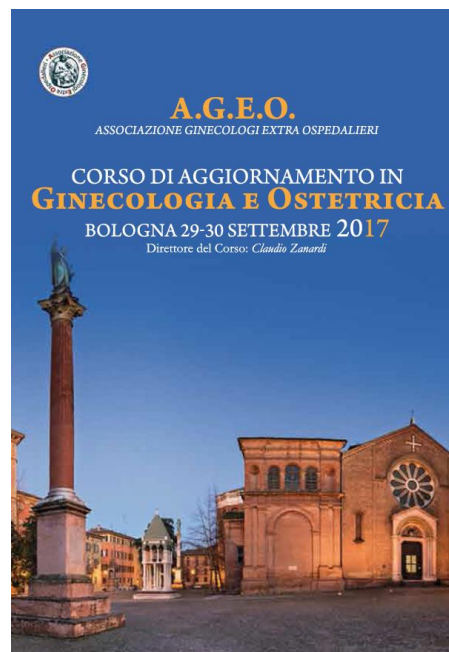
The application of fractional CO₂ laser in the treatment of vulvar lichen sclerosis

Li J¹, Miao Y¹, Wang J¹

1: Peking University People's Hospital, Beijing – China.

31 patients with vulvar lichen sclerosis (VLS)

There were significant difference in pruritus score at the first and the third after treatment one month



Dolore e bruciore vulvo-perineale



NUMERO TRATTAMENTI ESEGUITI DAL 06.03.2013 AL 25.10.2017



Ospedale di Stato della
Repubblica di San Marino

289



481



342





Ospedale di Stato della
Repubblica di San Marino

481

98



TRATTAMENTO
ANALE

199



TRATTAMENTO
VULVARE

128



TRATTAMENTO
CLITORIDEO

56



TRATTAMENTO
PERINEALE

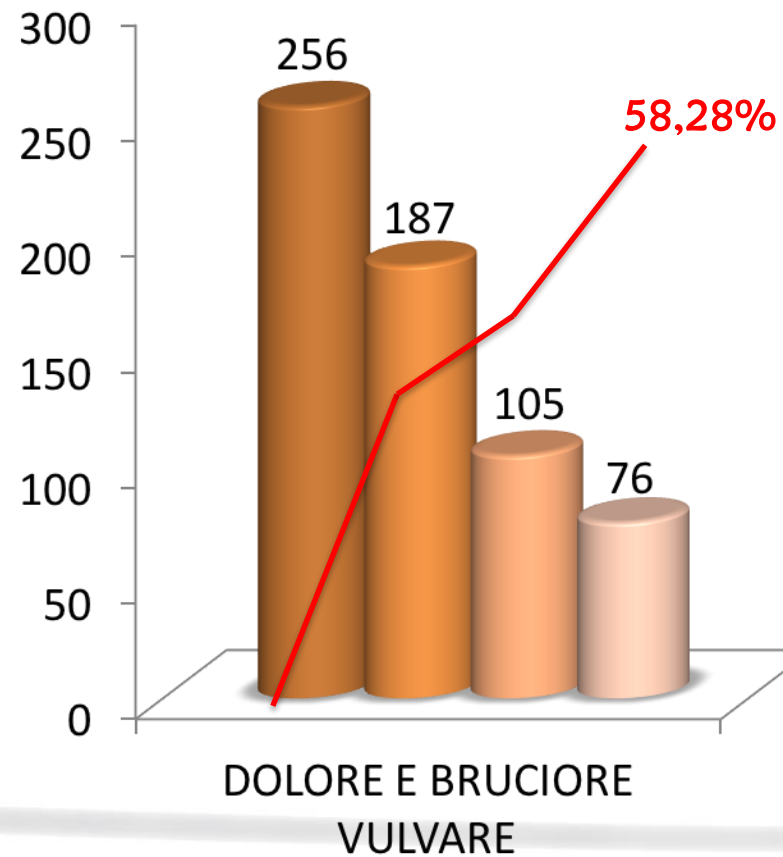


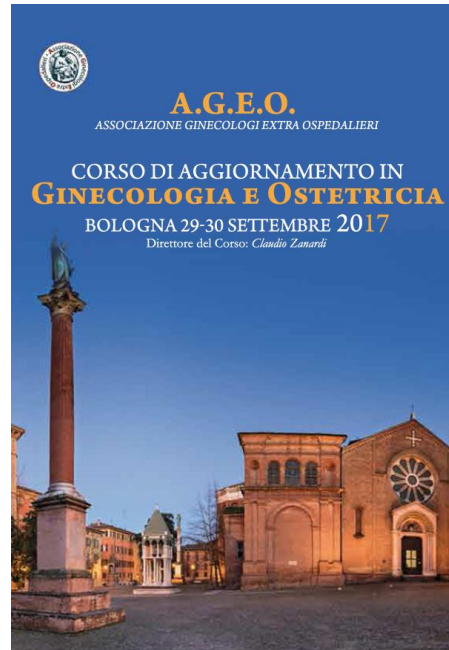
RIDUZIONE IN PERCENTUALE DEI SINTOMI DOPO 3 TRATTAMENTI



Ospedale di Stato della Repubblica di San Marino

Riduzione del sintomo (%)
2 mesi dopo ultimo trattamento





Apparato urinario

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

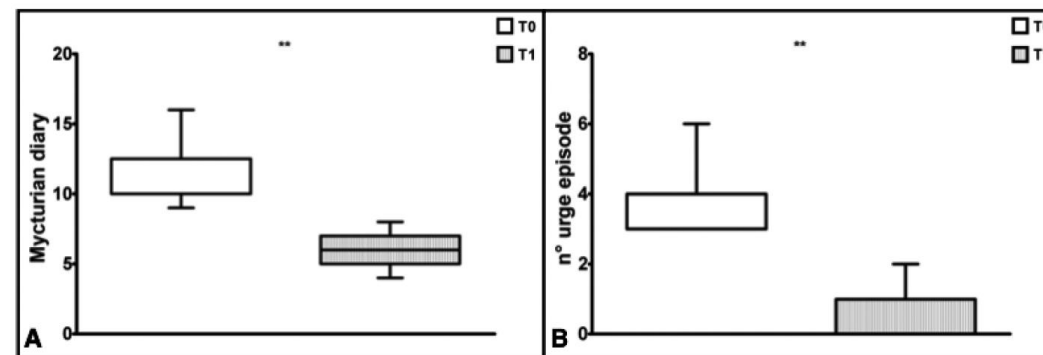
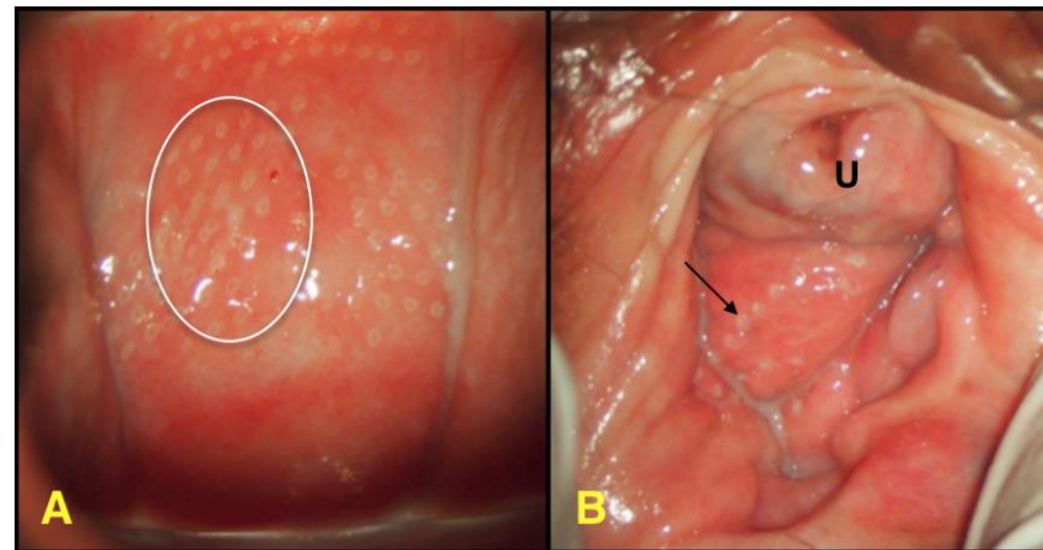
Is vaginal fractional CO₂ laser treatment effective in improving overactive bladder symptoms in post-menopausal patients? Preliminary results


Perino A¹, Cucinella G², Gugliotta G³, Saitta S⁴, Polito S⁵,
Adile B², Marci R⁵, Calagna G¹

1: University Hospital, Palermo – Italy. 2: 'Villa Sofia-Cervello' Hospital, Palermo – Italy. 3: University of Messina, Messina – Italy.
4: "Barone I. Romeo" Hospital, Patti (ME) – Italy. 5: University of Ferrara, Ferrara - Italy.



30 donne con GSM e OAB
Età media 56/8.5
23,3% urge incontinence
20% pregressa HRT
36,7 pregressa terapia con estriolo





Urología Colombiana – Vol. 26, No. 1, 2017. Epub 2016 Oct 09

Fractional CO₂ laser treatment: a novel approach for stress urinary incontinence management in post-menopausal women

González Isaza P¹, Ruiz Rosas A I², Vélez Rizo D L³

1: Universidad Militar de Colombia, Bogotá – Colombia. 2: Universidad Nacional de Colombia, Bogotá – Colombia.
3: Universidad de la Sabana, Bogotá – Colombia.

161 postmenopausal patients (age 53.38 ± 5.1 years, range 45-65 years) with a clinical diagnosis of mild SUI
The results were confirmed by significant histological changes related to trophic restoration of the vagina,
responsible for extrinsic and intrinsic mechanisms involved in urinary continence.

NUMERO TRATTAMENTI ESEGUITI DAL 06.03.2013 AL 25.10.2017

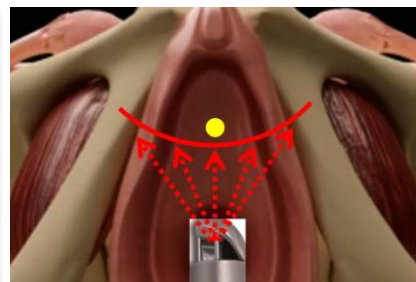


Ospedale di Stato della
Repubblica di San Marino

297



479



388

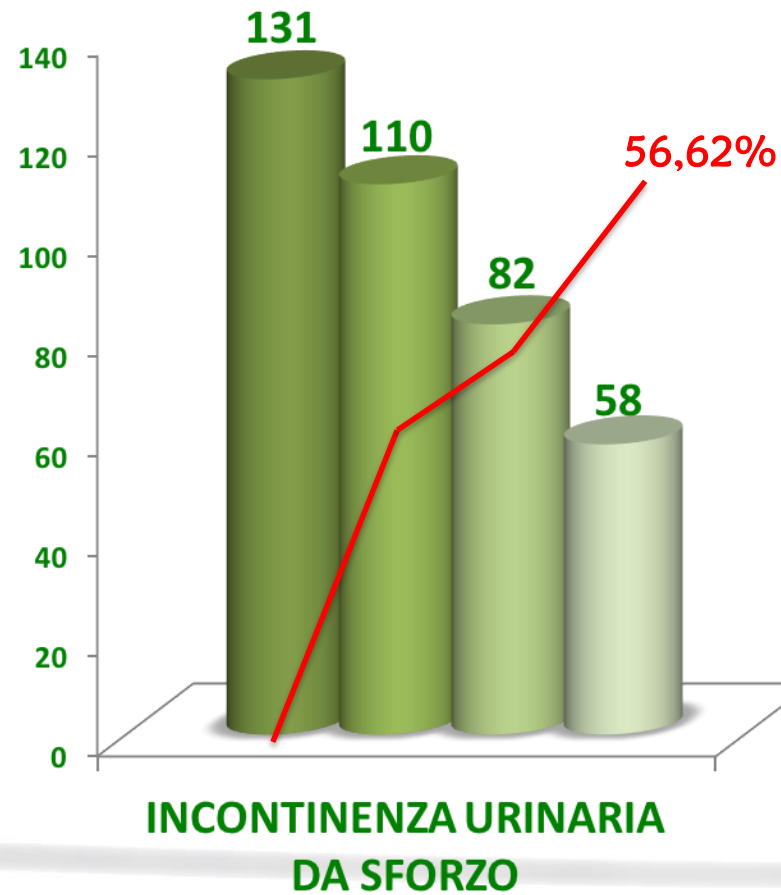


RIDUZIONE IN PERCENTUALE DELLA IUS DOPO 3 TRATTAMENTI



Ospedale di Stato della Repubblica di San Marino

Riduzione del sintomo (%)
2 mesi dopo trattamento



RIDUZIONE IN PERCENTUALE DELLA IUS DOPO 3 TRATTAMENTI



Ospedale di Stato della Repubblica di San Marino

Riduzione del sintomo (%)
2 mesi dopo i trattamenti

IUS totale; 56,62%

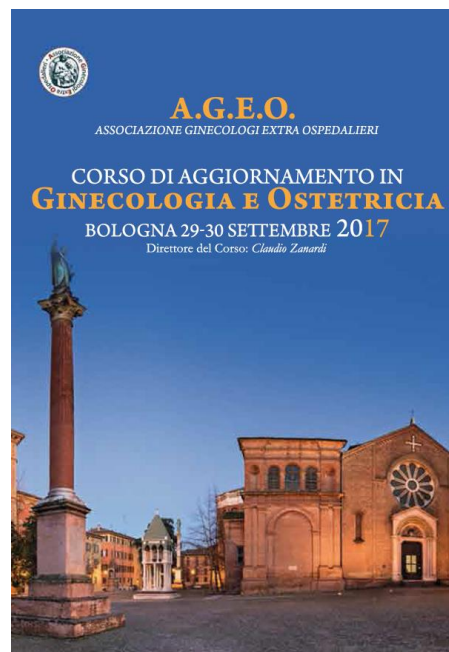


No atrofia;
35,78%



Si atrofia; 65,29%





Un trattamento sicuro...



Menopause – Vol. 23, No. 10, 2016

An assessment of the safety and efficacy of a fractional CO₂ laser system for the treatment of vulvovaginal atrophy

Sokol ER¹, Karram MM²

1: Stanford University, Stanford, CA - USA. 2: The Christ Hospital, Cincinnati, OH - USA.

**The data suggest that the fractional CO₂ laser is effective and safe for treatment of the symptoms associated with GSM.
Studio combinato Stanford e Cincinnati**



102 women (8 center)

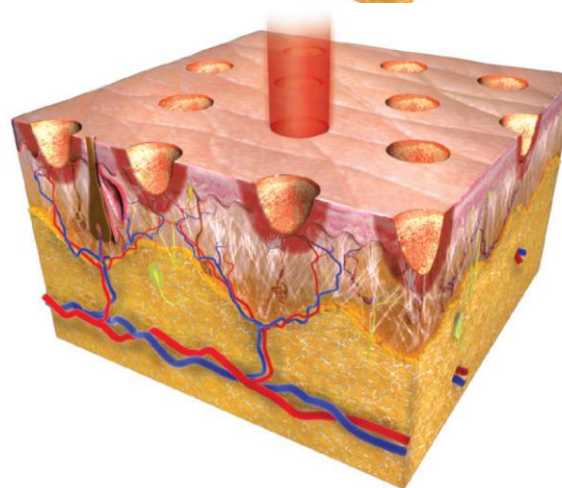
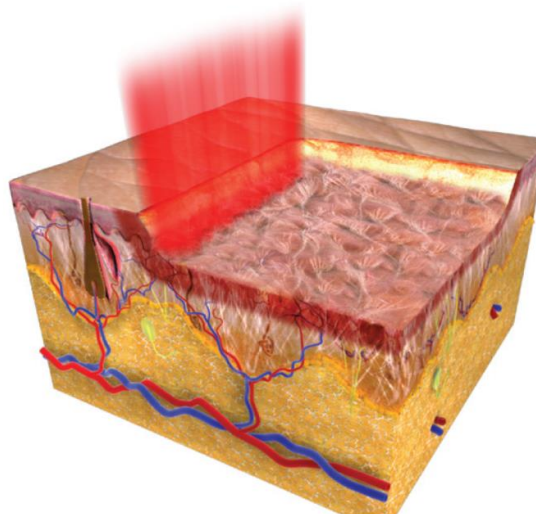
The Australian Pelvic Floor Questionnaire was used to gather data on sexual function

Wilcoxon signed-rank tests were used to detect statistically and clinically significant changes in sexual function and side-effects

LASER OPERATIVO



LASER RIGENERATIVO



ABLAZIONE



BIOSTIMOLAZIONE

