

Fractional CO₂ laser for genitourinary syndrome of menopause in breast cancer survivors: clinical, immunological, and microbiological aspects

Becorpi A¹, Campisciano G², Zanotta N², Tredici Z¹, Guaschino S¹,
Petraglia F¹, Pieralli A¹, Sisti G¹, De Seta F^{2,3}, Comar M^{2,3}

¹: Careggi University Hospital, Florence - Italy.

²: Institute for Maternal and Child Health "Burlo Garofolo", Trieste - Italy. ³: University of Trieste, Italy.



Abstract

The composition of vaginal microbiome in menopause and cancer survivor women changes dramatically leading to genitourinary syndrome of menopause (GSM) in up to 7% of patients. Recent reports suggest that laser therapy may be valuable as a not hormonal therapeutic modality. The aim of the present study was to evaluate the effects of fractional CO₂ laser treatment on the vaginal secretory pathway of a large panel of immune mediators, usually implicated in tissue remodeling and inflammation, and on microbiome composition in postmenopausal breast cancer survivors. The Ion Torrent PGM platform and the Luminex Bio-Plex platform were used for microbiome and immune factor analysis. The significant reduction of clinical symptoms and the non-significant changes in vaginal microbiome support the efficacy and safety of laser treatment. Moreover, the high remodeling status in vaginal epithelium is demonstrated by the significant changes in inflammatory and modulatory cytokine patterns. Laser therapy can be used for the treatment of GSM symptoms and does not show any adverse effects. However, further studies will be needed to clarify its long-term efficacy and other effects.