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## Efficiency of carbon dioxide fractional laser in skin resurfacing

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**Introduction:** Fractional carbon dioxide laser is used in the treatment of many dermatological diseases, as well as in several aesthetic procedures.

**Main objectives:** Of the study are: To confirm the efficiency and safety of the fractional CO<sub>2</sub> laser in skin renewal, and to check the possibility of having a synergistic effect in patients who besides carbon dioxide laser are treated with PRP /platelet-rich plasma/ too.

**Material and methods:** The study was prospective, case control study and was carried out at the Department of Dermatovenereology, in the period from 2013 - 2015, with total number of 232 patients included in the study. The patients were divided into three groups. The first group (Examined Group 1) included 107 patients treated with fractional CO<sub>2</sub> laser (Lutronic eCO<sub>2</sub>) as month therapy. The second group /Control Group/ covered 100 patients treated with neither laser nor plasma in the same period but subjected to local therapy with drugs or other physio-procedures under the existing protocols for treatment of certain diseases. The third group /Examined Group 2/ treated 25 patients with combined therapy of CO<sub>2</sub> laser and PRP in the treatment of facial rejuvenation or treatment of acne scars. Inclusive criteria for entering the study are patients who have one of the following clinical conditions: acne and residual efflorescence of acnes, scars from different backgrounds, stretches, photo damaged skin, hyperpigmentation, xantelasma, syringoma, viral warts. Exclusionary criterion in the study is the use of: oral retinoids in period of 6 months prior to the laser treatment, use of anticoagulation therapy, age under 18, presence of systemic diseases in the patient, using artificial light sources, sauna, during the treatment, use of fillers,, pregnancy and herpes viral skin infections. Patients in the second group (CG) undergone therapeutic modalities depending on the diagnosis of the disease, and according to the existing protocols for certain diseases. For patients with acne scars and patients who undergone rejuvenation, the comparison was made with retinoids, topically applied to the skin. For patients with viral diseases of the skin, comparison was made with standard, the most widely used method for treatment of these diseases – cryotherapy.

**The results and conclusion:** Fractional CO<sub>2</sub> laser used in treatment of patients with acne scars, is an effective and safe method that causes statistically significant better effect of the treatment, greater patients' satisfaction, minimal side effects and statistically better response to the therapy. In the treatment of skin rejuvenation, the laser treatment is effective and safe, causing statistically significant higher satisfaction in relation to the control group of patients. Satisfaction with the treatment in patients undergoing rejuvenation is greater than in any of the examined groups. Fractional carbon dioxide laser is safe to use in treatment of viral diseases of the skin and mucous membranes, condylomas and warts, without distinct side effects and discomfort in the treated patients. However, the effect of the therapy and patients' satisfaction, and also evaluation by the doctors is statistically lower in relation to the control group of patients. In all three indicative subgroups of the laser examined group (acnes, rejuvenation, viral warts) there are no statistically significant mutual differences in relation to the laser treatment, i.e. it is equally efficient. The combined laser treatment using platelet-rich plasma versus laser monotherapy shows greater cumulative assessment of the effect of applied treatment, but without statistical significance.

## Biography

Andrej Petrov 44 years old. Dermatologist, Head of Dermatology Dpt. in Acibademsistina Hospital. Medical faculty and specialization in dermatology finished in Skopje and Master Degree at University in Belgrade. Finishing PhD thesis until the end of 2015. Principal investigator in ongoing multicentre study CHS1420-02. Speaking English, French, Italian.

## Notes:

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