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**Ocena wpływu laseroterapii frakcyjnej nieablacyjnej,
radiofrekwencji bipolarnej oraz intensywnego źródła
światła na skórę okolicy oczu**

Rozprawa na stopień doktora nauk farmaceutycznych

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Streszczenie w języku angielskim

Summary

Objective evaluation of aesthetic procedures effectiveness is an important source of knowledge about used methods. My study concentrated on the effectiveness of selected apparatus therapies used for aesthetic purposes, especially in the eye area. There are hardly any articles on this subject. The selected procedures included: non-ablative fractional laser therapy, bipolar radiofrequency and intense pulsed light. They differ in physical mechanisms, but they all are based on thermal effect produced in the skin. In case of non-ablative fractional laser treatment and intense pulsed light photothermal effect is used, while in the case bipolar radiofrequency - electrothermal effect is utilized.

The purpose of this study involve:

1. The assessment of the effect of selected therapies on the elasticity of the skin area around the with the use of Cutometer.
2. The evaluation of the effect of selected types of treatment on the intensity of erythema and pigmentation of the skin area around the eyes using the Mexameter.
3. The assessment of the impact of selected types of treatment on the skin area round eyes on the basis of own survey conducted in study group.
4. The assessment of selected therapies effectiveness on the basis of photographic documentation.

This study involved 71 people (66 women, 5 men) with an average age of 45.81 years (the range: 33 - 63 years) and with II (second) and III (third) skin phototype. 24 patients received 5 successive treatment sessions with a 1410-nm non-ablative fractional laser in two-week intervals, 23 patients received 5 successive treatment sessions with a non-ablative radiofrequency in one-week intervals and 24 patients received 5 successive treatment sessions with an IPL in two-week intervals.

The use of non-ablative fractional laser therapy is associated with the formation of columnar warming zones, without water evaporation, which accelerates skin regeneration. Bipolar radiofrequency uses alternating current and results in local hyperthermia through the conversion of electric energy into intracellular heat. Selective photothermolysis within epidermis and dermis occurs under the influence of intense pulsed light. All the aforementioned methods increase temperatures within skin in order to induce i

Conclusions from the study:

1. Cutometric assessment indicates that non-ablative fractional laser therapy and bipolar radiofrequency significantly influence the elasticity of skin area round the eyes. The smallest improvement was observed in the case of intense pulsed light.

2. In mexametric evaluation, no significant effects of analysed types of treatment on the intensity of erythema and pigmentation of the skin round eyes were found.

3. According to the questionnaire designed by the author, the efficiency of all these three procedures were similar.

4. Photographic documentation is a complementary (to other objective methods, e.g. MPA) way of the assessment of the aesthetic procedures effectiveness.