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Analysis of Skin Changes After Treatments Using Platelet-Rich Plasma and Platelet-Rich Fibrin as well as Microneedling Radiofrequency in Women's Self-Assessment Using the Observ 520x

Streszczenie w języku angielskim

Aesthetic medicine is currently one of the fastest-growing branches of health sciences and medical sciences, responding to the increasing societal demand for improving physical appearance, counteracting ageing processes, and enhancing psychological well-being. Modern women increasingly perceive aesthetic treatments as an integral component of health prevention and self-care, combining physical, emotional, and social aspects. With the growing availability of advanced technologies and greater patient awareness regarding the safety and effectiveness of procedures, a systematic rise in interest in minimally invasive treatments has been observed, such as filler injections, biostimulation with platelet-rich plasma and platelet-rich fibrin (PRP, iPRF), and microneedle radiofrequency.

The aim of the integrated research was to conduct a multidimensional, observational evaluation of the short-term (30-day) effects of selected skin-regeneration methods—microneedle radiofrequency and platelet-rich plasma/platelet-rich fibrin—in women aged 35–55. This assessment included an analysis of treatment motivations and changes in self-evaluation, as well as an objective evaluation of skin parameters using Observ 520x imaging. The study involved a total of 155 women aged 35–55, and included both questionnaire-based assessment and quantitative high-resolution photographic analysis.

In the first part of the study, focusing on psychological, social, and quality-of-life aspects, 82 participants completed an original questionnaire addressing self-assessment of appearance and motivations for undergoing treatment. The two subsequent study components were retrospective and involved analysis of photographs of 35 women after PRP/iPRF therapy and 38 women after microneedle radiofrequency, acquired during routine clinical practice in an aesthetic medicine clinic. In both imaging studies, parallel control groups (15 women each) who did not undergo aesthetic treatments during the same period were included, enabling comparison of observed changes with the natural ageing process. Photographic documentation

was obtained using the Observ 520x device, while ImageJ software and the Global Aesthetic Improvement Scale (GAIS) were used for quantitative assessment of changes.

The dissertation includes a secondary analysis of treatment documentation and a primary analysis of data obtained from anonymous questionnaires completed prospectively for the purposes of the research. The results demonstrated significant improvement in both objective and subjective evaluation parameters. In the questionnaire component, over 60% of women rated their appearance before treatment as 5 or below on a ten-point scale, whereas after the procedure only 8.5% maintained such a low rating, and more than 80% reported increased self-confidence following the treatment.

Photographic analyses showed statistically significant improvement in skin tone, reduction of hyperpigmentation, and decreased visibility of vessels in the forehead and cheek areas after PRP and iPRF therapy. In the microneedle radiofrequency group, at least 84% of participants demonstrated improvement in skin tone, reduction of pathological erythema, and increased indirect hydration indices in imaging assessment after 30 days. Additionally, regular home skincare was found to be a clinically significant modulator of treatment outcomes, particularly enhancing improvements in pigmentation and hydration parameters. No significant adverse effects were observed in any of the groups, confirming the high safety profile of the evaluated methods.

The integrated analysis indicates that the main motivating factors for women to pursue aesthetic medical treatments include the desire to improve physical attractiveness, rejuvenate appearance, and enhance self-confidence. The findings confirm that modern aesthetic medicine procedures—particularly regenerative methods based on PRP, iPRF, and microneedle radiofrequency—not only effectively improve skin quality and reduce signs of ageing but also play an important psychological role by increasing self-acceptance and overall well-being. These conclusions underscore the interdisciplinary nature of aesthetic medicine, integrating biological, technological, and psychosocial dimensions, and highlight the need for further research on its impact on women's health and well-being.