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Randomized, blinded, split-face trial to assess the brightening efficacy of liquid crystal retinol serum in two different concentrations, both in application treatment and with sonophoresis

Malwina Zasada

Medical University of Lodz, Poland

Background: Retinol modulate the amount of melanin in the epidermis by directly acting on melanocytes and epidermal keratinocytes. Topical application of retinol reduces the transport of melanosomes, which leads to rapid loss of melanin through the skin. An appropriately designed cosmetic product with retinol and regimen of treatment can improve facial hyperpigmentation appearance with improved tolerability.

Objective: We sought to evaluate the brightening efficacy and tolerability using a 0.3% and 0.5% novel, liquid crystal formula of retinol.

Methods: The formula of serums were applied once a day to the face for a period of 12 weeks, N=37. The treatment with sonophoresis were carried out once per week for 7 weeks, N=16. Evaluation were conducted at days D(0) baseline and after the treatment, D(84) and D(49), respectively. Multi Probe Adapter (MPA) system and Fotomedicus imaging system was used to assess the efficacy of treatments. The VAS method enabled the results to be determined by three independent specialists. The study was approved by the Bioetic Commission No. RNN / 281/16 / KE 2017 and No. KE / 229/19.

Results: Skin hyperpigmentation and unevenness of color of skin surface gradually decreased over the treatments, both left and right part of the face. In VAS assessment skin

discoloration was reduced. Mild side effects appeared in several cases, mainly after the first sonophoresis treatment with 0.5% retinol and was more intense on the left part (0.5%) during the whole application treatment. There were no significance changes between left and right side of the face ($p < 0.05$).

Conclusions: Regular use of retinol both in application and with sonophoresis results in brightening of the skin. However, less hypersensitivity and lower intensity of side events occurred on the right (0.3%) in the treatment with sonophoresis. Moreover, the concentration of the retinol does not significantly affect brightening of the skin. It could suggest that formulas based on lower concentrations of retinol might be used to offer comparable activity while reducing the chance of side effect reactions.

Speaker Biography

Malwina Zasada is a PhD student at Medical University of Lodz. She is the first author of original works in the field of cosmetic dermatology. She presents the results of her research at national and international conferences. She is a reviewer of scientific papers in cosmetics and dermatological journals. Within her scientific interests are cosmetic formulation and application therapy with active ingredients, i.e. niacinamide, vitamin C and retinol. She is the author of her own cosmetic product, which she has subjected to many tests, both *in vivo* and *in vitro*.

e: malwina.zasada@gmail.com

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