

The efficacy of anti-wrinkle properties of cream containing recombinant fibroblast growth factor 1 (rFGF1) compared to the placebo version.

Introduction

Skin aging can occur intrinsically as skin „begins to wear out” and intrinsic repair processes slow down. Moreover, this process occurs due to overexposure to extrinsic (environmental) factors such as UV radiation, smoking, oxidants. The loss of dermal collagen and accumulation of unorganized collagen and elastin fibres in the dermis results in formation of wrinkles and elastosis.

In recent years an anti-wrinkle skin care is a main goal of consumer expectations. So cosmetic companies strive to develop high-efficiency anti-wrinkle formulas.

Fibroblast growth factors (FGFs) are a large family of proteins that bind to transmembrane receptors in order to activate cellular proliferation and/or differentiation. FGFs play key role in collagen and elastin production and distribution. They are involved in the growth and regeneration of a wide variety of cells including fibroblasts. In the skin, especially in the facial area, aged cells stimulated by FGFs revert to a more youthful state through angiogenesis and collagen production, among other mechanisms.

The fibroblast growth factor 1 was genetically modified to improve its thermal stability and resistance to protease degradation without losing its biological activity and used as an active compound in the skin care cream with anti-wrinkle properties.

The aim of this study was to examine the anti-wrinkle efficiency of the cream containing rFGF1 and its placebo version (without rFGF1).

Methods

23 women (mean age 45) with visible signs of aging were enrolled to the test. The cream with rFGF1 were used on the right side of face and placebo (without rFGF1) on the left side for 3 weeks in double-blind study. The skin evaluation was performed twice – prior and after the treatment. The study included analysis of skin elasticity (Cutometer® probe), smoothness (Visioscan® camera) and the depth and volume of wrinkles - nasolabial fold and crow's feet (PRIMOS GFMesstechnik GmbH. At the end of the study all volunteers completed self-evaluation.

Results

Application of rFGF1 cream showed improvement of skin elasticity by 19% and the placebo one by 6%. The reduction of the depth of nasolabial fold were observed in 80% of volunteers on the right side of face (rFGF1 cream), while on the left side (placebo cream) the depth of that wrinkle increased. The volume of nasolabial fold on right side of face decreased in 76% of volunteers, while on the left side decreased only in 35% subjects. The wrinkles analysis was statistically significant. Volunteers didn't observe any differences between two tested products. Although at the end of the study more of them chose the cream containing rFGF1 as a better for use in future.

Discussion and conclusion

rFGF1 as an active ingredient has a big impact on anti-wrinkle properties of the cosmetic product. The instrumental assay showed better anti-aging properties of active cream, as compared to the placebo. The improvement was observed in almost all measured parameters. The 3 week treatment was enough to observe the instrumental differences between the active and the placebo cream but this period was not

sufficient for volunteers, to make them notice visible changes. To conclude, products containing rFGF1 shows impressive results and big potential in anti-aging treatment.