Guest Editorial

Skin boosters: The game changers in skin ageing

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Advancement in cosmetic dermatology always keeps evolving asserting luminous and glowing skin but very few stand the test of time. Among those few**,** "Skin Boosters" are found to give auspacious and desirable outcomes. They are the imminent development in aesthetic dermatology, one of the minimally invasive skin revitialization therapies to achieve the vibrant skin with minimum downtime.[1]

Skin boosters encompass a broad array of ingredients that have evolved so far offering divergent benefits in boosting dermal conditions including premature aging, dehydrated skin, decolletage, improving skin tone and textural irregularities, making skin flawless, providing better humidification and radiance to the skin. Skin boosters instead of filling up the volume deficiencies stimulate dermal connective tissue through their biochemical properties, improve skin moisture and significantly contribute to slow down the Senescence process. Senescence process involves disruption in structural integrity of epidermal and dermal components and polysaccharides. Furthermore, an increased levels of oxygen free radicals add to disintegration of antioxidants in tissues, resulting in reduced anti-oxidative response, melanocytes stimulation leading to skin darkening. Skin boosters interfere with these processes by invigorating extracellular environment, improving pigmentation, thus manifesting their beneficial effects.

Among skin boosters, there are hyaluronic acid (HA), growth factors (GFs), platelet rich plasma (PRP), deoxyribonucleotide fragments (PN, PDRN), exosomes, secretomes, chitosan and botulinum toxin.[1] Several approaches have been used to deliver active component in skin boosters to the dermal layer including mesotherapy, iontophoresis, electrophoresis, microneedling, ultrasound and lasers.

With regard to HA skin boosters, two types are found i.e. non-cross linked and low cross linked HA.[2] These are different from the HA used in fillers in a way that they provide hydration to the skin and mild lifting effect instead of filling up volume deficiencies, exerting anti-oxidant effects, enhancing production of connective tissue components of the dermis.[3] Mixture of HA with glycerol has denoted a remarkable and longlasting impact in improving skin moisture, flexibility, resilience and radiance. Glycerol as humectant is known well for its exceptional water binding capability and improving skin moisture and humidification.[4]

Polymers including poly-L-lactic acid and poly-D-lactic acid are also being used as skin boosters to stimulate collagen production through their delivery to the dermis.

Similarly, deoxyribonucleotide fragments including polynucleotide (PN) and

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polydeoxyribonucleotide (PDRN) have gained increased popularity in Aesthetic dermatology.[5] PN is derived from gonads of salmon trout whereas PDRN is derived from seminal fluid. PDRN has also been used in tissue repair, facilitating angiogenesis, showing anti-melanogenesis, anti-inflammatory and anti-allodynic effects, also for anti-obesity purposes by inducing fat browning. While PNs have a role in improving various skin problems including pore size, skin tone, melanin levels, wrinkles, skin sagginess and post-surgical scars.[6]

Platelet rich plasma (PRP) is an autologus plasma with platelets concentrates above the baseline.[7,8] Platelets contain several bioactive proteins including chemokines, cytokines and GFs that have a fundamental role in cellular homeostasis and tissue healing via extracellular matrix remodeling, stimulating skin FB proliferation, collagen and elastin production thus contributing to skin repair process. PRP is usually performed by microneedling or mesotherapy.[9]

In recent years, role of exosomes has been extensively studied at different levels in the field of dermatology and Aesthetics. Exosomes are biomolecular nano-structures that play a pivot role in skin rejuvenation by transferring various regulatory factors such as proteins and miRNS to the skin, regulating keratinocytes proliferation and differentiation, promoting production of connective tissue components and increasing dermal fat hence improving skin tone and texture.Exosomes exert their anti-inflammatory effect thus contribute to stages of wound healing. Exosomes are responsible for extensive intracellular communication and molecular transportation by enhancing cellular cohesion and stratification.

Secretomes, as a skin boosters, are the extended amalgam of soluble and insoluble substances including cytokines and regeneration-promoting GFs. Secretomes are originated from different sources that contribute to skin repair process via promoting migratory and proliferative abilities of skin cells thus enhancing collagen production, diminishing signs of Ageing and improving skin texture.

Chitosan, a linear polysaccharide,derived from exoskeleton of shellfish including crabs and fungi,involves in cell regeneration process by exerting proliferative and anti-inflammatory effect promoting epithelial reconstruction. Chitosan has also shown to have anti-oxidative properties.

Microbotox or babybotox, that is the hyperdilution with intradermal delivery of botulinum toxin, has been used for various indications including skin revitilization, improving facial flushing and erythema and maintaining collagen homeostasis. It is also found to have a beneficial effect in minimizing skin pigmentation via suppressing tyrosine kinase and melanocyte activity. Botulinum toxin can be combined with other substances called “Mesococktails” to achieve the best desirable results.

The term “Skin Boosters” has not previously had a defined scope but now it is covering almost all the ingredients that when administered to the skin,have a deterimental and desirable impact on the skin ,enhancing skin rejuvenation. [10]

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