The world of Aesthetic Medicine and Dermatology is very rapidly changing because of the development of Biophysics, Chemistry, Biochemistry and Technology. On this background the present issue of EJAMED was aimed to develop some relevant concepts we anticipated in the previous Editorial

In particular our four-monthly choice has focused on oxidative processes because redox reactions i) are the common basic denominator of all biological reactions that take place in our body, and ii) are variously affected in aesthetic and dermatological diseases. In order to have an idea about the scientific relevance of oxidative and reductive processes one should consider that the biggest worldwide medical/scientific database i.e. PUBMED-MEDLINE detected up to now more than 150,000 academic papers for the words “oxidative stress”. In the herein issue the first three articles follow an imaginary line which starting from the description of the basis of redox reactions mechanisms enter into the clinical practice by providing some relevant examples of the application of such knowledge in the cosmetic and dermatological fields.

The first article is an updated review on the so-called oxidative stress (OS). Often and unfortunately described in the past as a result of the unbalance between free radicals and antioxidants, OS nowadays is recognised as the effect of an impairment of redox homeostasis that leads to a deep disturbance of cell signalling, immune defences and detoxification processes. Indeed reactive oxidising species (ROS, including reactive oxygen/nitrogen/carbon/sulphur/chlorine species) are not merely damaging chemical species but highly evolutionary conserved, generally unstable and short-living chemical species which main role is to transiently, reversibly and slightly oxidising some specific organic substrates – often the thiol groups of biologically active proteins like enzymes or second messengers or transcriptional factors – thus regulating globally cell homeostasis and survival. Moreover ROS are involved in the phagocytosis...
process that allows monocytes/macrophages as well polymorphonuclear leukocytes to destroy bacteria and bacteria by-products like endotoxins. Finally ROS production is often the unwanted effect of detoxifying processes taking place in the liver. Due to their well-known reactivity – that in turn derives from their tendency to extract one electron from their natural substrates – ROS are finely regulated by a wide class of compounds/activities commonly called “antioxidants”, but nowadays described as “physiological modulators of redox homeostasis”. These physiological modulators are designed to give just the missing electron to ROS thus avoiding any improper and/or excessive oxidation. In such way any excess of ROS is promptly “buffered” and the OS – i.e. the unwanted consequence of redox homeostasis impairment – is prevented. On such basis the first review article of this issue describes and analyses the physiological role of ROS and the biological basis of OS, including its diagnosis and management, by considering it as an emerging health risk factor for early aging and at least one hundred diseases among which are aesthetic and dermatological disorders including wrinkles, cellulite and so on.

The second article is focused on the healthy effects of delphinidin, an anthocyanin specie, extracted from maqui berry (Aristotelia chilensis), that acts as physiological modulator of redox homeostasis even in the skin. Indeed nutraceuticals are the most common way to modulate redox balance and to protect our body from OS by a physiological way.

The third article is related to the “ROS paradox” where such species can be used properly to stimulate tissue regeneration. Indeed in this well documented case report a combination of topical and systemic ozone, a powerful oxidant, was safely and successfully used in order to favour breast tissues regeneration after a nipple-areola complex necrosis.

Finally the fourth article is a technical report that describes an original surgery technique of rhinoplasty. The correction of anatomical disorders of nose and paranasal sinuses is very important in order to warrant an optimal body oxygenation. Indeed a impaired oxygen availability (e.g. due to sleep apnoea disorders) can be responsible of oxidative stress.

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