Dermoscopic Evaluation of Facial Aging in Males

Thesis

Submitted For Partial Fulfillment of Master Degree In Dermatology, Venereology And Andrology

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Faculty of Medicine
Ain Shams University
2014
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فضّلُ اللهِ عَلَيْكَ عَظِيمًا

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<td>BCC</td>
<td>Basal cell carcinoma</td>
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<tr>
<td>Bp</td>
<td>Base pairs</td>
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<tr>
<td>CPDs</td>
<td>Cyclobutane pyrimidine dimmers</td>
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<tr>
<td>CTD</td>
<td>Connective tissue disease</td>
</tr>
<tr>
<td>CTGF</td>
<td>Connective tissue growth factor</td>
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<td>DAS</td>
<td>Dermoscopic aging scale</td>
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<td>DLE</td>
<td>Discoid lupus erythematosus</td>
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<td>DPAS</td>
<td>Dermoscopic photoaging scale</td>
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<tr>
<td>ECM</td>
<td>Extracellular matrix</td>
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<tr>
<td>ERK</td>
<td>Extracellular signal-regulated kinases</td>
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<tr>
<td>LCs</td>
<td>Langerhan's cells</td>
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<tr>
<td>LED</td>
<td>Light emitting diodes</td>
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<tr>
<td>MAPK</td>
<td>Mitogen-activated protein kinases</td>
</tr>
<tr>
<td>MMPs</td>
<td>Matrix metalloproteinases</td>
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<tr>
<td>NF-kB</td>
<td>Nuclear factor kappa-light-chain-enhancer of activated B cells</td>
</tr>
<tr>
<td>PSLs</td>
<td>Pigmented skin lesions</td>
</tr>
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<td>ROS</td>
<td>Reactive oxygen species</td>
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<td>SCC</td>
<td>Squamous cell carcinoma</td>
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<td>SEI</td>
<td>Sun exposure index</td>
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<tr>
<td>SSP</td>
<td>Stellate spontaneous pseudoscar</td>
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<tr>
<td>TGF</td>
<td>Transforming growth factor</td>
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Fatma Ahmed Yousef
INTRODUCTION

Skin is the outermost part of the human body. It protects the body from infection, injury, and water loss, while helping regulate body temperature. Additionally, the skin maintains homeostasis and produces vitamin D. Skin performance is impaired with age and visual beauty is lost (Choi et al., 2014). Besides, skin is the main organ in which age related changes are visible (Ramos-e-Silva and da Silva Carneiro, 2007; Saral, 2008).

Skin aging is a complex process, there are two independent, clinically and biologically distinct, processes affecting the skin simultaneously. The first is the innate or intrinsic aging, ‘the biologic clock’ that affects the skin by slow, irreversible tissue degeneration. The second process is the extrinsic aging, which is the result of exposure to outdoor elements, mainly, ultraviolet (UV) irradiation; namely ‘the photoaging (Farage et al., 2008).

Extrinsic skin aging is mainly a consequence of cumulative UV exposure of the skin, but can be accelerated by nicotine abuse and environmental hazardous compounds. They cause specific alterations like elastosis and dyschromatic pigment shifts (Placzek et al., 2004; Okazaki et al., 2005).
The rate of aging is significantly different among different populations and even among different anatomical sites in a single individual. Many theories have tried to explain the aging process, but the most plausible of these concentrate on DNA damage and the concomitant repair process, which induce genome-wide epigenetic changes leading to cell senescence, loss of proper cell function, and genomic aberrations (Sinclair and Oberdoerffer, 2009).

The following aspects are discussed in several theories on intrinsic skin aging: Cellular aging (Hayflick-Limit) and shortening of telomeres, mutations of mitochondrial DNA, oxidative stress, genetic mutations and decrease of several hormone levels (Makrantonaki and Zouboulis, 2007).

UVA-light is absorbed by cellular chromophores, such as urocanic acid, elanin precursors and riboflavin. These lightexposed chromophores generate ROS, which damage lipids, proteins and DNA. UVA-light is exceptionally relevant in photoageing because of its high penetration depth (Klotz et al., 2001).

The clinical manifestations of intrinsic aging are fine wrinkles, thin and transparent skin, loss of underlying fat leading to hollowed cheeks and eye sockets, dry and itchy
skin, inability to perspire sufficiently, hair graying, hair loss or hirsutism, and thinning of nail plates (Zouboulis and Makrantonaki, 2011).

Clinically, naturally aged skin is smooth, pale and finely wrinkled. Nevertheless, Photoaging affects sun-exposed areas and is characterized clinically by fine and coarse wrinkling, roughness, dryness, laxity, telangiectasias, loss of tensile strength, pigmentary changes and the development of a variety of benign and malignant neoplasms (Sjerobabski-Masnec and Situm, 2010).

Photodamaged skin exhibits variable epidermal thickness and solar elastosis, i.e. accumulation of degraded and disorganized elastic fibers. The amount of mature collagen and its overall density decrease, and partially degraded collagen accumulates, resulting in the fibrous network becoming coarser (Yaar and Gilchrest, 2007).

Dermoscopy is a noninvasive diagnostic technique used for the in vivo observation of skin lesions (Lacarrubba et al., 2010). It is a well-established skin examination tool with known dermoscopic features for many diagnoses (Luk et al., 2014). Dermoscopes are modified magnifying devices that permit the visualization of pigmented structures or vessels in the epidermis and superficial dermis and generally employ