PHOTO DAMAGED SKIN AND ITS TREATMENT

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With the passage of time our experience is increasing with the use of a class of drugs popularly called vit. A acids of Retinoides since its introduction in 1960.1 Now we feel more confident regarding their safety and management of side effects. The specific effects of this group of drugs on the skin has revolutionized the treatment of some skin conditions previously thought to be untreatable. These conditions include the most discussed topic i.e. photoaging and wrinkling of the skin dermatohalnosis, the scaly hyperkeratotic disorders psoriasis palmoplantar keratoderma, ichthyosis, pityriasis rubra pilaris etc, besides a done and many other similar skin conditions.23

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Until the late seventies the interest of the researchers was limited to the UV induced carcinogenic effects on the DNA of keratinocytes. In the early eighties the UV was found to have an immunosuppressive effect. It causes depression of cellular immunity and antigen presenting function of Langerhans cells; an increase in the circulation of suppressor T lymphocytes and a decrease in the transformation of lymphocytes. Wlaschek M and his colleagues clearly showed that a UV induced cytokines network consisting of the IL–1 beta and IL–8 which via interrelated cytokines loops, induce collagenase/MMP–1 and thus may contribute to the loss of interstitial collagen in photoaging.8 UV light also produce free radical formation that contribute to photoaging and cancer. Formation of cis urocanic acid has been shown to be important as a mediator of UV induced immuno suppression.9

The proportion of UVB in the sunlight is much smaller than UVA but even this small amount is more important in the development of sunburn and skin carcinoma. The immediate effect of UVA is tanning of the skin but it penetrates up to the upper dermis and therefore causes important
changes in the connective tissue which leads to early wrinkling and aging of the skin. This photoaging is quite different from chronoaging. In chronoaging the skin gradually thins but in contrast photoaged skin is rough, thick and develops inelastic papular appearance. Microscopically keratinocytes dysplasia, increased number of photodamaged cells called Sun Burn Cells (SBC), hypermelanosis and elastosis is evident Biochemically there is a marked accumulation of elastic material, degeneration of collagen and increased deposition of glycosaminoglycans. An attempt to repair the tissue damage produce new defective elastin that is disorganised.

The modern trend of treating these conditions aims at the protection of the skin from further exposure to the sunlight, by the use of vitamin A acids.

Protection from the sunlight can be achieved by the use of a class of topical preparations popularly known as sun screens (SS). It has been observed that retinoids alter the nature of the stratum corneum in such a way that the penetration of UVA rays in the upper skin layers is facilitated thus increasing the risk of skin malignancy. It is therefore of utmost importance to use sun screens in order to reduce not only a further damage to the skin but also reduce the risk of malignancy due to the synergistic effect of UVA and Retinoids SS has been shown to actually reduce the number of SBCs production in the skin. Regular use of SS during childhood and adolescence result in 80% reduction in the lifetime incidence of UV induced skin damage including non melanoma skin cancers.

Experiments in the mouse models have clearly shown the beneficial effects of retinoids in reversing UV damage in the skin and this has been proved in the human skin also. Griffith et al showed through the clinical, calorimetric and histological criteria that the hyperpigmented lesions of the face and hands got lightened in 90% of the patients with the use of tretinoin as compared to 30% receiving vehicle. Similar was the effect on roughness and wrinkling of the skin. They possibly exert their action on the inhibition of collagenase and stimulation of collagen synthesis, connective tissue formation by the induction of growth factors such as TTGF and angiogenesis. It has been suggested that retinoids control genes transcription. Retinoic acid treatment has been observed to convert the stratified squamous epithelium towards the phenotype of mucosal epithelium. Smoothening of the skin occurs from a combination of epidermal changes including thickening, stratum corneum compaction and glycosaminoglycan deposition. Lightening of the actinic lentigines and mottled hyperpigmentation correlated with a reduction in epidermal melanin content and may be resulting from inhibition of tyrosinase activity. All trans retinoic acid and 13-cis retinoic acid have been shown to be superior to other types of retinoids in these conditions.

While prescribing these drugs the potential hazards of the drugs should be kept in mind. The side effects can occur with the topical application, though mostly associated with the systemic therapy. An increase in the blood lipids warrants a constant check over the levels and a pretreatment baseline screening of the coronary disease and lipid levels is mandatory. In the fertile age of females it needs to be more careful because of the known teratogenic effects. The contraception has to be observed quickly and pregnancy has to be planned long after the drug has been discontinued local side effects of irritation, dryness, and infections etc, can be sometimes very trouble some but can be managed with appropriate measures.

The intensity of sunlight and the amount of sun exposure we observe in the tropical and subtropical countries of Asia and Africa is very high in certain profes-
sional and skilled classes. Thanks to melanin in our skin which provides natural protection against the adverse effects of sunlight. It is the need of the day to increase the public awareness regarding photo damage and its potential risks. By educating people in protection methods we can decrease the high cost of management of potentially dangerous and cosmetic oriented diseases and conditions and save maximum of our energies for other important problems.

REFERENCES


