

THE SKIN IN THE ELDERLY

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*"Age cannot wither her, nor custom stale
Her infinite variety"*

*Shakespeare W
1564-1616*

Geriatric dermatology has come of age!

Less than a decade ago, the first American textbook devoted to this subject was published⁽¹⁾. Since then scientific information on this subject has exploded exponentially^(2,3). Reference 2 alone contains 17 chapters. The contents in this volume range widely. There are sections on molecular mechanisms of ageing, epidemiology of the aged, morphologic and physiologic changes of the various components in older skin, common skin problems and skin cancers in the elderly, wound healing and ageing, and photoageing. There is even a chapter on the psychology of appearance in the elderly. Reference 3 has 21 chapters. It presents current work by acknowledged authorities on the assessment of ageing skin by non-invasive techniques. There are reviews on the mechanical properties and physical surface characteristics, indirect measurements of cutaneous microcirculation and blood flow, integumental reactivity and permeability, and a discussion on the objective assessment of skin xerosis in the aged.

Perhaps the most important factor that will alter the prevalence and pattern of dermatologic disease is the growing proportion of elderly in our population⁽⁴⁾. In Singapore, the impact of this will be fully felt when the proportion of the aged (above 60 years) in the population increases to a projected 1 in 4 in the year 2030. A United States Public Health survey show a steady increase in the prevalence of skin diseases throughout life, reaching 65 per 100 above the age of 65 years.

Many of the cutaneous changes denoting senescence are well-known: grey hair, lax wrinkled skin, lentiginos and cherry angiomas⁽⁵⁾. These same cutaneous markers help characterise syndromes of accelerated ageing: progeria (Hutchinson-Gilford's), pangeria (Werner's), acrogeria (Gottron's), poikiloderma congenitale (Rothmund-Thomson's), trisomy 21 (Down's).

What are the morphologic and functional changes in the skin associated with ageing? The most consistent change is flattening of the epidermal-dermal junction with effacement of epidermal rete pegs and dermal papillae. The barrier function of the stratum corneum is diminished. A recent study showed that transepidermal water loss is significantly lowered in the aged population⁽⁶⁾. The turnover of cells in the epidermis decreases. Cell proliferative capacity diminishes with age. There is a reduction in the density of active melanocytes, and a loss of Langerhan cells^(7,8). Changes in dermal collagen and elastic tissue make the connective tissue less soluble and more sclerotic. Linear hair and nail growth rate both decreases. There is impairment of excision repair of UV-

mediated DNA damage. Sebaceous gland function decreases. Eccrine sweat glands become atrophic and the amount and rate of sweating are substantially reduced. However, the apocrine glands remain little changed with age. The capillary loops and deep dermal vessels diminish in number, with a corresponding decrease in vascular responsiveness. Aged-associated immunologic changes have implications for the skin⁽⁹⁾. With ageing, the thymus involutes. There is a rise in the prevalence of autoantibodies. Interferon production is reduced. There is a decrease in T-cell numbers and function. All or some of these alterations may be relevant in response to or for defense against infections, autoimmune diseases and cancers.

What about the skin diseases affecting the elderly? Some of these diseases are more prevalent than in the young, while others run a more protracted course. Certain cutaneous complaints cause considerable discomfort. Whether these diseases are age-associated or age-related is difficult to discern. None is restricted to the aged.

Generalised pruritus is a very common complaint in the elderly. It is often attributed to the dry, rough skin (xerosis). The frequent occurrence of xerosis was borne out by a study conducted among the elderly at the National Skin Centre, Singapore⁽¹⁰⁾. If patients with "asteatotic eczema" were included, we can appreciate the amount of discomfort pruritus from dry skin is producing in our elderly population. How the nerve fibres which cause itching are stimulated is not clear, although penetration of irritants across an abnormal stratum corneum and altered sensory nerve threshold have been postulated. The incidence of seborrhoeic dermatitis in older people is also increased. This may contribute to the pruritus. The cause is again not clear, but aetiologic roles for sebum (production paradoxically decreased), yeast (*Pityrosporum ovale*) and poor skin care have been proposed.

Among other common cutaneous complaints in older people are the consequences of venous stasis: stasis edema, stasis dermatitis, stasis ulcers. These conditions are frequently complicated by secondary infection, allergic contact dermatitis, and failure of re-epithelisation. They tend, therefore, to be recurrent and refractory to treatment. They discourage mobility and prolong hospital stay.

There is an increased incidence of herpes zoster in the old. Two-thirds of patients seen with zoster are over the age of 50 years. The age-adjusted annual rate is 0.25% for people aged 20-50 years compared with 1.0% for those aged 80 years and over. It is known that post-herpetic neuralgia occur more commonly in older patients.

Bullous pemphigoid is a chronic blistering disease occurring mainly in the elderly. It is characterised by subepidermal bullae on the skin. Basal membrane zone antibodies against the bullous pemphigoid antigen can be identified in the skin lesions and circulating antibodies detected in the serum of patients. An altered immunologic reactivity of skin tissue in these patients is likely to be involved.

Increased intolerance to drugs administered systemically is well documented in the older population⁽¹¹⁾. This may be due to a reduced body mass and renal excretion, and to altered metabolism of drugs. Elderly patients often make errors in the use of their medications. The effects of topical medicaments are little known.

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The reduced vascular responsiveness may render blanching of erythema unreliable as an indicator in the testing of topical corticosteroid preparations and may lead to overtreatment in old people.

Wound healing is slowed in the elderly. The closure rate of a wound, as well as its strength, decreases with age. Limited experimental data suggest that the force to disrupt wounds, that is the tensile strength, is diminished in the old. This supports the clinical observation that the rate of wound dehiscence following surgery rises with age.

Neoplasia associated with ageing occur in many organ systems, but is particularly characteristic of skin. One or more of the following benign proliferative growths are present in nearly every senior citizen: acrochordon, cherry angioma, lentigo, seborrhoeic keratosis and sebaceous hyperplasia. Many individuals have tens of these lesions. Basal cell carcinoma and squamous cell carcinoma are by far the most common human malignancies in the West. These neoplasms reflect in part the breakdown of "growth homeostasis" in age. It is somewhat surprising that no skin cancers were noted in the local study alluded to earlier⁽¹⁰⁾, even allowing for the fact that cutaneous malignancies are less common in coloured skin persons. An extended study may give a better indication of the true incidence of this problem.

Physical appearance, of the face in particular, has a powerful social and psychological impact on human relationships. The physically good-looking or beautiful are often assume to be kinder, more sensitive, warmer and so on. Whereas the unattractive aged are automatically associated with being impatient, sour, and talkative. There is evidence to show that looking good makes a person feel and function better. Thus cosmetic therapy for the elderly is believed to have helped to lessen ageism and improve their standing in society.

The role of chronic sun exposure and cumulative skin damage (photoageing or dermatoheliosis) has been widely publicised in the media in recent years. Sunlight, in particular UVB irradiation,

is an important environmental carcinogen. It increases the incidence of Bowen's Disease, squamous cell carcinoma, basal cell carcinoma, as well as melanoma in sun-exposed skin. A pre-cancerous condition, actinic keratoses, is very common in fair-skinned individuals chronically exposed to the sun. A comparison of sun-exposed and non-sun-exposed skin in the same individual will give a fair idea the extent photoageing plays in the ageing process, as compared with "true ageing". In the last few years, interest on this subject is rekindled as a result of the demonstration that topical retinoic acid improves photoaged skin^(12,13).

With a better understanding of ageing skin, the ravages of photoageing should be largely preventable. Patients will be better able to come to terms with true ageing. Physicians will be better able to care for the concerns and discomforts of skin diseases in the elderly.

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