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Dermatology Symposium

A symposium held on 21 September 2011 at the Royal College of Physicians of Edinburgh.

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EDUCATION

INTRODUCTION

Diseases of the skin appendages (hair and nail apparatus), viral infections and allergy are some of the most challenging problems that dermatologists deal with on a day-to-day basis. In addition to providing updates on recent advances in research, the symposium explored some of the management conundrums and misconceptions about a number of diseases in these subspecialist fields. The speakers also aimed to shed some light on the complex relationship between vitamin D and cardiovascular disease, skin cancer and the evolution of skin colouration.

HAIR AND NAILS

Professor Richard Anderson (Professor of Clinical Reproductive Science, University of Edinburgh) opened the symposium with a practical review of 'Hirsutism: view from reproductive endocrinology', in which the challenges of treating this debilitating condition were highlighted. The importance of patient self-perception of hair excess, above conventional scoring systems, was emphasised and was a reminder of the variability in phenotype of patients with polycystic ovarian syndrome (PCOS). The paucity of strong evidence supporting the use of pharmacotherapies in the treatment of PCOS remains apparent.

Dr Matthew Harries (Consultant Dermatologist, Salford Royal Hospital), followed with an informative lecture on the processes of abnormal hair loss. The common forms of both scarring and non-scarring alopecias were addressed in a variety of clinical cases. 'Location, location, location' was the answer to the question of why only some alopecias scar and was a reference to the contrasting positions of lymphocyte attack on the hair follicle in the two subtypes of alopecia. The loss of stem cells located in the hair follicle bulge depletes the follicle's ability to regenerate, as seen in the scarring forms of alopecia.[1] In non-scarring alopecias, the lymphocytic infiltrate is focused more towards the hair follicle bulb, which has a detrimental effect on hair shaft production but not the long-term functional capacity of the follicle unit.

Dr Sabine Sommer (Consultant Dermatologist, Leeds General Infirmary) provided an excellent tour through common nail disorders. The importance of culturing nails suspected of onychomycosis was strongly emphasised. Even after prolonged courses of antifungal agents, reculturing can be helpful due to the potential formation of dermatophytomas (fungal reservoirs) within the nail unit. Brittle nails are a complaint frequently encountered by dermatologists, with few effective remedies. It was encouraging to learn that biotin (vitamin B7) can be a helpful treatment when used for a minimum of six months.

INFECTION AND THE SKIN

Professor Judy Breuer (Professor of Virology, University College London) leads a team exploring the complex interaction between varicella zoster virus (VZV), responsible for chickenpox and shingles, and human epidermis. Using experimental data she demonstrated that VZV replication is dependent on maturation of host human skin cells. In return VZV dysregulates skin cell differentiation, with effects on cell adhesion molecules and increased expression of serine proteases which may promote the blistering seen clinically in VZV infection.

Skin is the most commonly affected organ in HIV-infected patients. Dr Richard Staughton (Consultant Dermatologist, Lister Hospital, London) reminded us that surprises and atypical presentations are the rule in HIV infection, and therefore the importance of biopsying any rash/lesion in an HIV positive individual for histology and culture prior to treatment. He illustrated this with multiple clinical photos of florid infection, examples of paradoxical increases in inflammatory skin disease despite immunosuppression, drug reactions and neoplasms seen in HIV positive individuals. The advent of highly active antiretroviral therapy (HAART) led to the emergence of immune restoration disease, an enhanced immunologic reaction at the site of disease due to improved T-cell function. This sometimes leads to worsening skin signs despite better HIV control.

ALLERGIES: TO TEST OR NOT?

Professor Sara Marshall (Professor of Clinical Immunology, Dundee) described the huge burden on services (4% of general practice consultations and 1.5% of hospital admissions) for which allergy now accounts, and highlighted that 48% of Scottish adults have no access to specialist allergy services. Guidance was therefore given on when to use tests such as complement testing, skin prick testing and quantitative specific immunoglobulin E (IgE) tests. She also described newer tests such as component resolved diagnostics, a variant of specific IgE testing identifying peptides rather than whole antigen and next generation microarray tests. Professor Marshall reiterated that despite the advances in technology, all diagnostic tests should only be used to support or exclude a specific allergy diagnosis, based on the patient's history.

Dr Ruth Sabroe (Consultant Dermatologist, Dewsbury District General Hospital) used three examples to illustrate how she treats difficult cases of urticaria. First-line treatments include avoidance of exacerbating factors, topical treatments targeted at symptomatic relief, and oral H1 antihistamines, which are expected to give a moderate to good response in 55% of patients. Second-line treatments include the addition of H2 blockers and leukotriene receptor antagonists, or doxepin (an H1 and H2 antagonist). There are many possible third line agents, including oral corticosteroids, calcineurin inhibitors, methotrexate and mycophenolate mofetil. The anti-IgE biologic omalizumab has been used successfully and appears to be effective regardless of IgE level. When patients do not respond to treatments then alternative diagnoses such as autoinflammatory disease must be considered.

SUN AND THE SKIN: HOW MUCH IS TOO MUCH?

Dr Miles Witham (Clinical Senior Lecturer and Clinical Scientist in Ageing and Health, University of Dundee) gave an enlightening lecture on 'Vitamin D – the new cardiovascular panacaea?'. Low circulating 25-hydroxy-vitamin D (25[OH]D) levels are common and associations with a variety of cardiovascular diseases are widely reported. The potential mechanisms for this are not well understood and the large body of observational studies linking vitamin D and cardiovascular risk factors does not appear to be supported by the smaller number of interventional studies. A recent study which used the genotyping of four loci associated with 25(0H)D levels in a cohort of diabetic patients, showed that 25(0H)D may have differential effects on different vascular beds, demonstrated by the lower rates of stroke in patients with a predicted low 25(0H)D level.[2]

Dr Colin Flemming (Consultant Dermatologist, Ninewells Hospital, Dundee) presented the robust evidence supporting the association between ultraviolet radiation and skin cancer. This correlation is different for all three of the major types of skin cancer. The link between intermittent intense sun exposure and malignant melanoma is of particular importance to the Scottish population. We were reminded of the strong supporting evidence from past migration studies and more recently the genome-wide association studies that have identified loci associated with increased risk of melanoma, which correspond with genes controlling pigmentation, freckling and cutaneous sun sensitivity.[3]

THE EVOLUTION OF SKIN COLOURATION

The symposium concluded with an inspiring and fascinating lecture from Professor Nina Jablonski (Distinguished Professor of Anthropology, Pennsylvania State University). The conflicting need to protect our skin against UV radiation while still exposing ourselves to enough sunlight to produce vitamin D has shaped the development of our skin over time. Professor Jablonski took the audience three million years back in time to describe the circumstances in which our ancestors began to lose hair, when eccrine sweat glands increased in density and when we developed permanent dark pigmentation. We learned that skin pigmentation has been a highly labile trait over time and dark pigmentation has evolved more than once throughout our history. See pages 58–63 of this issue.

TAKE-HOME MESSAGE

The symposium covered a wide variety of interesting subjects. Gaining even a small amount of insight into the evolution of our skin puts into context the pivotal role that this organ has played in the development of our physiology, its impact on our life expectancy and even on our reproductive capacity. Many questions regarding the complex role that vitamin D plays in our body remain unanswered, although the delicate balance between the need for ultraviolet radiation and the deleterious effects of an excess are apparent to all. One of the most striking themes of the day was the value that our historical record plays in today's medicine. From the earliest footsteps of Homo sapiens, to the migration of modern man across continents, we are still gaining important insights about our skin. We can also be hopeful that the prevalence of a number of skin diseases, such as those seen in the pre-HAART era, may now be committed to the historical record.

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