Topical calcitriol restores the impairment of epidermal permeability and antimicrobial barriers induced by corticosteroids

Hong et al. report that topical calcitriol restores both epidermal permeability and the antimicrobial barrier impaired by topical corticosteroids. This restoration is mediated both by an activation of the cutaneous vitamin D pathway and by an increase of epidermal lipids and antimicrobial peptides, promoted by the formation of the lamellar body and the activity of epidermal lipid synthesis-related enzymes (HMG-CoA reductase, serine-palmitoyl transferase and fatty acid synthase). It is suggested that topical coapplication of calcitriol with corticosteroids could aid in reducing the adverse effects of corticosteroid treatment on the epidermis. Br J Dermatol 2010; 162: 1251–60.

Immunosuppressive effect of prolactin-induced protein: a new insight into its local and systemic role in chronic allergic contact dermatitis

Prolactin-induced protein (PIP) has been shown to bind to CD4 and is speculated to block CD4–HLA-DR interaction. Sugiura et al. assessed the immunosuppressive effect of PIP in chronic allergic contact dermatitis (ACD) using a low-dose oxazolone-induced mouse chronic ACD model. A PIP peptide attenuated local chronic inflammation and exerted a systemic immunosuppressive effect, and extrinsic PIP peptide intensified the immunosuppressive role of intrinsic PIP. These findings suggest that PIP might have a local and systemic immunosuppressive effect in mouse chronic ACD. Br J Dermatol 2010; 162: 1286–93.

Histopathological characterization of primary cutaneous melanoma using infrared microimaging: a proof-of-concept study

Ly et al. present a preliminary study on infrared microimaging of primary melanoma samples. The objectives were to assess the potential of Fourier transform infrared (IR) spectroscopy for characterizing various melanoma types and to establish the feasibility of correlating imaging results with prognostic markers. Ten samples of melanoma from the main histological subtypes were imaged. This technique discriminated tumour areas from normal epidermis automatically, and intratumoral heterogeneity correlated with the aggressiveness of the tumour. Good correlation between IR clusters and dermopathological parameters was feasible, suggesting that this rapid and automated procedure could help in improving and optimizing the diagnosis of melanoma. Br J Dermatol 2010; 162: 1316–23.

Development and successful clinical application of preimplantation genetic haplotyping for Herlitz junctional epidermolysis bullosa

Fassihi et al. describe the development and successful application of preimplantation genetic haplotyping (PGH) for Herlitz junctional epidermolysis bullosa (HJEB) due to LAMB3 mutations. PGH—whole genome amplification followed by haplotype analysis—provides an effective novel approach to embryo diagnosis for single-gene disorders. A multiplex polymerase chain reaction-based PGH assay was established involving 16 markers within and flanking the LAMB3 gene (the most frequently mutated gene in HJEB). The assay was validated in 10 families with at least one previously affected offspring and was then used successfully, with the birth of the first baby following preimplantation genetic diagnosis in a couple at reproductive risk of HJEB. Br J Dermatol 2010; 162: 1330–36.

Modelling the seasonal variation of vitamin D due to sun exposure

Diffey has developed a novel mathematical model to estimate the annual variation in serum 25-hydroxyvitamin D [25(OH)D] as a consequence of sun exposure. Application of the model showed that current advice on daily sun exposure during the summer months does little in the way of boosting overall 25(OH)D levels, while sufficient sun exposure that could achieve a worthwhile benefit would compromise skin health. Instead it would seem safer to fortify more foods with vitamin D and to consider supplements while remaining focused on the detrimental effects of excessive sun exposure. Br J Dermatol 2010; 162: 1342–48.