ABSTRACTS

Epidemiology/Health Services Research

Using multivariable scaling (MDS) and hierarchical clustering, novices can subclassify basal cell carcinoma in a similar manner to expert dermatologists.

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Accurate visual identification of cutaneous malignancies by dermatologists relies little on medical knowledge or analytical rules; but instead on non-analytical pattern recognition (NAPR) in combination with a large personal library of examples developed through specialist training. We are interested if lay novices have intrinsic NAPR abilities that could allow them to classify skin cancers. 30 images of BCCs were randomly selected from the Department’s database. 41 lay volunteers, who had no medical background, were enrolled. The subjects were asked to make similarity assessments remotely over the Internet using a custom built software. The software displayed a sequence of 10 images, each screen having 2 upper target lesions and a set of 24 sample lesions below. For each screen the participants were asked to match between 0 and 6 sample images with the target lesions they considered most similar. Data regarding demographics and the structure of the scores were aligned along with the matches provided by the subjects. In total 2395 sample to target matches were performed. The resultant similarity scores were converted to a distance matrix and a 2D non-parametric MDS model with a Kruskal stress of 19.2% was derived. This demonstrated that novices could group the BCCs into distinct subgroups e.g. nodular, infiltrative, ulcerative, superficial. For a more objective analysis of the similarity scores, the spectral clustering algorithm of Ng was adapted to accept the data. Clustering was then performed hierarchically. The resulting configuration confirmed that novices could visually subclassify BCCs in a similar manner to that shown by the model novices. Novices with no background knowledge or specific education can subclassify BCCs in a way that is comparable to expert dermatologists, only on the basis of their intrinsic perception of lesions’ visual similarity. Strategies to exploit intrinsic NAPR should be investigated to improve non-experts’ skin cancer diagnosis.

Skin barrier abnormality due to FLG mutations is associated with increased serum 25-OH vitamin D levels

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Deficiency of the key epidermal filaggrin protein due to inheritance of mutations in the FLG gene affects 10% of the general population. The filaggrin metabolite uracil acetic acid contributes to photo-protection. We hypothesized that FLG mutations could be involved in the functional diversity of sun exposure and skin care with the help of 25(OH)D as a target genotype. A total of 10288 individuals aged 18-85 years were included in the study. The study included 22,072 whole exome sequences, 12,971 Illumina 1000 whole genome arrays, and 12,971 Illumina Human OmniExpress complete genome-wide SNP arrays. The results suggest that FLG and skin type are associated with skin disease and skin care. The data analysis reveals that FLG mutations are associated with higher vitamin D concentrations in Darius and German. Carrera et al. found that FLG mutations might have had evolutionarily heterogeneous advantage from favourable vitamin D status due to increased solar UVB penetration through the skin.

Clinical characteristics predicting Internal Neurofibromatosis in 357 Children with Neurofibromatosis type-1 results from a cross-sectional study


To identify clinical characteristics associated with internal neurofibromas in children with NF-1, as a means of ensuring the early identification of patients at high risk for malignant peripheral nerve tumour development from prenatal or neonatal neurofibromas. We used data from 2 NF-1 population databases, in France and North America. The French database comprised 1083 patients with NF-1 and the Neurofibromatosis Institute Database of North America comprised 703 patients. Patients younger than 17 years of age were eligible for our study if they had been evaluated for internal neurofibromas using computed tomography and/or magnetic resonance imaging. Clinical characteristics associated with internal neurofibromatosis in children with NF-1 are described.

The European TREatment of severe Atopic eczema in children Taskforce (TREAT) – a Pilot Study of European responses

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A subset of children with severe atopic eczema requires systemic treatment to induce and maintain disease control. There is a lack of evidence to support choice of agent. An online survey was conducted amongst members of the European Society of Pediatric and Adolescent Dermatology and Pediatric Dermatology in the United Kingdom, the French, Germany, Italy, the Netherlands, Denmark, Sweden and Spain. Consultant members were invited to participate. A total case scenario was included to standardise responses. We asked about 1st, 2nd and 3rd choice medication, dosing and duration of treatment. Further questions explored factors influencing choice of agent, use of guidelines and availability of specialist nurse input. 766 invitations were sent out and 44 were undeliverable and 27 replied that the survey was not relevant to their practice. 343 of the remaining 694 (49.4%) completed the survey; 306 (86.2% were dermatologists and 37 (10.0%) paediatricians. 244 (71%) initiate systemic therapy for children with severe atopic eczema and these were more likely to be dermatologists and those in university teaching hospitals. 1st line drugs of choice were cyclosporin (43.0%), corticosteroids (30.7%) and azathioprine (21.7%). 2nd line therapy differed: the most cited other used 2nd line medication was methotrexate (12.3%). With methotrexate most frequently ranked 3rd choice by 64 (22.2%); 53 (21.7% use mycophenolate mofetil, commonest 3rd choice. 100 (26.2% use national guidelines to direct use of systemic therapies in paediatrics. Support for efalizumab (1%) was low, although cyclosporin was the most commonly used 1st and 2nd line systemic, followed by corticosteroids, azathioprine and methotrexate. Although all 2 drugs appear efficacious based on clinical experience, a randomised controlled trial comparing systems in childhood atopic eczema is required.