Keynote Lecture by Howard Maibach

Clinical Challenge in Percutaneous Absorption

Professor Howard Maibach from University of California, San Francisco is one of the leading figures in dermatology in the world. His research in the fields of contact dermatitis, dermatotoxicology and dermatopharmacology has been groundbreaking. He has published over 1,200 refereed articles and over 200 textbooks. His articles have been cited over 29,000 times. Professor Maibach has given postdoctoral training in his laboratory in San Francisco for several Nordic dermatologists, including Jan Wahlberg, Klaus Andersen, Arto Lahti, Kaija Lammintausta and Peter Andersen.

His talk in Nordic Dermatology Congress was entitled "*Clinical Challenges In Percutaneous Absorption*", a topic that he has been working on for over 50 years. In his talk he described 15 determining factors for percutaneous absorption, related to local skin and systemic absorption of topically applied substances. These factors were (*i*) release from vehicle, (*ii*) kinetics of skin penetration, (*iii*) excretion kinetics, (*iv*) tissue disposition, (*v*) substantivity to skin, (*vi*) wash effects, (*vii*) rub effects, (*viii*) effect of clothing, (*ix*) exfoliation, (*x*) volatility, (*xi*) binding to skin layers, (*xii*) appendage effects, (*xiii*) lateral spread, (*xiv*) vascular perfusion and (*xv*) cutaneous metabolism. The talk highlighted the most important function of skin, acting as barrier between outside world and living body. Several conditions compromise this function and may cause several diseases from eczema to systemic toxicity and anaphylaxis.

Professor Maibach continues his research work in his laboratory and clinic and travels globally to give expert advice and lectures to various audiences, from dermatologists and toxicologists to government departments and international societies and expert groups.

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Leena Koulu and Howard Maibach at the Congress dinner.

Psoriasis and Comorbidities

Plenary Lecture by Jonathan Barker: From Genetic Discovery to Clinical Utility

Historically, attempts to identify susceptibility genes in common, complex diseases such as psoriasis have relied on a candidate gene approach. In general these have been unsuccessful in great part due to inadequate knowledge of disease pathogenetic mechanisms and small sample sizes. The explosion of genetic information created by the human genome mapping project and subsequent initiatives has led to development of methodologies that permit in a robust way detection of common genetic variants predisposing to many diseases. Such techniques have been applied with great success to psoriasis. These studies reveal multiple candidate genetic loci which cluster around specific mechanisms. These are: epidermal barrier candidate = LCE3, innate immunity (e.g. IFIH1, TYK2, TRAF3IP2) , antigen processing and presentation (ERAP-1 and HLA-C) and T-cell differentiation down IL23/IL17 pathway (IL23R, IL12B).

Interestingly there is overlap with other immune-mediated inflammatory disorders including inflammatory bowel disease and ankylosing spondylitis, and intriguing parallels with atopic dermatitis, another inflammatory skin disorder in which barrier defects and immune dysregulation are also important. There are also key differences with certain phenotypic variants of psoriasis. Pustular forms appear to have a different genetic background. In some patients this relates to mutations in an interleukin-1 family member termed IL36RN, which is not observed in plaque forms of the disease. These findings are also consistent with a number of clinical observations, including the association between interferon-α and flare of psoriasis and also explain why targeted therapies inhibiting TNFα and IL12/23 and IL17 are so effective. They provide important data on which to base future drug design, including small molecules. Currently it is unclear why there is variation in response of patients to specific drugs. Pharmacology is likely to play a key role, for example development of anti-drug antibodies. However, genetic heterogeneity is also likely to be involved raising the potential of genetic testing as a co-diagnostic with use of

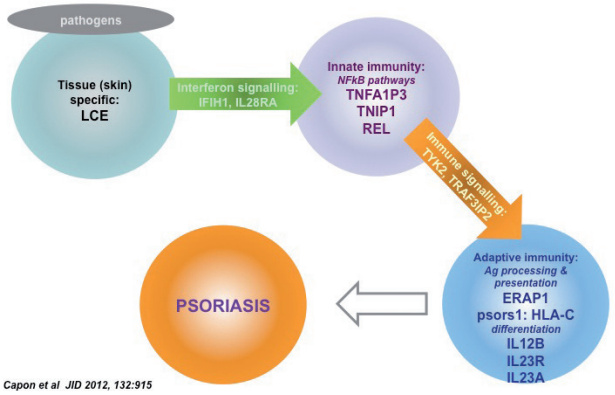

Fig. 1. Pathogenetic mechanisms in psoriasis: A genetic's viewpoint.