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Reports on Scientific Meetings

The Hong Kong Society of Dermatology and Venereology Annual Scientific Meeting 2011

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Date:	25-26 June 2011
Venue:	Sheraton, Hong Kong
Organiser:	The Hong Kong Society of Dermatology and Venereology

Management of scalp psoriasis: an Asian perspective

Speaker: Dr. Derrick CW Aw
Consultant, Department of Dermatology, National University Hospital, Singapore

Scalp is affected in more than 50% of patients with psoriasis. Scalp psoriasis causes mental and social impact to patients.

Treatment options for scalp psoriasis in Singapore include: topical, topical + systemic, topical + laser/light therapy. The efficacy, safety, usability and cost of various treatments: coal tar, antifungals, keratolytics, "Combo" ointment, olive oil, vitamin D3 analogue, steroid solution & foams, steroid shampoo, systemic treatment, biologics and laser/light were discussed. In particular, the efficacy and safety of a new fixed-dose combination regime of calcipotriol 0.005%/betamethasone dipropionate 0.05% gel was presented. Studies showed the gel had high efficacy, fast-acting and safe.

Management guideline on scalp psoriasis according to the European Consensus Panel was discussed. The severity of scalp psoriasis can be divided into mild, moderate and severe, based on the area affected, erythema, scaling, thickness and pruritus. For mild and moderate scalp psoriasis, there are four stages of management: descaling (by salicylic acid and urea), clearing (by topical steroid, topical vitamin D3 analogue, short-contact shampoo), stabilisation and maintenance. For severe scalp psoriasis, systemic therapy is indicated.

Learning points:

Topical therapy is the first-line treatment for scalp psoriasis, usually with a steroid and/or vitamin D3 analogue. In order to improve patients' compliance to treatment, physicians need to choose the right treatment in the right vehicle, provide clear instructions on how to use the drug, educate patients on realistic goals of treatment and communicate with patients from time to time.

Management of epidermolysis bullosa: an Australian perspective

Speaker: Dr. John Su
Head, Department of Dermatology, Box Hill Hospital, Australia

Epidermolysis bullosa (EB) is a rare skin disease causing skin fragility and easy blistering.

Epidermolysis bullosa can be divided into epidermolysis bullosa simplex, junctional EB and dystrophic EB. There are mutations affecting at least fourteen genes.

Multi-disciplinary approach is adopted in managing patients with EB. Dermatologist, paediatrician, nurses, nutritionist, dentist, social worker are the core members in taking care of EB patients. Sometimes, gastroenterologist, pain team, plastic surgeon, occupational therapist are also involved.

Wound care is important to EB patients as they suffer from chronic wound pain, scarring and discomfort. They are prone to wound infection and the development of squamous cell carcinoma. New wound dressing materials, control of pain, itch and infection by medication are vital in the management of EB.

New therapies for EB, e.g. gene replacement therapy, stem cell transplantation and injected allogenic fibroblasts or recombinant type VII collagen are under study with varying results. Currently, morbidity and mortality remain high in some forms of EB.

Learning points:

In managing EB patients, a multi-disciplinary approach should be adopted to improve patients' quality of life.

A dermatologist on the paediatric ward

Speaker: Dr. Henry HF Ho
Senior Medical Officer, Social Hygiene Service, Department of Health, Hong Kong

Providing consultations to paediatric patients is one of the most rewarding experiences in the practice of clinical dermatology.

A dermatologist can be asked to see children in a hospital for many reasons; among them the most common is being consulted for input on management of dermatoses. Atopic eczema is a common clinical condition which may require in-patient care. Dermatologists can give advice on the proper treatment, the appropriate potency, the duration and sequence of medications. We need to watch out for the complications of atopic eczema, as once recognized and appropriate treatment initiated rapid clinical improvement can be achieved. Commonly, parents had acquired some misconceptions over the pathogenesis and management of atopic eczema. Use of steroid, allergy test, diet restriction and supplement are common questions. We could take this opportunity to clarify such issues. Likewise, the opportunity for inpatient supervised treatment could demonstrate clinical effects to the parents so as to develop better rapport with them. For those very young patients who failed topical treatment and when systemic treatment are considered, input from paediatricians are valuable.

Apart from giving opinion on the management of a dermatological problem, dermatologists can often be asked to see a lesion or a rash for the diagnosis. The privilege of a dermatologist is that during their course of training, they have seen a wide variety of conditions in their different stage of diseases. One of the useful tricks to make appropriate diagnosis in paediatric ward is trying not to make spot diagnosis. Even if the diagnosis looks obvious, we can discipline

ourselves to list another five differential diagnosis, and then find reasons to support or to refute them one by one; this could reduce the chance of making wrong diagnosis. Another good practice is to talk to the referring paediatrician. This approach is going to surprise you by how much useful information you could achieve compared with just reading clinical progress.

Skin biopsy is one of the most useful diagnostic tools to dermatologists. Our dermatology knowledge guides us to do the skin biopsy at appropriate time and site and also when not to perform it. We should also thank our paediatric colleagues for helping to give sedation to young patients in hospital when necessary before skin biopsy.

Learning points:

We may be consulted by paediatricians for numerous reasons like providing opinions on common dermatomes and some diagnosis puzzles. Input from paediatricians is valuable in clinical history and sometimes we may need the assistance from paediatricians to give sedation before some dermatological procedures like before doing skin biopsy.

Dermatitis flammeus: an emerging infection-related complication of atopic dermatitis

Speaker: Dr. Johnny CY Chan
Medical Officer, Division of Dermatology, Department of Medicine, Queen Mary Hospital, Hong Kong

Atopic dermatitis (AD) is a major public-health problem in many developed countries. The lifetime prevalence ranges from 10% to 20% in children and 1% to 3% in adults. The worldwide prevalence of AD is further increasing over the past decades. Infections are common complications of AD, for example impetigo, furuncles, erysipelas, eczema herpeticum etc.

A new phenomenon was observed in a cluster of AD patients who were complicated with pemphigus-like superficial erosions with high rate of positive bacterial culture in early swabs.

A retrospective study of 20 patients with atopic dermatitis who presented with pemphigus like lesions was done from January 2008 to September 2010 in a tertiary hospital and a private dermatologist clinic. The objective was to review on their demographic patterns, clinical features, microbiological profile, treatment and prognosis.

Patients aged between 17 months to 52 years old (mean age 23 years old). The sex ratio was equal. The severity of AD ranged from mild to severe. The skin lesions had an identical triphasic progression (erythema, hyperpigmentation and erosions) in all cases, with symmetrical and flexural predominance. The most consistent symptom was pain. The erythematous phase presented as ill-defined bright red patches at the pre-existing eczematous lesions with excruciating pain. This commonly lasted for 1 to 2 weeks before evolving gradually into dark brown pigmentation (hyperpigmented phase), followed shortly by the erosive phase. After further 2 to 4 weeks lesions resulted in post-inflammatory hyperpigmentation. Serum anti-skin antibodies were positive in 4 patients with intercellular substance pattern. Superficial swabs were done within first week of onset of erosive lesions in 18 patients. Positive bacterial cultures were identified in 16 patients (80%) with involvement of Pseudomonas aeruginosa (38.9%) and Staphylococcus epidermidis (38.9%) respectively. Systemic second generation cephalosporin or anti-pseudomonal antibiotics and topical 2% mupirocin were used in all cases. Intravenous immunoglobulin was used in selected cases with widespread skin involvement. Complete resolution was seen in all cases, but recurrence rate was 35%. Positive culture for Pseudomonas aeruginosa was

associated with extensive erosions and hospitalization, but the pathogenic role of Pseudomonas aeruginosa is not yet clear.

Learning points:

A novel phenomenon "dermatitis flammeus" characterized by a triphasic progression from erythema to hyperpigmentation to erosion accompanied with pain was found in a group of AD patients. Pseudomonas aeruginosa may be one of the aetiologies.

Neonatal erythroderma

Speaker: Dr. Chi-keung Yeung
Associate Consultant, Division of Dermatology, Department of Medicine, the University of Hong Kong, Hong Kong

Neonatal erythroderma is a paediatric dermatological emergency. Patients present with generalized erythema covering the whole body surface with significant physiological upset. They are prone to sepsis, dehydration, hypothermia and failure to thrive. Important differential diagnosis includes acute dermatitis, seborrheic dermatitis, disorders of cornification and primary immunodeficiency. Less common causes include psoriasis, metabolic disorders, drug hypersensitivity and diffuse cutaneous mastocytosis. Netherton syndrome typically presents with erythroderma, recurrent sepsis, failure to thrive, raised total IgE and multiple positive specific IgE with atopic tendency, hair abnormalities and high mortality in the first year of life.

Neonatal erythroderma accompany with pustules is an unusual condition which can by caused by acute generalized psoriasis. Cutaneous infections, especially bacterial infections by *Staphylococcus aureus*, disseminated herpes infection and candidiasis need to be considered in this scenario. Ichthyosiform disorders can sometimes present with intermittent pustules with background erythema. Making the correct diagnosis is an important step in management. Septic workup including blood culture and skin swab is useful to detect infectious causes. Skin biopsy is a usual tool for diagnosis. More precise and earlier diagnosis can be achieved nowadays with the advance in molecular testing and immunohistochemical staining.

Patient management includes supportive therapy with adequate fluid replacement and regular use of moisturizing bath and ointment-based emollients. When using topical medications like salicylic acid and corticosteroids, special precaution is required in view of the large surface to volume ratio and increase percutaneous penetration in erythrodermic state. Use of antibiotics is often needed to cover secondary infection. Nutritional support to replenish energy requirement is needed. Genetic counseling and family support is also essential.

Systemic retinoid like acitretin may be used in certain erythrodermic conditions like psoriasis and ichthyosis, but in the case of Netherton syndrome we need to be extra cautious.

Learning points:

Neonatal erythroderma is a dermatological emergency. Common causes include acute dermatitis, seborrheic dermatitis, cornification disorders and primary immuno-deficiency. Intensive supportive therapy is needed. Use of systemic retinoids may be needed in psoriasis and ichthyosis but we need to careful when using systemic retinoids in Netherton syndrome.

Cutaneous manifestations of paediatric connective tissue disorders

Speaker: Dr. Tsz-leung Lee
Associate Consultant, Department of Paediatrics and Adolescent Medicine, Queen Mary Hospital, Hong Kong

Various childhood connective tissue disorders (juvenile idiopathic arthritis, lupus erythematosus, juvenile dermatomyositis, childhood vasculitis, scleroderma) and hereditary autoinflammatory syndrome were discussed. Four warning signs of childhood rheumatic diseases include joint swelling or persistent joint pain, persistent non-itchy erythematous skin rash, muscle weakness and prolonged or recurrent fever.

The two forms of juvenile idiopathic arthritis (JIA) which present with skin manifestations are systemic onset JIA and psoriatic arthritis. Children with systemic onset JIA will present with transient rash, daily fever, arthritis, enlarged lymph nodes and serositis. The rash occurs during the peak of fever and resolved without pigmentation as fever subsided. Patients with psoriatic arthritis presents with psoriasis, nail involvement, dactylitis and distal interphalangeal joint involvement.

Cutaneous manifestations of systemic lupus erythematosus (SLE) include malar rash, urticarial like rash, alopecia, painless oral ulcer (usually in upper palate), etc. Malar rash occurs in only one-third of patients at disease onset. Discoid rash occurs less commonly in children with SLE compared to adult patients.

Patients with juvenile dermatomyositis present with malar rash, Gottron's papules, heliotrope rash, photosensitivity, nailfold capillary changes, calcinosis and lipodystrophy. The diagnosis can be confirmed by muscle biopsy.

Childhood vasculitis is classified by the size of vessels involved. Large vessel vasculitis include Takayasu arteritis; medium vessel vasculitis include childhood polyarteritis nodosa, Kawasaki disease; small vessel vasculitis include Wegener's granulomatosis, Churg-Strauss syndrome. Children with Kawasaki disease presents with cervical lymphadenopathy, bilateral non-exudative conjunctivitis, strawberry tongue, polymorphic rash, swelling and skin peeling of extremities.

Chronic infantile neurologic cutaneous articular syndrome (CINCA) is a subtype of hereditary periodic fever syndromes. CINCA is characterized by urticarial eruption since birth, papilloedema, headache with cerebral vasculitis and joint involvement.

Syndromal disorders associated with severe acne include PAPA syndrome (pyogenic arthritis, pyoderma gangrenosum and acne) and SAPHO syndrome (synovitis, acne, pustulosis, hyperostosis and osteitis).

Learning points:

Skin can act as a visible organ for the diagnosis and monitoring of connective tissue diseases. A careful examination of the skin and mucous membranes may demonstrate signs which aid in the diagnosis and early treatment of these disorders.

Pathogenesis of atopic dermatitis: an immunological perspective

Speaker: Dr. John Su
Head, Department of Dermatology, Box Hill Hospital, Australia

The relationship between atopic eczema, atopic sensitization and food allergy were discussed. Influential paradigms for the current understanding of the pathogenesis of atopic diseases include the hygiene hypothesis and the atopic march hypothesis.

The hygiene hypothesis postulates that the lack of early exposure to microbial antigens results in weakened Th1 immunity which increases Th2 driven atopic diseases. The possible preventive role of probiotics seems to support this hypothesis. However, Th2 polarization may itself impair host defences. Furthermore, pathogenic bacteria such as staphylococcus aureus not only directly act through released enzymes to exacerbate eczema, but also act as superantigens. Further studies are required to clarify the complex interplay between microbes and the immune pathways.

The atopic march hypothesis proposes that early eczema itself predisposes to subsequent sensitization and the later development of asthma and allergic rhinitis. The discovery of filaggrin mutations related to eczema supports a structural basis for the disease. Filaggrin mutations appear to interact with food sensitization in predicting the development of asthma, which supports this hypothesis. However, filaggrin mutations seem to underscore half of children with moderate and severe eczema and only 15% of those with mild disease. Other possible ultrastructural anomalies need to be explored.

Food allergy is more prevalent amongst children with moderate and severe atopic eczema. Food hypersensitivity is characterized by objective reproducible symptoms or signs initiated by exposure to a defined food, at a dose tolerated by unaffected persons. It includes both food allergy (immune mediated by IgE, non-IgE, or mixed pathways) and food intolerance (non-immune mediated). Eight food allergens are common in Australia: egg, milk, peanuts, tree nuts, fish, shellfish, wheat and soybeans. IgE mediated allergy usually presents within 2 hours of ingestion. Features include erythema, urticaria, angioedema, vomiting, diarrhoea, abdominal cramps, airway symptoms, floppiness in infants and hypotension. Non-IgE mediated reactions are less distinct and may present with unsettling of eczema over the next day(s). Important details in the history include nature of the allergen, method of cooking, amount of allergen ingested/contacted, person cooking the food, first or subsequent exposure, time before onset of symptoms and personal/family history of atopy. The results of investigations are interpreted alongside the clinical findings and therefore random testing of children may lead to unhelpful results. Skin prick tests (SPT) offer a rapid and visible result with better sensitivity than IgE radioallergosorbent (RAST) tests despite a small risk of non-allergic and allergic reactions. Although a positive test (>=3 mm above saline control) has a high sensitivity (75-90%), it has a poor specificity (30-60%) with false positive results. A strong positive (>8-10 mm) is more clinically relevant. Although a negative test has a high negative predictive value, it does not exclude non-IgE allergy. RAST tests must be interpreted responsibly given the problem of false positives and should only be done when clinically indicated. Double blinded placebo controlled oral food challenge remains the gold standard. Clinically indicated allergens should be avoided. Dietary nutritional adequacy should be examined and retesting performed usually in 6-24 months. Nut, fish and shellfish allergies will more likely persist. If there is concern about increased risk of anaphylaxis, appropriate education and supply of Epipen may be indicated.

Learning points:

The pathogenesis of atopic dermatitis may be explained by the hygiene hypothesis or the atopic march hypothesis. Food allergy testing (SPT/RAST) has poor specificity and should be performed only if clinically indicated and interpreted with care.

Psychological disturbances and their associations with high risk behaviours in social hygiene clinic attendees

Speaker: Dr. Angelina WM Au
Dermatologist, Private Practice, Hong Kong

Sexually transmitted infection (STI) is not only a public health concern, it also imposes psychological morbidities including depression and anxiety to STI clinic attendees as shown in foreign studies. A self-administered questionnaire study recruited 374 patients attending 2 Social Hygiene clinics in the New Territories. The study employed Hospital Anxiety and Depression Scale (HADS) and 4 questions on high risk sexual behaviours including multiple sexual partners; trading money or drugs for sex; not using condom regularly; not using a condom during last sex. Using a HADS threshold of 8, 57.3% and 46.4% of the subjects had anxiety and depression respectively. If a higher threshold HADS of 11 was used, there were still 27.1% and 15.9% of the subjects having anxiety and depression respectively. This figure was much higher than patients with HIV and was comparable to those having breast carcinoma on adjuvant therapy. Concerning association with risky behaviours and STI diagnosis, depression was associated with trading money or drugs for sex but not with multiple sexual partners, inconsistent condom use or an increased of STI diagnosis. In contrast, anxiety was not found to be associated with any of the above high risk behaviours or increase of STI diagnosis.

Learning points:

Depression and anxiety are highly prevalent in social hygiene clinic attendees, more awareness of their psychological suffering and early referral of those with psychological symptoms would be essential.

Clinical factors affecting treatment outcomes of methotrexate in patients with moderate-to-severe plaque psoriasis

Speaker: Dr. Steven KF Loo
Dermatologist, Private Practice, Hong Kong

Methotrexate (MTX) is a standard systemic treatment in moderate-to-severe psoriasis worldwide. The proposed mechanisms of action include: immunosuppressive effects, anti-inflammatory effects and inhibition of epidermal proliferation. Nevertheless, use of MTX is limited by the unpredictable variation of efficacy and side effects.

A study was carried out to evaluate the efficacy and safety of MTX in local patients suffering from psoriasis, as well as to identify the relevant clinical factors that may affect the treatment outcome.

In the 20-week prospective observational study, 72 consecutive patients with moderate-to-severe psoriasis receiving MTX were recruited in Tuen Mun Social Hygiene Clinic between 1st October 2007 and 31st March 2009. Demographic data and cardiometabolic risk factors were compared between treatment responders (at least 75% improvement in psoriasis area and severity index [PASI 75]) and non-responders.

Sixty-one patients (61/72, 84.7%) completed the 20-week study and 32 of them (52.5%) achieved PASI 75 at week 20. Minor side effects were common (37/72, 51.3%) while most of the patients tolerated the treatment (61/72, 84.5%). Serious side effects (liver enzyme ALT elevated above two times of upper normal limit) were infrequent (2/72, 2.8%).

They had high prevalence of obesity [body mass index ≥25 kg/m^2] (58.3%) and metabolic syndrome (MES) (48.6%). The mean baseline C-reactive protein (CRP) was in the range of high cardiovascular risk (3.1±1.8 mg/L). Presence of MES ($OR_{Multivariate}$=4.9, 95% CI:1.3-18.4, p=0.02), CRP ≥3 mg/L ($OR_{Multivariate}$=5.9,

95% CI:1.6-22.5, p=0.008) and age of disease onset ≤50 years old ($OR_{Multivariate}$=8.9, 95% CI: 1.4-55.7, p=0.02) were independently associated with the non-responders.

The study revealed that MTX was an effective treatment in our local patients with psoriasis with PASI 75 of 52.5%. Age of disease onset younger than 50 years old, presence of MES and baseline CRP level greater than 3 mg/L are independent predicting factors for the treatment outcome of MTX. Optimizing the components of MES and reduction of systemic chronic inflammation may be beneficial to the treatment of psoriasis. Pharmacogenetic studies may allow personalized therapy of MTX in future.

Learning points:

MTX is effective in local psoriatic population with tolerable side effect profiles. The management of psoriasis provides us opportunity in proactive screening of cardiovascular risk factors as holistic patient care.

Prevalence and risk factors for sexually transmitted infections among female sex workers in Hong Kong

Speaker: Dr. Shiao-yi Wong
Dermatologist, Private Practice, Hong Kong

A cross sectional prospective study was conducted from March 2009 to July 2009 in order to study various socio-demographic and behavioural risk factors for sexually transmitted infections (STIs) among local female sex workers. 201 female sex workers attending 2 major social hygiene clinics were recruited in this study.

The age of the patients ranges from 21 to 59 years old and with a mean of 35 years old. About 98% of subjects were Chinese and more than half of them were immigrants. The mean age of sex debut was 18.6 years old and the mean time in sex industry was 3.2 years. There were 81% of female sex workers who always used condoms in vaginal sex, 45% in orogenital sex and 29% in anogenital sex.

This study found that non-specific genital infections (44%) were the most common sexually transmitted diseases among the female sex workers, followed by Chlamydia trachomatis (5.5%) and syphilis (10%). There were 50.7% of female sex workers having one or more STIs.

In this study, age, education level, ethnicity, marital status and condom use were not shown to be associated with increased risks for STIs.

Learning points:

This study showed that sexually transmitted diseases were common among female sex workers in Hong Kong, more resources should be put on STI screening, education and behavioural surveillance.

The skin barrier dysfunction in atopic dermatitis – a clinical perspective

Speaker: Dr. Mark BY Tang
Consultant, National Skin Centre, Singapore

Atopic dermatitis (AD) is a chronic relapsing inflammatory skin condition characterized by skin redness (skin inflammation), dryness and itchiness. Skin barrier defect had been shown to play a key role in the initiation of AD.

The mutations within filaggrin (FLG) gene have been implicated as the strongest genetic risk factors for AD. FLG mutations are population specific, there are distinct Asian FLG mutations. It is inappropriate and inefficient to use European studies for assessing Asian population. A comprehensive FLG genetic analysis of more than 300 Singapore Chinese patients with AD was carried out. More than 30 FLG mutations

and several novel FLG null mutations were identified. FLG mutations were associated with early onset of AD, higher SCORAD, more use of systemic steroid and increased risk of infection.

As skin barrier dysfunction plays an important role in the pathogenesis of AD, barrier repair is fundamental for optimal management of AD. This can be achieved by a good moisturizer which is more than just water. A good moisturizer should be barrier friendly-no wash out effect, barrier repair-lipid dominant e.g. ceramide-dominant and barrier enhance-containing active ingredient e.g. N-palmitoylethanol amide (PEA) which has anti-inflammatory effect that can decrease itchyness.

Learning points:

The skin barrier dysfunction plays a key role in the initiation and perpetuation of AD. Barrier repair is fundamental for optimal management of AD.

Innovation in the therapeutic skin care for atopic dermatitis

Speaker: Dr. Eszter Baltas
Department of Dermatology and Allergology, University of Szeged, Hungary

The prevalence of atopic dermatitis (AD) doubled or tripled during the past three decades and increase continuously worldwide. The diagnosis of the disease is based on the clinical presentation and on case history. Both parents and children should be educated about the avoidance of triggering factors and about the role of skin care. Skin barrier dysfunction, which can be in the form of pH alteration, antimicrobial defense disturbance, decrease in all lipid e.g. ceramides or decrease in natural moisturizing factors (NMF) acts as the fundamental role in the pathogenesis of AD. Ceramides are important for stratum corneum cohesion that form an impermeable barrier and maintain cutaneous hydration. Its metabolites have antimicrobial actions also. Therefore, decrease in ceramides would lead to increase in tranepidermal water loss (TEWL) that would initiate and perpetuate AD. Clinical studies have shown that specific skin care products e.g moisturizer and body wash can help to control AD effectively. For moisturizer, the principle of occlusion, humectants and emollient form the central role of stratum corneum maintenance. Moisturizer that contains occlusive agent e.g. petrolatum, Stearyl alcohol, etc, humectants e.g. glycerin, propylene glycol, etc, emollient e.g. dimethicone, aluminium hydroxide can achieve rapid and effective disease control with decrease in TEWL that decrease dryness and itchiness of skin. A good body wash should bring about effective cleansing without skin damage. Body wash with hygroscopic properties e.g. pyrrolidone carboxylic acid (PCA) which are part of the natural moisturizing factor can help increase skin hydration and hence reduce erythema, dryness, roughness and itchiness of skin.

Learning points:

Skin care plays an important role in the management of AD. Some specific skin care products can help to improve the quality of life and treatment outcome for AD patients.

Staphylococcus aureus and atopic dermatitis

Speaker: Dr. Mona LS Chiu
Dermatologist, Private practice, Hong Kong

Atopic dermatitis (AD) is a common chronic inflammatory skin disease. Its lifetime prevalence ranges from 1% to 3% in adults and 10% to 20% in children. The prevalence in school children is estimated to be around 15% in Hong Kong.

Environmental factors have an essential role in the immuno-pathogenesis of atopic dermatitis. *Staphylococcus aureus (S. aureus*) colonization is one of the most common and important

environmental triggers. The clinical severity of atopic dermatitis correlates well with *Staphylococcus Aureus* colonization. *S. aureus* can produce super-antigens which can lead to the increased cutaneous inflammation in AD though several mechanisms. Firstly, they can interact with the major histocompatibility complex class 2 molecules and the β-chain of the T-cell receptor to induce T-cell proliferation and activation of the inflammatory cascade, without the need for antigen-presenting cells. Secondly, superantigens increase the expression of cutaneous lymphocyte-associated antigen on T cells and the production of numerous keratinocyte derived chemokines which can increase T-cell recruitment into the skin. Lastly, super-antigens can give rise to the development of resistance to local corticosteroid therapy.

Ninety percent of patients with moderate to severe AD are colonized with *S. aureus* compared with one-third of the general population. Two major factors are responsible for the increased carriage of *S. aureus* in AD patients, the defective skin barrier function and compromised innate skin immunity. There is decreased level of ceramides in the stratum corneum of AD skin. The reduction in ceramides can lead to an increase in transepidermal water loss and ultimately leads to dry, cracked skin. Moreover, the expression of barrier proteins like filaggrin, involucrin and loricrin are reduced in AD patients, resulting in defective skin barrier. Cathelicidins and β-defensins are inducible antimicrobial peptides with antimicrobial activities against viruses, fungi, and bacteria including S. aureus. Cathelicidin LL-37 and human β-defensin 2 levels are reduced in AD patients. The impaired skin immunity together with the defective skin barrier makes skin of AD patients prone to *S. aureus* infection.

A recent study in Hong Kong found that there is an increase in nasal carriage of *S. aureus* among close contacts of AD patients compared with normal control. It is postulated that close contacts and the living environment of the AD patients may serve as a reservoir of *S. aureus* that can contribute to re-colonization of *S. aureus* in AD patients.

Learning points:

Staphylococcus aureus is a common environmental trigger for atopic dermatitis. Clinical severity of AD correlates well with *Staphylococcus aureus*. Recent study has found there is increase in nasal carriage of *Staphylococcus aureus* among close contacts of AD patients in Hong Kong.

Update on acne therapy

Speaker: Dr. Derrick CW Aw
Consultant, Department of Dermatology, National University Hospital, Singapore

Acne vulgaris is a chronic disease as it has a pattern of recurrence and relapse, prolonged course and psychological disturbance to patients. There has been an increased knowledge on pathophysiology of acne vulgaris recently. There is evidence showing that inflammatory events may precede hyperkeratinization. In addition, sebaceous glands may act as neuroendocrine organs that can coordinate and execute local inflammatory responses to stress thus affect normal functions. It has also been shown that oxidized sebum can stimulate keratinocyte hyperproliferation.

Antibiotics resistance has become an important issue in recent decades. The emergence of resistant strains of *propionibacterium acnes* is associated with the use of erythromycin, clindamycin and tetracycline. Therefore, every effort should be made to prevent the development of resistance. If systemic antibiotics are needed, they should not be used alone but in combination with topical retinoid or benzoyl peroxide. When there is no or only slight improvement in treatment response, we should consider stopping the systemic antibiotics after a trial of 2-3 months. Topical and systemic antibiotics should be avoided using together as this might lead to the development of resistance.

The combination of topical 0.1% adapalene and 2.5% benzoyl peroxide gel has been shown to

improve patient compliance, reduce lesion count and speed up the onset of action. This combination demonstrates a synergistic effect since the final efficacy of adding both components is greater than the sum of individual component when used separately. This can be explained by the fact that adapalene and benzoyl peroxide can both facilitate the absorption of one another.

Blue light therapy is effective for acne patients who can not use or not tolerate systemic therapies e.g. pregnant ladies. However, the main drawback is high relapse rate after stopping.

Learning points:

New knowledge on pathophysiology of acne gives us a better understanding on how to approach patients with acne. Antibiotics resistant *propionibacterium acnes* has become more and more common and there are measures in the treatment to help fight against it. Adaplene and benzoyl peroxide exert synergistic effect which can increase the therapeutic efficacy.

Update on psoriasis

Speaker: Dr. Diamant Thaci
Senior Consultant, Department of Dermatology, Johann Wolfgang Goethe University, Germany

Psoriasis is a chronic inflammatory dermatosis. It affect not only skin and nail, but also joint in 5-30% of patients. Moreover, patients with this chronic inflammatory condition are at higher risk of diabetes mellitus, hyperlipidaemia, hypertension and coronary artery disease.

Various treatment modalities are available for treating psoriasis, and management of psoriatic patients should be individualized. Treatment modalities can be broadly classified into topical and systemic agents. Topical treatment like keratolytics, steroid and vitamin D analogue can be used for localized disease without associated arthritis. For moderate-to-severe disease, systemic treatment include phototherapy, immunosuppressant and biologics are usually required. However, these agents are usually associated with systemic side effects.

With better understanding of the aetiology of psoriasis, tumor necrosis factor alpha (TNF-α) is believed to play a central role in the pathogenesis of psoriasis. Emerging evidence also showed that TNF-α antagonists to be one of the most effective measures in treating psoriasis. Currently three TNF-α antagonists are available for use in psoriasis, which include infliximab, etanercept and adalimumab. Infliximab and adalinumab were shown to be highly effective in treating psoriasis with relatively rapid onset. However, the efficacy declined with continuous use of infliximab while adalimumab had a relatively steady response. Etenercept had been studied in childhood psoriasis and showed promising results. Apart from its promising results in treating psoriasis, TNF-α antagonists had also been shown to reduce risk of myocardial infarction.

According to guideline proposed by British Association of Dermatologists in 2009, biologics can be considered in patients who have severe cutaneous disease (body surface area $>10\%$) with or without joint involvement, and either cannot tolerate or unresponsive to phototherapy and other systemic agents. Infliximab and adalimumab are the treatment of choice if rapid disease control is preferred. Ustekinumab, which is an interleukin -12 and -23 antagonists, is reserved as second line treatment when the patients fail all TNF-α antagonists. Biologics can be used in combination with other treatment modalities like topical agent, phototherapy, and systemic agents like methotrexate. However, concomitant use of biologics and azathioprine is not recommended, as it was shown to increase risk of lymphoma. Side effects of biologics included severe infection, reactivation of tuberculosis, demyelination, heart failure and lymphoma. To date, there is no reported case on lymphoma in psoriatic patients receiving biologics.

Learning points:

Biologics have shown promising results in treating psoriasis. However, long term studies might be needed to better delineate its safety profile.

Melanin and skin pigment

Reported by Y Chan 陳湧

Date:	3 June 2011
Venue:	Pearl Ballroom, 2/F, Eaton Smart, Hong Kong
Speaker:	Prof. John A McGrath Professor of Molecular Dermatology and Head of the Genetic Skin Disease Group, St John's Institute of Dermatology, King's College, London
Organiser:	The Hong Kong Society of Dermatology and Venereology

Melanin production, new understanding in the different genetic basis of dyschromia, tanning and skin lightening products were discussed.

Melanin is the primary determinant of skin, hair and iris color. It is produced by melanocyte which is originated embryologically from the neural crest. One melanocyte is sufficient to supply 30-40 surrounding keratinocytes. Diseases affecting neural crest, melanocyte and keratinocyte may give rise to different pigment disorders like piebaldism, occular-cutaneous albinism and Chédiak-Higashi syndrome respectively

Pheomelanin (red/yellow polymer) and eumelanin (brown/black polymer) are the two main types of human melanin. Tyrosinase is crucial in their biosynthetic pathway from tyrosine to dopa-quinone. Enzyme deficiency within the pathway forms the basis for different skin color and disorders of pigmentation. One example is MC1R (Melanocortin 1 receptor), its activation causes the melanocyte to switch from generating pheomelanin to eumelanin. Thus, its gene mutation causes red hair phenotype. Other MC1R variants are separately linked to freckles, sunburn tendency. Another example is SCL24A5, a putative cation exchanger involved in melanogenesis. It was noticed that a single amino acid substitution at position 111 may account for up to 40% of all skin melanin differences. Besides skin colour, this particular gene may also determine the number of naevi and the risk of melanoma.

More understanding in tanning suggested the change in skin tone is based on DNA damage after UV, which activate p53, then stimulate α-MSH (α-melanin stimulating hormone) and subsequently tyrosine which would increase melanin transfer. Research had been done in α-MSH for its role in photoprotection which is essential for area with high skin malignancy like Australia. Synthetic α-MSH had been found to increase skin melanin level 40% with the reduction of UV skin damage by 50%. However, it can lead to side effects like nausea, vomiting, fatigue or flushing.

In contrast, skin lightening products aimed at inhibiting tyrosinase activity like glutathione which is popular in Philippines.

Learning points:

Advances in technology and molecular understanding of melanin production enable better insight in pathogenesis of different dyschromia and hopefully treatment.