The Fourth Chinese University Dematology Symposium 2007

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Organisers: Department of Medicine & Therapeutics and Department of Paediatrics, The Chinese University of Hong Kong; Centre for Health Protection, Social Hygiene Service, Department of Health, Hong Kong

Prevention of occupational skin diseases

Speaker: Dr. Kwok-po Ng
Occupational Medicine (Health Promotion), Division of the Occupational Safety and Health Branch, Labour Department, Hong Kong

Occupational skin diseases are important as they are common and cause much morbidity to worker. Fortunately, they are rarely life threatening. Contact with chemical substance is the most common cause of occupational skin diseases.

There are 51 notifiable occupational diseases specified in Schedule 2 of the Occupational Safety and Health Ordinance in Hong Kong. They are eligible for compensation under legislations. Some of them are skin-related, such as inflammation or ulceration produced by dust, liquid or vapour, occupational vitiligo and primary epitheliomatous cancer of the skin. The Labour Department of Hong Kong confirmed a total of 2,327 cases of the occupational diseases from 2000 to 2006, of which 105 cases were occupational dermatitis, accounting for 4.5% of the total cases. The most common causative agents include cleansing agents, organic solvents, paints, food additives and cement.

Prevention of occupational diseases is important and it involves a multi-disciplinary approach. It includes elimination of the cause of disease, screening and early detection, use of suitable personal protective equipment, education, training and supervision of workers. All of the occupational skin diseases are preventable theoretically.

Learning points:
Occupational skin diseases are common with contact dermatitis being the most prevalent. Multi-disciplinary approach is the key to management as they are theoretically preventable.

Herbal pharmacology in skin diseases

Speaker: Professor Thomas YK Chan
Department of Medicine and Therapeutics, Faculty of Medicine, The Chinese University of Hong Kong, Prince of Wales Hospital, Hong Kong

Herbal medicines are more popular nowadays. Patients often use herbal medicines as an alternative to prescription drugs for diseases where effective treatment is lacking, for certain chronic conditions like eczema and psoriasis, and for natural skin care including whitening and anti-aging. As a physician, one should be aware of the current approaches to the use of herbal medicines, the studies of such medicines in man

and animals, and to identify herbal medicines as a potential source of new drugs.

The use of cosmeceuticals containing herbal medicines is increasing. However, scientific proof is still lacking currently. We should bear in mind the possible adverse cutaneous reactions to herbal medicines, which include allergic and irritant contact dermatitis. Herb-drug and herb-herb interactions are also possible. Physicians should always ask patients with dermatological problems regarding their use of herbal medicines because of the possible adverse effects and unproven effectiveness.

Learning points:
Herbal medicines have become increasingly popular. Their uses in skin diseases and as cosmeceuticals are common among dermatology patients and the general population. However, very few of these products are supported by evidence-based science. As a physician, one has to be aware of the scientific rationale behind their use and the possible adverse effects.

Use of Chinese medicine in skin diseases: safety, toxicity and evidence-based approaches

Speaker: Miss Teresa MS Ngan
Chief Pharmacists Office, Hospital Authority Head Office, Hong Kong

In the advent of the increasing popularity and evidence of efficacy in the use of Chinese medicine in treating various skin disorders, the Hospital Authority commenced the establishment of Chinese medicine (CM) clinics in 2003.

Research projects on skin diseases are conducted at the local level by the CM clinics, some of which are working in collaboration with Western practitioners, and academic institutions. HA also started a systematic review on some of the herbs well known to be used for the treatment of psoriasis and eczema. Their pharmacology, efficacy, side effects, toxicity and possible herb-dug interactions are being reviewed from a Western pharmacists' perspective. Standard operation procedures in procurement and quality control are laid down and followed.

HA CM clinics are also equipped with the latest information technology to facilitate the collection and storing of useful information in a databank useful for both Western and Chinese practitioners.

Learning points:
HA CM clinics adhere to high standards of safety and evidence-based approach in research and are an important asset in the future of treatment of skin diseases.

Chronic wounds: why some heal and others don't? – psychosocial determinants of wound healing

Speaker: Professor Irene KY Wong
The Nethersole School of Nursing, Faculty of Medicine, The Chinese University of Hong Kong

Wound problems are present in almost all aspects of healthcare. Persistence and recurrence of chronic wounds not only implicate substantial resource utilisation and cost, but also directly affect patients' quality of life.

According to a study conducted locally by the speaker, pain, immobility and lack of leisure activities are the commonest reported problems affecting the daily living of patients with chronic wounds. Moreover, psychosocial problems such as feelings of helplessness, lack of control, diminished human interactions also induce stress and anxiety. All these may in turn contribute to delay in wound healing.

Learning points:
Psychosocial problems contribute to delay in healing of chronic wounds. Increase in awareness in the management of the psychosocial aspects in the care of these patients may result in better outcomes.

Bullous dermatosis: what we must know

Speaker: Dr. Hing-fung Ho
Senior Medical Officer, Social Hygiene Service, The Department of Health, Hong Kong

Pemphigus is a group of autoimmune blistering diseases of skin and mucous membranes that are characterised histologically by intraepidermal blisters due to acantholysis, and immunopathologically by in vivo bound and circulating immunoglobulin G (IgG) directed against the cell surface of keratinocytes. Pemphigus can be divided into four major subtypes: vulgaris, foliaceus, paraneoplastic, and IgA pemphigus. In pemphigus vulgaris (PV), blisters occur in the deeper part of the epidermis, just above the basal layer. The hallmark of pemphigus is the presence of IgG autoantibodies against the cell surface of keratinocytes.

To confirm the diagnosis, skin biopsy should be done on early blister, preferably within 48 hours of its onset. The specimen should be sent for histopathology and immunoflourescence study. Titer of the circulating anti-skin antibody should be determined at the onset of treatment and can be used for disease monitoring.

Treatments for pemphigus include topical and systemic corticosteroids and immunosuppressants. Systemic glucocorticosteroid is the mainstay of therapy. Its introduction has decreased the mortality of pemphigus vulgaris from 50% to 5%. However, potential side effects from prolonged courses of systemic corticosteroid need to be closely monitored. Immunosuppressive agents, such as mycophenolate mofetil, azathioprine and cyclophosphamide all have steroid-sparing effects. Another potentially effective therapy for refractory pemphigus is the monoclonal anti-CD20 antibody (Rituximab). In pemphigus patients, this monoclonal antibody targets B cells, which are the precursors of antibody-producing plasma cells. Improvement is usually seen within 1 to 2 months after the start of therapy. However, serious infections and other adverse effects are possible. Overall, the choice of treatment regimen need to be individualised according to the disease severity, patient's expectation and physician's experience.

Learning points:
Pemphigus vulgaris is a potentially life-threatening bullous dermatosis. The main stay of treatment is systemic corticosteroid and immunosuppressants. Rituximab may be useful in refractory cases. Monitoring of side effect from treatments is essential.

Cutaneous tuberculosis

Speaker: Dr. Ching-kong Ho
Medical Officer, Social Hygiene Service, The Department of Health, Hong Kong

Cutaneous tuberculosis was once a relatively common chronic infection in Hong Kong. Its incidence has decreased in recent decades. In 2006, cutaneous tuberculosis accounted for 0.04% of all new skin cases in Social Hygiene Service in Hong Kong. The improved living environment, BCG vaccination and effective anti- tuberculous treatment are all implicated for the decreasing trend.

Cutaneous tuberculosis is caused by *Mycobacterium tuberculosis, Mycobacterium*

bovis and occasionally *Calmette-Guerin* (BCG). It is clinically classified into true cutaneous tuberculosis and tubeculids. Up to 90% of the cases are tuberculids and true cutaneous tuberculosis only accounts for the remaining 10%.

Tuberculids is the skin eruption in the response to internal tuberculosis infection. It is thought to be due to haematogenous spread of tubercle bacilli and the subsequent cutaneous immune response. However, the underlying tuberculosis focus may not be active at the same time. The commonest form of tuberculid is erythema induratum (EI). It usually occurs in young middle-aged females and present with persistent or recurrent nodular lesions over the legs. Histopathological features of erythema induratum include panniculitis, tuberculoid granuloma, fat necrosis and foreign body giant cell reaction. The gold standard for diagnosis of EI is the positive culture of *Mycobacterium tuberculosis* from the lesion or positive polymerase chain reaction (PCR). However, they are usually both negative in most of the cases. Other indicators for diagnosing tuberculid include the presence of tuberculosis elsewhere, characteristic histopathology, positive tuberculin test and response to anti-tuberculosis treatment.

Tuberculosis verrucosa cutis is one of the commonest forms of true cutaneous tuberculosis. It is mainly located over the areas frequently exposed to trauma or in contact with infected sputum, for example the buttock, knee, ankle and hand. The clinical manifestations range from small papules to large warty plaques. The lesions usually grow slowly and may occasionally become ulcerated.

The commonly adopted treatment regimen for cutaneous tuberculosis is the six-month regimen, consisting of isoniazid, rifampicin, pyrazinamide, ethambutol or streptomycin for first two months, followed by isoniazid and rifampicin for the remaining four months. There is, in fact, no standard duration for treatment of cutaneous tuberculosis. Sometimes the treatment duration may be prolonged according to the clinical response.

Learning points:
A high index of suspicion is required for the diagnosis of cutaneous tuberculosis. Diagnosis may be difficult as cultures are rarely positive and may need to rely on the response of empirical anti-tuberculosis treatment.

Light therapy in dermatology: from ancient to modern

Speaker: Dr. Lai-yin Chong
Consultant Dermatologist, Social Hygiene Service, Department of Health, Hong Kong

The healing power of light has long been recognised since ancient times by the Egyptians, Indians and Greeks. In 1917, Einstein postulated the theory of simulated light emission. In 1981, selective photothermolysis was proposed by Anderson and Parrish. Since then, light therapy has been further developed for practical applications in medicine, especially with ultraviolet and laser therapy in the field of dermatology.

In the modern era, light therapy has an important role in the treatment of a wide range of skin conditions, including chronic inflammatory dermatoses, vascular and pigmentary skin disorders, cutaneous malignancies and for cosmetic applications. It is important to understand what effect a particular wavelength of radiation has on the skin, and how to target the desired structure with minimal damage to the surrounding tissue. Various wavelengths within the electromagnetic

spectrum have been used in different types of light therapies. Currently, the precise mechanism of action of these light therapies is still unclear, but it is thought to involve selective immunosuppressive and immunomodulatory effects. Psoralen ultraviolet-A (PUVA) is indicated for a range of skin disorders, including psorasis, mycosis fungoides, vitiligo, atopic dermatitis and other less common conditions. PUVA can be given systemically, topically and by immersion in the form of bath or soak. Topical PUVA can be used to treat localised lesions like vitiligo; whereas soak PUVA can be tried for resistant palmoplantar eczema and psorasis. Possible side effects of PUVA include gastrointestinal upset with psoralen ingestion, burn, pain, pruritis, photoaging, lentigines and cutaneous malignancy. Targeted therapy with ultraviolet-B (UVB) is used to treat localised lesions of psorasis, atopic dermatitis and vitiligo. It has the advantage of sparing adjacent normal skin. Ultraviolet A-1 (UVA-1), with an effective wavelength from 340 nm to 400 nm, is less erythromogenic and penetrates deeper. It also has the advantage of not requiring psoralen ingestion. UVA-1 has been used for various conditions, including connective tissue diseases (e.g. localised or systemic scleroderma), urticaria pigmentosa, atopic dermatitis, mycosis fungoides and vitiligo. Other forms of light therapies used in dermatology include laser therapy, intense pulsed light therapy, radiofrequency therapy, low level laser therapy, photodynamic therapy and extracorporeal photochemotherapy.

Besides having an important role in the treatment of pathological skin conditions, light therapies are increasingly being used in cosmetic dermatology, such as skin tightening, hair removal, facial rejuvenation. The real therapeutic effects and the possible long term sequelae for many of these new modalities are often difficult to judge. As a professional medical practitioner, one should judge these new tools critically based on objective evidence and ultimately safeguard the patients.

Learning points:
Light therapies have revolutionised and widened the dimension of treatments for dermatological conditions. Nowadays, many newer light-based therapeutic modalities are being developed, especially for cosmetic purposes. One should maintain a critical mind in judging the effects of these new tools, since their real therapeutic effects and the possible long term side-effects are still not completely clear.

Update on the surgical management of cutaneous melanoma

Speaker: Professor Andrew Burd
Plastic, Reconstructive and Aesthetic Surgery, Department of Surgery, The Chinese University of Hong Kong, Princes of Wales Hospital, Hong Kong

In Chinese, the aetiology, epidemiology and natural history of malignant melanoma appear to be different from the Caucasian population. The most common morphological type of cutaneous melanoma in Chinese is acral-lentiginous melanoma. However, once the pathological entity has been diagnosed, the current surgical management is the same for both populations.

The diagnosis of malignant melanoma depends initially on the assessment of risk factors, family history and key clinical features of the lesion. The major features are changes in size, shape and colour. The minor features include inflammation, ulceration, change in sensation and diameter greater than 7 mm. A lesion with one major feature or three minor ones is suspicious of melanoma. It is recommended that a full-thickness skin excision biopsy, with a margin of 2-5 mm of normal skin and a cuff of

subdermal fat, should be performed for diagnostic purpose of a suspicious lesion. This is because the critical determinant of surgical management of a primary lesion in the Breslow thickness. For a lesion with a Breslow thickness of less than 1 mm, a 1 cm excision margin is recommended. For a lesion with a Breslow thickness of more than 4 mm, a 2-3 cm excision margin is required. Management of the regional lymph nodes depends on whether they are clinically involved. For lymph nodes enlarged at the time of presentation, block dissection of nodes is recommended. Currently, it is thought that clinically node-negative patients will not benefit from elective lymph node dissection. In some specialised centres, sentinel node biopsy is performed for staging in stage II melanoma as part of clinical trials. However, this is not recommended as part of routine management.

Follow-up is important for melanoma patients, with particular attention to look out for local recurrence, in-transit deposits and regional lymph node involvement. Surgery is still the best option for treating isolated recurrence of metastases.

Learning points:

Acral-lentiginous melanoma is the commonest morphological type of cutaneous melanoma in Chinese. The critical determinant of surgical management and excision margin is the Breslow thickness, which can be assessed from a full-thickness skin excision biopsy for a suspected lesion. Currently, only clinically enlarged lymph nodes are recommended for block dissection. Follow-up is important to look for recurrence and metastases.

Laboratory tests aiding diagnosis and investigation of atopic dermatitis

Speaker: Dr. Christopher WK Lam
Department of Clinical Pathology and Clinical Immunology Unit, The Chinese University of Hong Kong, Prince of Wales Hospital, Hong Kong

Atopic dermatitis (AD) is a common pruritic and chronic inflammatory skin disease affecting up to 20% of children. Its pathogenesis involves the exposure to sensitised allergens, disturbed skin barrier function, defects in antimicrobial immune defense and genetic predisposition. AD is a clinical diagnosis that can be aided by laboratory tests for i) investigation of allergen sensitization, ii) monitoring allergic inflammation, iii) quantification of environmental allergens and iv) assessment of genetic predisposition.

For investigation of allergen sensitization, sequential analysis of serum differential and specific IgE antibodies against food and inhalant allergens on a single blood sample is a cost effective alternative to skin prick test and patch test. Recent technological advancements of these measurements have included i) the use of three dimensional solid-phase to greatly increase allergen or IgE binding capacity, ii) expansion of test panel to cover over 450 allergens, iii) fluoro-enzymatic amplification of immunoassay for increased sensitivity, and iv) computerised automation for rapid profiling a batch of samples.

For monitoring of allergic inflammation, tests have been developed for assessing the severity of allergic inflammation, monitoring treatment efficacy and predicting or detecting clinical re-exacerbation. These include assays of eosinophil cationic protein (ECP), neutrophil myeloperoxidase, mast cell tryptase, various cytokines (IL-4, IL-10, IL-13, and IL-31), chemokines and adhesion molecules, and assessment of hypothalamic-pituitary-adrenal function if indicated.

Internationally standardised methods for collection of indoor house dust and room air samples, and colorimetric measurement of major domestic allergens can be used for quantification of environmental allergens.

For assessment of genetic predisposition, genome-wide screens have demonstrated significant linkage on chromosomes 1q,3p,3q and 17q. Several genes associated with elevated serum IgE receptor, skin barrier function and epidermal differentiation complex have been implicated. Recent and forthcoming advances in gene expression arrays will likely provide useful insights into the genetic architecture of AD. This will improve our understanding of the disease and help foster the development of novel and effective therapeutic strategies.

Learning points:
Atopic dermatitis is a common skin disease. Various new advance laboratory tests are available for investigation of allergen sensitization, monitoring allergic inflammation, quantification of environmental allergens and assessment of genetic predisposition.

Problems encountered in the management of childhood skin disorders

Speakers: Dr. David CK Luk and Dr. Vethody K Sugunan
Department of Paediatrics, United Christian Hospital, Hong Kong

The seminar was divided into two sections. In the first section, the speaker discussed the characteristic of infant skin. Functionally and structurally, infant skin differs from that of an adult in skin thickness, dermoepidermal attachment, and transepidermal water loss. By knowing the normal physiological changes and benign skin problems, the child can be protected from undergoing unnecessary investigations and treatments. Also, early recognition and diagnosis of skin problems are important since subtle dermatological signs may give clues to the underlying systemic conditions. Appropriate early management can be instituted to avoid short term and long term complications.

In the second part of the presentation, the speaker talked about the use of laser treatment in children. The newer and safer anaesthetics and sedatives allow dermatological laser to be used more easily than before. Early treatment of vascular lesions, like port-wine stain, carries a better outcome. Pigmentary lesions can also be treated in children with the appropriate laser. The speaker also showed a video on the successful use of laser in a child with haemangioma.

Learning points:
Infant skin differs from that of an adult functionally and structurally. The child can be protected from undergoing unnecessary investigations and appropriate early treatment can be instituted by knowing the normal physiological changes and common benign skin problems in infants.