

## Reports on Scientific Meeting

### Joint Annual Scientific Meeting 2013

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Venue: Cheung Kung Hai Conference Centre, Li Ka Shing Faculty of Medicine, The University of Hong Kong, G/F., William MW Mong Block, 21 Sassoon Road, Pokfulam, Hong Kong  
Organisers: Hong Kong College of Dermatologists and Hong Kong Society for Paediatric Dermatology

#### Basics on botulinum toxin

Speaker: Dr. Mona Chiu  
Dermatologist, Private Practice, Hong Kong

Botulinum toxin injection is used to remove facial wrinkles. Botulinum toxin is a neurotoxin produced by *Clostridium botulinum* and it has been used for aesthetic procedure. Botox®, Dysport® and Myobloc® are the available botulinum toxins on the market. When botulinum toxin is injected into the muscles, it blocks acetylcholine release from the motor neurons at the neuromuscular junction, resulting in paralysis of the muscles that cause wrinkles. Various factors have to be considered carefully before the injections, including indication or contraindication, client's current medications, basic facial anatomy, interactions among muscles of facial expression, client's baseline facial features, factors affecting botulinum toxin potency, etc. The optimal dose and dilution of botulinum toxin depends on the client's sex,

ethnicity, skin type, the depth and size of muscle mass, the site and extent of wrinkles and the previous response to botulinum toxin treatment. With good injection technique and well-prepared injection tools, the cosmetic effects will be better and longer. The treatment effect usually starts within 3-7 days and it gradually wanes within 4-6 months. Re-injection may then be needed.

#### Learning points:

An understanding of the facial anatomy is essential for effective and safe botulinum toxin injection.

#### Temporary fillers

Speaker: Dr. Tinny Ho  
Dermatologist, Private Practice, Hong Kong

Dermal fillers are used to remove wrinkles and restore lost skin volume via injection of gel substance into the skin. Hyaluronic acid (HA) gel is a safe and popular temporary filler nowadays and is a glycosaminoglycan that can hydrate the skin. It is naturally present in the extracellular matrix of our body with a rapid turnover and a half-life of less than 24 hours. With ageing and photo-damage, the skin will lose HA and collagen, resulting in wrinkles. Hyaluronic acid fillers are relatively longer-lasting because of stabilisation by cross-linking of the gel molecules. These HA fillers differ in

concentration, cross-linking, gel particle size and gel consistency and are mainly used for cosmetic volume augmentation. Its effects include enhancement of facial contours, improvement of ageing skin texture and even lipodystrophy in HIV patients. Besides, HA gel can also increase the collagen in skin through non-immunologic mechanisms, especially with the help of a good injection technique. A single HA treatment can usually last for more than one year.

### **Learning points:**

Apart from cosmetic volume augmentation, dermal fillers with hyaluronic acid can also increase the collagen in skin through non-immunologic mechanisms.

## **The myth and truth of longer-lasting and permanent fillers**

Speaker: Dr. Daniel Lee

Plastic Surgeon, Private Practice, Hong Kong

Soft tissue fillers have become the first-line treatment for restoring facial volume and contour nowadays. The durability of fillers depends on the type of fillers, the host response to produce surrounding collagen, metabolism, mobility of facial muscles and lifestyle of the client. Longer lasting fillers are biodegradable while permanent fillers are non-biodegradable. Although permanent fillers are more cost-effective for clients, they have many drawbacks. Permanent aesthetic result is impossible because of continuous volume loss and atrophy with changing facial contouring due to ageing. Permanent fillers are not stable over time and the outcome is unpredictable. The long term safety profile is unknown and it is difficult to reverse any undesirable effects. In contrast, longer lasting (biodegradable) fillers are relatively safe, efficacious and practical to

patients. In conclusion, doctors should understand the limitations of different fillers and choose the appropriate fillers for the patient.

### **Learning points:**

Ideal fillers should be safe, efficacious and practical. An understanding of the nature and limitations of different fillers is essential.

## **Cosmeceuticals**

Speaker: Dr. Shirley Chan

Dermatologist, Private Practice, Hong Kong

Cosmeceuticals are cosmetic products with biologically active ingredients that have both cosmetic and therapeutic benefits. Some common cosmeceutical ingredients include alpha hydroxy acids, antioxidants, botanicals, depigmenting agents, exfoliants, moisturisers, peptides, retinoids and sunscreens. The ultimate goal of using cosmeceuticals is to make people look younger and healthier.

Extrinsic ageing may be caused by environmental insults such as ultraviolet (UV) light, smoke, air pollution, poor diet and alcohol consumption. Photo-ageing describes the effects of chronic UV exposure on the skin. Clinical signs of photo-ageing include dryness, irregular pigmentation, sallowness, deep furrows, telangiectasia, laxity, elastosis and actinic purpura. Increased breakdown and decreased production of collagen are the cornerstones of photo-ageing. Repetitive UV insults over a lifetime eventually lead to the development of a visible "solar scar", manifesting as a visible wrinkle. Photoprotection is important. Broad spectrum sunscreens that offer sufficient protection against UVB and UVA are preferred. Sunscreens should be applied 15 to 30 minutes before sun exposure to allow formation of a protection film on the skin. Re-application at

least every two hours is necessary. Wearing clothing is important for sun protection. The degree of protection provided by clothes is defined by the ultraviolet protection factor. The ultraviolet protection factor indicates how effective a fabric is in blocking out solar ultraviolet radiation.

The role of antioxidants is important. Vitamin C is essential for collagen synthesis and protects the skin from both UVB and UVA. Topical alpha-tocopherol protects the skin from photo-ageing changes. Ferulic acid is a plant antioxidant. It increases L-ascorbic acid stability and is synergistic with other antioxidants.

Tretinoin restores collagen formation in photo-damaged human skin. However, tretinoin may cause significant irritation.

### **Learning points:**

Cosmeceuticals will become an increasing part of research in dermatology. Doctors and consumers hope to see more scientific evidence instead of marketing.

## **Hair transplant**

Speaker: Dr. Peter Pang  
Plastic Surgeon, Private Practice, Hong Kong

Treatment for men with androgenetic alopecia includes topical minoxidil and oral finasteride. Hair restoration surgery can result in cosmetic improvement.

Hair transplantation using follicular units has become the mainstay of surgical treatment. More invasive and complex procedures, such as scalp reduction and flap surgery are now less commonly performed.

The basic principle governing hair transplantation is "donor dominance". Follicular unit extraction involves the removal of individual follicular units, one by one, from the occipital scalp. Follicular unit extraction does not leave a linear scar. A well-planned hairline design is needed pre-operatively. After the surgery, there is a telogen phase. Hair regrowth occurs three months later. The final result will appear at nine months to one year post-operatively. Potential complications include bleeding, swelling and graft loss. Patients can continue to lose non-transplanted hairs resulting in diminished satisfaction, therefore continuation of medical therapy, e.g. finasteride or minoxidil, following hair transplant surgery may help to limit further loss of the pre-existing scalp hair.

Recent advances include follicular unit extraction, hair cloning and gene therapy.

### **Learning points:**

Hair transplantation using follicular units has become the mainstay of surgical treatment for androgenetic alopecia.

## **Laser treatment for acne**

Speaker: Dr. Chi-keung Yeung  
Dermatologist, Private Practice, Hong Kong

Acne vulgaris is a common condition. The four factors leading to the development of acne lesions include follicular hyperproliferation, increased sebum production, *Propionibacterium acnes* (*P. acnes*) proliferation and inflammation. Medical therapies include topical retinoids, topical antimicrobials, oral antibiotics, hormonal therapies and oral isotretinoin. Compliance to medical treatment is important. For those failing or not tolerating conventional medication, light-based therapy can be a viable option.

Examples of light-based therapies include broad-spectrum continuous-wave visible light sources (blue light, red light), intense pulsed light, pulsed dye laser and photodynamic therapy. Blue and red light therapy for acne is thought to work via absorption of light by porphyrins produced by *P. acnes*. The porphyrins absorb light wavelengths between 400 and 700 nm. The porphyrins become activated after light exposure. This leads to formation of free oxygen radicals, resulting in bacterial death. Infrared lasers (1320 nm, 1450 nm) and photodynamic therapy are thought to induce thermal damage to the sebaceous glands and decrease sebum production. In addition, photodynamic therapy also reduces inflammation within the acne lesions. The adverse effects of photodynamic therapy include erythema, crusting, pain and post-inflammatory hyperpigmentation.

Light-based therapies can be considered as an adjunct to medical therapies. Intense pulsed light produces additional skin rejuvenation, laser (e.g. 1450 nm) is used for mild to moderate acne while photodynamic therapy for severe acne. Combination therapy may yield best results.

There is a need to explore the implication of potential irreversible sebaceous gland destruction.

### **Learning points:**

Laser and light sources can be a viable option for the treatment of acne if conventional medications fail or cannot be tolerated.

### **Laser for tattoo**

Speaker: Prof. Keyvan Nouri  
Dermatology Service, Sylvester Comprehensive Cancer Centre/University of Miami Hospital and Clinics, USA

Tattooing is a long-standing part of the human culture, but about one-third of adults regret having a tattoo within one month. The most commonly used lasers include Q-switched Nd: YAG, Q-switched ruby and Q-switched alexandrite. Potential side-effects in removing tattoo with lasers include discolouration, redness, scarring and rarely stimulating allergic reaction as the tattoo-pigment is released.

### **Learning points:**

Side-effects of lasers for tattoo removal should be discussed thoroughly with the patients before the procedure, including the rare but potential allergic reaction.

### **Laser for congenital pigmentary condition**

Speaker: Prof. Henry HL Chan  
Director, Hong Kong Dermatology and Laser Centre, Hong Kong

Laser treatment for café au lait lesions includes Q-switched 755 nm laser. Recurrence rates of up to 10% were observed. Common complications include transient hypopigmentation. Laser should target not only the epidermal but also the follicular melanocytes. In Becker's naevus, 4-8 treatment sessions could yield about 50% success rate, possible side-effects include scar and hypopigmentation. In naevus of Ota, re-pigmentation occurs in up to 1.2% of the cases. The QS-ruby laser apparently requires fewer treatments, and has greater success rate in the

younger age group. The scleral component of naevus of Ota remains a challenge. New devices such as picoseconds laser may be promising in pigmentary conditions in the future.

### **Learning points:**

Clinicians should appreciate that the interplay of certain factors such as the type of lesions, the skin type, device selection and operative skill affects the clinical outcomes in the use of laser/light sources in treating pigmentary conditions.

## **Pigment removal by lasers and IPLs: How to prevent complications**

Speaker: Dr. Kei Negishi

Tokyo Woman University Hospital, Japan

In order to provide not just effective but satisfactory treatment, the approach in pigment removal includes: proper diagnosis, use of a high-efficacy laser modality with a low risk of complications and an understanding of individual patient's psychological concerns. Physicians need to educate the patients on various treatments, as well as proper skin care and post-treatment care such as avoiding irritation of the skin like rubbing or scratching, which may cause post-inflammatory hyperpigmentation and to apply an appropriate volume of high SPF sunscreen.

### **Learning points:**

To prevent complications, parameter setting and determination of clinical endpoint are important. Patient's cooperation with proper post-treatment care and daily skin care is essential.

## **Treatment of vascular lesion**

Speaker: Prof. Henry HL Chan

Director, Hong Kong Dermatology and Laser Centre, Hong Kong

Laser treatment has been used to treat a number of cutaneous vascular lesions. Asian skin contains more melanin than Caucasians. Melanin may act as a competing target for laser treatment of vascular lesions containing haemoglobin, so different parameters should be used. Port Wine Stain (PWS) affects 0.3 to 0.5% of the new born. Pulse-dye laser (PDL) is suggested for treating cutaneous vascular lesion like PWS with good treatment efficacy. Using a short pulse width of PDL may provide a better clinical outcome than longer pulse width. Stacking may increase the risk of burn. Optimal epidermal cooling is essential as inadequate cooling may increase the risk of epidermal burn while excessive cooling may compromise the treatment efficacy. Various cooling devices had been tried; the effect of cold air was too variable while water-cooling chamber was only partially effective with insufficient epidermal protection. Dynamic cooling is able to bring down the skin surface temperature to around  $-5^{\circ}\text{C}$ , and protects the epidermis to allow the use of a higher fluence and thus better treatment efficacy. The long pulsed alexandrite, 1064 nm Nd:YAG may be used for resistant PWS-like hypertrophic lesions. Re-darkening of PWS years after laser treatment had been documented. It was postulated that hypoxia induced after vessel destruction by laser might trigger new blood vessel formation. Combination with topical angiogenesis inhibitors may prevent re-vascularisation.

### **Learning points:**

Pulsed-dye laser with dynamic cooling has become the standard therapy for PWS. Other lasers can be considered for resistant cases. Combination with topical angiogenesis inhibitors may reduce the risk of revascularisation.

## **Laser for scars**

Speaker: Prof. Keywan Nouri  
Chief of Dermatology, University of Miami Hospital and Clinics, USA

Various treatment modalities have been used to treat scars. Lasers, especially pulsed-dye laser (PDL) and fractional lasers, are becoming more widely used. Early use of PDL even on the first day of stitch removal was showed to improve scar height, erythema and pliability in uncontrolled studies. Both 585 nm and 595 nm were found to improve scar clinically and histologically while 585 nm was a little more favourable. Short and long pulse duration was not shown to have statistical significant difference. However, using PDL in skin type V to VI is not recommended because of the high risk of hyperpigmentation after treatment. Fractional resurfacing was found to be safe in treating scar. Both ablative and non-ablative fractional resurfacing were found to be effective while a combination of both ablative and non-ablative may be even better. Studies have shown that non-ablative fractional laser may be even better than PDL in treating scars.

### **Learning points:**

Laser can be used to treat scar especially when used early, and fractional laser may also improve the outcome.

## **Complications of dermatologic surgery**

Speaker: Prof. Keywan Nouri  
Chief of Dermatology, University of Miami Hospital and Clinics, USA

Complications of surgery cannot be completely avoided, but a knowledge of the anatomy will minimise the risks. Bleeding is the most common complication especially in patients taking aspirin or warfarin and those with hypertension or abnormality in clotting. However, only the prescribing physician has the right to arrange any change of medications including aspirin. The use of pressure dressing and observing the wound for 15 minutes after operation should prevent or detect excessive bleeding early. Damage to nerves and surrounding vital organs is another largely avoidable complication if the operating dermatologist is familiar with the anatomy, especially the facial danger zones and tendons on the hands. Complications may also arise from the use of local anaesthesia, including trauma, haematoma formation, necrosis of the end organ if epinephrine is used in the anaesthetics. Allergy to anaesthetic is rare. Methaemoglobinaemia may give rise to bradycardia and hypotension in children.

### **Learning points:**

Complications of dermatological surgery cannot not be completely avoided, but can be minimised if the operator is familiar with the anatomy and his operative tools.