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Common Cosmetic Injections: Uses & Complications

常用美容注射：應用及併發症

Injection therapy for face renewal is a popular method for anti-aging treatment as it is less invasive than surgery when properly carried out by trained and experienced medical practitioners. However, when filler injection for face rejuvenation is not properly administered, uncommon but devastating complications including stroke, blindness and skin necrosis can occur.

Common anti-aging injections for face renewal are:

1. Filler injection using hyaluronic acid (natural or cross-linked)
2. Polylactic acid (PLLA) injection
3. Botulinum A toxin (BTXA) injection

Filler (Hyaluronic Acid) Injection 透明質酸注射

In general, semi-permanent and permanent fillers have more complications (e.g. nodules, lumps of granuloma formation). Temporary fillers have less complications since these fillers e.g. hyaluronic acid are absorbable and biodegradable.

Hyaluronic acid is a glycosaminoglycan polysaccharide alternating residues of monosaccharides d-gluconic acid and N-acetyl-d glucoamine. It is a natural component present in the dermis of skin functioning as a moisturizer. Our tissue has hyaluronidase

enzyme which facilitates the degradation and absorption of the injected hyaluronic acid. Injected natural hyaluronic acid will be absorbed by tissues within 3 days. For injected cross-linked hyaluronic acid, the absorption rate is dependent on the particle size and the extent of cross linkage. Occasionally, injected hyaluronic acid can persist for years.

The goal of injecting natural hyaluronic acid into the dermis level is for the replenishment of depleted tissue hyaluronic acid level which decreases in concentration with aging. Replenishment of hyaluronic acid level gives a more supple and moist skin. The clinical application for injection of cross-linked hyaluronic acid includes the smoothing out of nasal labial folds, the contouring of the nose, the chin and the cheeks. Fine lines or dynamic wrinkles (forehead lines, frown lines, crow's feet) are best treated by Botulinum A toxin injection and not filler injection which can cause skin surface irregularities.

BTXA Injection 肉毒桿菌素注射

Botulinum Toxin A (BTXA) is a protein drug extracted from bacteria. BTXA causes temporary chemical denervation of affected muscles. It smoothes dynamic wrinkles by inhibiting the activity at the neuromuscular junction. Clinical applications include the reduction of forehead lines, frown lines, crow's feet, masseter muscle (face slimming) and the medial head of gastrocnemius muscle (leg slimming). The duration of action is usually 6 months or less. BTXA is also FDA approved for the treatment of excessive axilla and palmar sweating (hyperhidrosis). When a more diluted form of BTXA is injected into the skin dermis level, it can also result in slimming and firming of the face.

PLLA Injection 聚左乳酸注射

Poly-L-Lactic acid (PLLA) is a synthetic polymer derived from alpha-hydroxy-acid (AHA) family. For many years, PLLA substance has been used as absorbable substance and is biodegradable. When PLLA particles are injected into the deep tissues of the face they

gradually stimulated collagen synthesis resulting in an increase in facial fullness and firming. Wrinkles and lines will usually persist but the skin may appear more glowing and supple after a course of 2 to 3 injections spaced at 6 to 8 weeks apart.

Complications of Facial Injections 面部注射併發症

Besides the rare possibilities of allergy, infection, possible complications of hyaluronic acid injection include palpable/visible nodules, lumpiness and the devastating vascular event related to arterial embolism or vascular compression causing skin and tissue necrosis. This vascular event can be minimized by injecting small volume of hyaluronic acid on withdrawal only or the frequent use of fine gauge blunt tip needle for injection. Detail knowledge of the facial anatomy is required in order to minimize complications related to the blockage of blood vessels by the injected Hyaluronic acid.

Cosmetic facial injections have been reported worldwide to induce blindness in 32 patients. 15 patients had fat injection while 17 patients had injections with steroid, silicone, collagen, hyaluronic acid, PMMA and calcium hydroxyapatite. The involved injection sites were nasal labial and glabella area.

Hyaluronic acid injection can also cause Tyndall effect which is the bluish discoloration of skin resulting from the injection of small particles into superficial skin causing the scattering of short wavelength blue light.

Specific complications of BTXA injection include disfigurement, asymmetry, elevation of lateral brow or depression of medial brow and ptosis. Rarely, headache, flu like symptom and dysphagia can occur.

Specific complications of PLLA injection include disfigurement, and 2-3% incidence of visible or palpable lumps which may require surgical excision if conservative treatment gives

no relief.

All these complication would be significantly higher if these injections into the human body were not delivered by registered medical practitioners. Medical practitioners would be most adapt at preventing and immediately managing such complications in order to reduce permanent disfigurement or disability.

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