

### MODULE OVERVIEW

**Module 2: Neuromodulator (Botulinum Toxin) Injections** (2-day) consists of didactic & live patient hands-on training and examinations. This certification course is delivered in a small class size and high instructor-to-trainee ratio to provide comprehensive knowledge, clinical competency in the basic use of cosmetic botulinum toxin injections for aesthetic enhancement. The pre-requisite for Module 2 is Module 1: Advanced Facial & Neck Anatomy.

### AXILLAR & PALMAR & PLANTAR SKIN ANATOMY

1. Review of anatomy of axillar, palmar, plantar skin
2. Review of sweat gland anatomy and physiology
3. Review of sweat gland innervation
4. Discuss iodine-starch test to identify locations of hyperhidrosis

### RHYTIDOLOGY

1. Discuss Glogau scale of photoaging
2. Discuss dynamic and static wrinkles and introduction to various therapeutic approach to address different levels of aging and different types of wrinkles
3. Review of normal and photo-aged skin physiology and anatomy
4. Bone resorption pattern

### HISTORY OF BOTULINUM TOXIN

#### PHARMACOLOGY OF BOTULINUM TOXIN & RECONSTITUTION & STORAGE OF BOTULINUM TOXIN

1. Review of available Health Canada approved cosmetic botulinum products, dilution, dosing, indications, and contraindications
2. Discuss required dosing ranges for the following muscles: frontalis, procerus, corrugator supercilii, lateral orbicularis oculi, masseter, mentalis, nasalis, levator labii superioris alaeque nasi, depressor anguli oris, orbicularis oris, and platysma
3. Discuss required dosing ranges for palmar, axillar, plantar hyperhidrosis
4. Discuss dosing conversion between various botulinum toxin products. Discuss proven strategies and systematic approach to prevent miscalculations and mix up of syringes loaded with different brands of botulinum toxin
5. Discuss proper pre-reconstitution storage methods for various brands of botulinum toxin
6. Discuss on-label and off-label post-reconstitution & storage methods

#### PATIENT SELECTION & INFORMED CONSENT

1. Discuss effective communication methods to identify patient expectations, predicting clinical outcomes, and to communicate the risks and benefits for patients considering botulinum toxin injections
2. Discuss necessary clinical forms including informed consent for botulinum procedures
3. Discuss recommended photographic equipment and techniques to obtain clinically meaning and consistent pre-& post-injection photographs
4. Discuss pre-& post injection care routines
5. Discuss required level of staff training to answer common cosmetic botulinum toxin related questions and post-injection inquiries including time of therapeutic onset, duration of therapeutic benefit, asymmetry, bruise, and swelling in a professional manner
6. Discussion of procedural charting requirements
7. Discussion of contraindication, comorbidities, and proper patient selection including psychiatric conditions (e.g. body dysmorphic disorder, injection anxiety) and muscular conditions
8. Discuss anti-viral prophylaxis option and dosing methods for patient with history of frequent cutaneous viral breakouts in the treatment area(s) (e.g. Herpes simplex, herpes zoster, etc.)

#### RISK REDUCTION & MANAGEMENT OF COMPLICATIONS

1. Discuss complication avoidance and management strategies for the following muscular complications: brow ptosis, eyelid ptosis, asymmetry, difficulty smiling, and difficulty chewing.

2. Discuss identification, and management strategies for viral (e.g. herpes simplex, herpes zoster), bacterial, and fungal skin infections. Review of pertinent oral antiviral, antibacterial, and anti-fungal drugs and their dosing. Discuss monitoring options and refer-out timing.
3. Review of proper emergency responses to various levels of allergic reactions to botulinum toxin.
4. Discuss staff training requirements and strategies to properly handle botulinum toxin related emergency of pre-injection anxiety management strategies.

#### INJECTION TECHNIQUES

1. Review standard aseptic injection techniques and injectable handling including proper skin preparation and field preparation
2. Review of pain reduction options pertinent to botulinum toxin injection including various topical anesthetic formulation (e.g. EMLA cream, BLT gel, etc.), mechanical distraction (e.g. vibrators, manual distraction, etc.), and coldness (e.g. cryo-spray, ice pack, etc.). Discussion of cardiotoxicity, allergy potential, and minimum incubation time for various topical anesthetic formulations
3. Discussion of pre-injection anxiety management strategies
4. Discuss best botulinum toxin injection technique including intramuscular and intradermal injections
5. Discuss site specific infiltrative techniques and patterns
6. Review dosage ranges and discuss correct injection techniques for the following head and neck muscles including, frontalis, procerus, corrugator supercilii, orbicularis oculi, mentalis, masseter, nasalis, levator labii superioris alaeque nasi, depressor anguli oris, orbicularis oris, and platysmal muscles
7. Discuss proper dosing, site selection, and injection technique based on iodine-starch test for axillar, palmar, plantar hyperhidrosis
8. Botulinum toxin injection techniques:
  - a) Frown lines, crow's feet, forehead lines, brow positions, temporalis hypertrophy
  - b) Bunny lines, droopy nose tip, alar band
  - c) Gummy smile, asymmetric smile, facial palsy, purse string lip, drooping of mouth corner, pebble chin
  - d) Masseter hypertrophy, parotid gland hypertrophy, submandibular gland hypertrophy
  - e) Platysmal banding
  - f) Hyperhidrosis of hands and armpits
9. Provide mock scenarios of consulting and managing botulinum related complications including asymmetry, brow ptosis, eyelid ptosis, difficulty smiling, difficulty chewing, infections, and allergic reactions
10. Provide comprehensive feedback on trainee's injection techniques and address any weakness trainee may have
11. Case discussion

#### WRITTEN EXAM

The written exam consists of 30 multiple choice questions, 10 short answer questions, and 10 clinical cases. Digital media is used to present 10 clinical cases. For 6 clinical cases, trainee is required to select proper site for cosmetic botulinum injections, choose proper dosage, and designate injection techniques. For the remaining 4 clinical cases, the trainee must present drugs, additional botulinum injections, or other therapeutic measures to manage complication. A grade of 80% or higher in the written exam is required to successfully pass the course.

#### PRACTICAL EXAM

1. Simulated cadaver: demonstrate the thorough understanding of the soft tissue, vasculature, and nerves of the face
2. Live patient: Demonstrate flawless proficiency in the followings:
  - a) Using skin marker, map the anatomical positions of frontalis procerus, corrugator supercilii, orbicularis oculi, masseter, mentalis, nasalis, levator labii superioris alaeque nasi, depressor anguli oris, orbicularis oris, and platysmal muscles.
  - b) Provide an individualized assessment and specific botulinum dosage recommendations for the patient's dynamic wrinkles.
  - c) Demonstrate a proper botulinum reconstitution technique, aseptic field preparation, proper patient positioning, and skin preparation for botulinum injection.
  - d) Demonstrate proper injection techniques of cosmetic botulinum toxin.