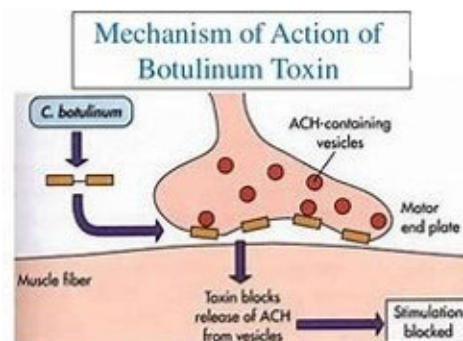


# Role of botulinum in Parkinsonism

Matthew Boyce MD

## Botulinum toxin

- Protein produced by bacteria called clostridium botulinum
- Multiple strains resulting in different brands (Botox, Xeomin, Myobloc, Dysport)
- Prevents release of acetylcholine from the nerve ending resulting in muscle weakness or relaxation
- It is measured in units and injected in liquid form into target muscles or tissue



Power  
Over  
Parkinson's

## Botulinum toxin

- Risks are generally related to the site of injection
  - Excessive weakness
  - Impaired swallowing
  - Site reactions
  - Bleeding
  - Infection
- Risks are very low as adverse reactions are very uncommon



## Role of botulinum toxin in parkinsonism

**Dystonia (cramping, muscle rigidity, twisting, turning)**

**Blepharospasms/eye lid opening apraxia (involuntary closure of eyes)**

**Sialorrhea (excessive salivation, drooling)**



**Power  
Over  
Parkinson's**

# Dystonia

- Involuntary twisting or turning resulting in abnormal postures
- Can occur as an isolated condition or in the context of a parkinsonian condition
- Examples:
  - Cervical dystonia – involves neck muscles resulting in tilting or forward head flexion
    - Anterocollis is seen in MSA



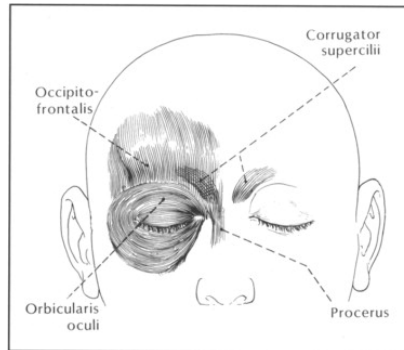
# Dystonia

- Examples
  - Focal dystonia of the hand or foot
    - 25% of patients with PSP in one case series
    - Can be associated with dopamine therapies
    - Injection sites depend on the specific areas involved and the posture that is being corrected
    - Treatment with toxin can be guided using EMG



## Blepharospasms and Eye lid opening apraxia

- Involuntary spasms of the muscle that close the eyes which can be followed by relaxation but a persistent inability to open the eyes voluntarily
- Eye opening can be aided by sensory tricks, touching the eye brow or a slight pull on the upper eye lid

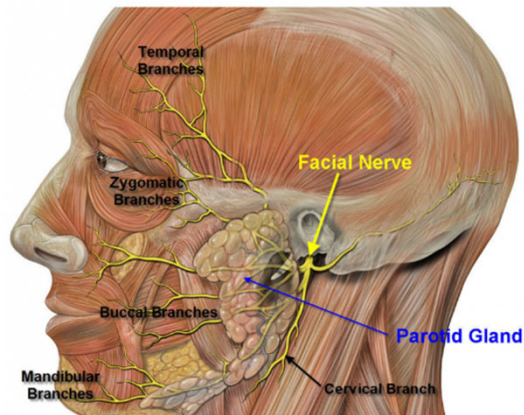


## Sialorrhea or excessive salivation

- Primarily due to a lack of spontaneous swallowing reflex
- Can vary in severity, often starting with excessive saliva on the pillow at night
- Drooling results due to pooling saliva and open mouth with a tendency to lean to one side
- Can be embarrassing or a functional issue due to difficulty talking or choking on pooled saliva
- Pharmacologic therapies exist but often have a lot of side effects
  - Worsening memory
  - Confusion
  - Dry mouth
  - Urinary retention

## Sialorrhea or excessive salivation

- Toxin is injected into the parotid and/or submandibular glands on each side of the face



## Botulinum Toxin

- It takes several after an injection for the benefits to even start occurring with the peak benefit usually occurring by the 10-14 day
- Generally the effects last about 3 months so the injections do need to be repeated
- Injections are repeated every 3 months
- It can take several sessions to fine tune the dosing to get the most effective response
- The benefits from injections can be augmented by coordinating sessions with physical and occupational therapists to improve range of motion

THANK YOU

QUESTIONS