

Time Course of Action of Botulinum Toxin–A in the Treatment of Hyperkinetic Facial Lines

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Purpose: To illustrate the relationship between time of injection of Botulinum toxin –A, clinical onset of action and electromyographic changes.

Methods: A 40 year old female with brow furrows, glabellar creases and crow’s feet was injected with 50 units of Botulinum toxin-A (Botox, Allergan Inc.) diluted to 5 units per 0.1 cc of normal saline. Muscles injected included frontalis, procerus/corrugator and lateral orbicularis oculi. Dynamic digital video and surface EMG recordings were carried out at t=0 hours, t=24 hours, t=48 hours and t=72 hours.

Results: Muscular relaxation was noted at 24 hours post injection, corresponding to a 36% reduction in composite surface EMG activity. At 48 hours some areas of the forehead and lateral orbital areas showed profound relaxation while others remained contractile, an EMG reduction of 81% was recorded. At 72 hours, profound relaxation was generally evident in all injected areas with an EMG recording of 11% of the original level. No further reduction in EMG or clinical relaxation was occurred beyond 72 hours, however a reduction in the depth of hyperkinetic facial lines became clinically evident coincident with profound inhibition of muscular activity. Summary: Clinical effect of Botulinum toxin was evident by 24 hours post injection and did not increase further beyond 72 hours.

Temporal relationship of clinical effect and composite surface EMG after treatment with BTX-A

(low resolution single frame extracts of digital video)

