

ABSTRACT

Botulinum Toxin A Antibodies in Initial and Delayed Resistance to Botulinum Toxin A Therapy in Cervical Dystonia

DD Duane, M Clark, LL LaPointe, JL Case
Arizona Dystonia Institute / Arizona State University
Scottsdale / Tempe, Arizona USA

Objective: To determine the frequency of botulinum toxin A neutralizing antibodies (Bot A Ab) in cervical dystonia patients (CD), treated with Botox® in each of three categories: Continuing responders (responders), initial nonresponders (primary nonresponder) and previously responding patients who later became unresponsive (secondary nonresponders).

Methods: 106 CD patients (87 female/19 male, mean age 60 years) received two or more exposures to Botox under electromyogram guidance. Eight (five female/three male, mean age 64 years) showed no positive impact on their dystonia despite muscle weakness and EMG evidence of denervation (primary nonresponse). Of the remaining 98 patients, 15 (11 female/4 male, mean age 57 years) developed delayed unresponsiveness with no weakness post injection (secondary nonresponders). The other 83 (71 female/12 male, mean age 59 years) continue to be responsive. Bot A Ab determinations were made at NorthView Pacific Laboratories, Berkeley, California, and/or at Boston University by Bruce Pearce, Ph.D. Bot A Ab levels were classified as positive (+), equivocal (+/-) or negative (-).

Results: **Responders** 1+, 4 +/-, all of these fluctuating responders and 78-. Mean number of exposures 5.6 (range 3-10). Mean cumulative dose 1425 iu (range 675-4550). **Primary nonresponders** 1+ (five exposures), 0 +/-, 7-. Mean number of exposures 2.4 (range 2-5). Mean cumulative dose 640 iu (range 150-1275). **Secondary nonresponders** 10+, 1 +/-, 4-. Mean number of exposures 8.6 (range 2-13). Mean cumulative dose 2,050 iu (range 300-3400).

Conclusions: Primary nonresponse is not mediated by Bot A Ab. Frequency ($p = .01$) and size of total dose ($p = .002$) Botox treatment positively influences the probability of Bot A Ab formation, but some patients tolerate high dose exposure without Bot A Ab development. The differential individual patient characteristics in this discrepancy need to be explored. Either the current assays are not sensitive to influential levels of Bot A Ab or other means of resistance to the effect of Botox occur, perhaps at the level of the neuromuscular junction membrane.

Poster presentation: International Conference on Botulinum Toxin, Munich, Germany. June 14-16, 1995

Duane DD, Clark M, LaPointe LL, Case JL, Botulinum toxin A antibodies in initial and delayed resistance to botulinum toxin A therapy in cervical dystonia. Movement Disorders, X:394, 1995.