Botulinum toxin is prescribed for spasticity or spastic dystonia?

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Introduction

Following clinical examination, botulinum toxin is injected in muscles perceived as hypertonic during passive stretches. An effective reduction of resistance during muscle elongation is often clearly appreciated as long as muscle motor units are preserved and the amount of fibrosis is low. Surface electromyography can be used to assess if resistance to passive muscle stretching is due to the activation of motor units, through recording of the generated electric activity. Spasticity is defined as a velocity-dependent increase of muscle tone associated with an increased stretch reflex in subjects with an upper motor neuron syndrome. A less well-known positive phenomenon called spastic dystonia can be responsible for generating the resistance to passive movements that leads the clinician to use botulinum toxin. Spastic dystonia is characterized by the inability to relax a muscle leading to a spontaneous, although stretch-sensitive, tonic contraction. Although spastic dystonia is a recognized cause of muscle hypertonia, its prevalence among hypertonic muscles of stroke subjects has never been investigated. The objective of this study is to understand the prevalence of spastic dystonia and spasticity in a group of stroke survivors presenting with muscle hypertonia where botulinum toxin treatment is indicated.

Conclusions

The majority of stroke subjects is affected by spastic dystonia in their hypertonic wrist flexor muscles, while only a minority of subjects is affected by spasticity. Botulinum toxin is therefore more often used to treat spastic dystonia rather than spasticity. To stop spastic dystonia from being the underlying muscle hypertonia could improve its management.

References