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Botulism Toxin and its Affects on Spasticity

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BOTULISM TOXIN AFFECTS ON SPASTICITY

Abstract

Spasticity is a symptom associated with spinal cord injury patients that is caused from an influx in excitatory and inhibitory signals controlling muscles and reflexes generating a pattern of spasms in a period of time. When not treated properly adverse effects include: contractures, respiratory arrest, pain, paralysis and decrease in efficiency of nursing and therapeutic care. Interventions including medications (i.e. baclofen, dantrolene, gabapentin), physical therapy, surgery and orthotic devices are used to decrease spasticity however show minimal effect, short duration and multiple side effects. These side effects include dizziness, weakness, confusion, headaches, nausea and constipation. Recent research has shown that injections of botulism toxin (Botox), binds to cholinergic nerve terminals to decrease the production of acetylcholine preventing contraction with minimal side effects, ultimately targeting both spasticity and pain, reducing stiffness and promoting muscle relaxation. The purpose of this research study is to determine if the administration of Botulism Toxin in spastic muscles to hospitalized spinal cord injury patients decrease a patient's spasticity level less than 4 as measured by the Ashworth Spasticity Scale. This scale measures from 0-4 with 0 being no rigidity or spasticity and 4 being full limb rigidity in flexion and extension. The goal of the injections is to reduce the level from the patient's preliminary scale to a decreased rate. Data will be collected through a literature review involving spinal cord injury patients' spasticity and botulism toxin used as an intervention. Conclusions will be made based on analyzing the trends on administration of botulism toxin and score from the Ashworth Spasticity Scale. This project will help expand on previous interventions and studies to cross analyze the most beneficial intervention for spasticity identifying future improvements and care.

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Keywords: Botox, spasticity, spinal cord injury, Ashworth Spasticity Scale