Botulinum Neurotoxin (BoNT) Treatment for Pain Syndromes

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BoNTs in addition the inhibition of acetylcholine release, inhibit the release of pain modulators and transmitters both peripherally and in the central nervous system. In human, randomized and placebo-controlled clinical trials have shown efficacy of BoNT therapy in a variety of pain syndromes. This lecture evaluates the existing level of evidence for efficacy of BoNTs in different pain syndromes using the recommended efficacy criteria from the Assessment and Therapeutic Subcommittee of the American Academy of Neurology (French and Gronseth 2008). There is a level A evidence (effective) for BoNT therapy in chronic migraine, post-herpetic neuralgia, trigeminal neuralgia, posttraumatic neuralgia, pain of chronic lateral epicondylitis and pain associated with cervical dystonia. There is level B evidence (probably effective) for diabetic neuropathy, plantar faciitis, piriformis syndrome, pain associated with total knee arthroplasty , male pelvic pain syndrome and chronic low back pain. BoNTs are possibly effective (level C-one class II study) for female pelvic pain, painful knee osteoarthritis, post-operative pain in children with cerebral palsy after adductor release surgery, anterior knee pain with vastus lateralis imbalance, post-operative pain after mastectomy, anal sphincter spasms and pain after hemorrhoidectomy. There is level B evidence (one class II study) that BoNT treatment is probably ineffective in carpal tunnel syndrome, occipital neuralgia and phantom pain. Great majority of these studies were conducted with onabotulinumtoxinA. More high quality (Class I) studies and studies with different types of BoNTs are needed for better definition of the role of BoNTs in the pain syndromes.