AAN Summary of Evidence-based Guideline for PATIENTS and THEIR FAMILIES

USE OF BOTULINUM NEUROTOXIN INJECTIONS TO TREAT SPASTICITY

People often associate botulinum neurotoxin (BoNT) with the treatment of facial wrinkles or frown lines. Since its introduction 28 years ago, neurologists and other physicians have safely used BoNT to treat many disorders. This fact sheet will help you and your family understand the use of BoNT for treatment of spasticity, a disorder following injury to the brain or spinal cord resulting in muscle stiffness, difficulty with movement, walking, and pain.

Neurologists from the American Academy of Neurology (AAN) are doctors who identify and treat diseases of the brain and nervous system. The following evidence-based information* is provided by experts in neurology who carefully reviewed all available evidence on the effect of BoNT for treatment of spasticity.

What is botulinum neurotoxin and how does it work?

BoNT is a drug made by bacteria that causes some forms of food poisoning. Neurologists inject small and safe doses of BoNT into muscles to block nerve signals that cause muscle spasms or pain.

Will BoNT help improve spasticity in adults?

Neurologic injury may cause overly stiff muscles, which interfere with moving and walking. These problems, called spasticity, are common in cerebral palsy, traumatic brain injury, stroke, multiple sclerosis, and spinal cord injury. If you have had a stroke, you may have tightness in your arm, wrist, and hand muscles on your affected side. There is strong evidence that in adults, BoNT safely and effectively treats spasticity in the limbs. If you have multiple sclerosis and severe tightening or stiffness of your thigh muscles, BoNT may provide you comfort when in bed or a wheelchair.

How does BoNT control spasticity in children with cerebral palsy (CP)?

There is strong evidence that BoNT injections help control spasticity when injected into the calf muscles of children with CP with tightness of the foot muscles, causing them to walk on their toes. There is good evidence that BoNT may be appropriate to treat thigh adductor spasticity (which squeezes the thighs together) and for pain control for children undergoing adductor-lengthening surgery. Good evidence also supports BoNT as a treatment option for children experiencing arm spasticity. Clinical studies have shown small improvements in walking when BoNT is injected into the hamstrings, which are muscles on the back of the thigh.

What are the risks or side effects for BoNT injections?

BoNT was introduced 28 years ago. When used appropriately, its risks are low and adverse side effects are rare. The most common side effect is mild muscle weakness. Other side effects include pain where BoNT was injected, dry mouth, flu-like symptoms, risk of falling, inability to maintain control of bladder and bowel movements, and difficulty swallowing. All side effects generally go away quickly.

*After the experts review all of the published research studies, they describe the strength of the evidence supporting each recommendation:
Strong evidence = more than one high-quality scientific study
Good evidence = at least one high-quality scientific study or two or more studies of a lesser quality
Weak evidence = the studies, while supportive, are weak in design or strength of the findings
Not enough evidence = either different studies have come to conflicting results or there are no studies of reasonable quality

This is an educational service of the American Academy of Neurology (AAN). It is designed to provide members with evidence-based guideline recommendations to assist with decision-making in patient care. It is based on an assessment of current scientific and clinical information and is not intended to exclude any reasonable alternative methodologies. The AAN recognizes that specific patient care decisions are the prerogative of the patient and the physicians caring for the patient, based on the circumstances involved. Physicians are encouraged to review carefully the full AAN guidelines so they understand all recommendations associated with care of their patients.

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