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ABSTRACT

This paper explains the use of a unique experimental therapy for students with a type of cerebral palsy specifically called Botox. Botulinum Toxin Type A has been tried on a sizable number of students with cerebral palsy in clinical settings to reduce spastic and dystonic movements. By injecting Botox into overly tight heel cords, a normal or near normal gait may be obtained. The positive effects of Botox are generally observable in 3 to 5 days and are most likely to benefit younger students. Advantages of Botox listed are that: (1) it can be administered as an injection on an outpatient basis; (2) it is safe, with no adverse effects; (3) it creates no surgical scar; (4) it does not require immobilization and can be injected into a single muscle; and (5) it can dramatically improve the quality of life for many students with cerebral palsy. The disadvantages of Botox are identified as: (1) the high cost of the treatment; (2) students may build antibodies to the toxin, thereby rendering it ineffective; (3) injections must be repeated every 3 to 4 months; and (4) not all insurance companies cover Botox treatments. The possible use of Botox to facilitate the placement of students with cerebral palsy in regular education classrooms is noted. (CR)

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New Hope for Children with Cerebral Palsy

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Memphis, TN

New Hope for Children with Cerebral Palsy

Cerebral palsy, originally called "Little's Disease" and later spastic paralysis, has been a perplexing problem for both educators and physicians for a long time. Most students with cerebral palsy have brain damage to the pyramidal or extra pyramidal tracts in the cerebrum. Common beliefs blame prenatal disorders and/or perinatal disorders for the cerebral damage. The lack of coordination and involuntary movements may range from slight to severe. In the past, treatment consisted of extensive physical therapy, surgery to release overly tight tendons, heel cord lengthening, and bracing. Occasional neurosurgery was performed more or less on a trial or experimental basis. Drugs such as Valium, Klonopin, and other muscle relaxants are also prescribed. These treatments which are still used, while helpful, do little to improve the student's overall coordination and ability to perform various life tasks. The number of students with cerebral palsy is approximately 2.2 per one thousand births.

The purpose of this study was to conduct a complete review of the literature related to students with cerebral palsy and the use of a unique experimental therapy specifically called Botox. Botulinum Toxin Type A (Botox) has recently been tried on a sizeable number of students with cerebral palsy in clinical settings to reduce spastic and dystonic movements.

Botox is the commercial name given to a preparation made from Clostridium botulinum. There are eight serologically distinct toxins of which Type A is the most widely studied. Outbreaks of botulism occur when people ingest foods contaminated with the neurotoxin. Botulinum toxin is the most known biological toxin. The toxin acts by interfering with the presynaptic acetylcholine release at the cholinergic nerve terminals (facilitating the bridging of the synapse - from one nerve ending to the other). As a result, contraction of skeletal muscle fibers is prevented. Botulinum intoxicated muscle reacts almost identically to surgically denervated muscle. Muscle

paralysis is dose-dependent and reversible.

Although complex, the end result is that it blocks nerve impulses, relaxing the muscle and relieving the spasm. The first clinical trials look very promising for individuals with spastic and dystonic cerebral palsy. The effects of a single treatment of Botox last three to six months. The pharmaceutical company, Allergan, developed Botox with the hopes that physicians could and would use it for a variety of purposes. Researchers diluted the toxin to less than one tenth the amount that would cause harm and, unlike food poisoning, could not travel throughout the body. Instead it is localized to a specific muscle or muscle group. Dr. H. M. Scott, a respected ophthalmologist, was a pioneer in the use of Botulinum-A as a therapeutic agent in a clinical application. The toxin was injected into the extraocular muscle to correct strabismus (crossed eye). He found great success with the toxin and encouraged other physicians, especially neurologists and orthopedists, to apply the toxin on a trial basis for virtually any muscle disorder.

Only lately has Botox been explored with students with various types of cerebral palsy. The use of Botox in students with cerebral palsy may eliminate the necessity of surgery in selected individuals. An example of this success can be seen with students who have spastic cerebral palsy, who more often than not, have extremely tight heel cords, preventing them from having a normal gait (toe walkers). By injecting Botox into the overly tight muscle, a normal or near normal gait may be obtained. If complete correction cannot be obtained, Botox can be beneficial in conjunction with bracing to correct or improve various deformities. The positive effects of Botox are generally observable in three to five days. The persons most likely to benefit are younger students, although Botox has not been proven effective with infants. If the treatment remains as promising as the first trials indicate, a number of students with cerebral palsy may participate more fully in the total range of school activities. Additionally, Botox has been studied

for treating a variety of other conditions involving inappropriate muscle activity. When injected into specific selected muscle sites, Botox has been found useful in treating muscle spasms affecting vision (strabismus and blepharospasm); speech (dysphonia); neck disorders (spasmodic torticollis); and gastrointestinal disorders (achalasia). A number of persons with these disorders have been followed for several years, and there have been few reports of negative side effects. Most difficulties appear to be relatively mild and of short duration. The use of Botox for specific muscle disorders has been approved by the U.S. Food and Drug Administration.

Advantages of Botox:

Administered as an injection as an out-patient (office visit)

Safe - no adverse effects in thousands of injections

No surgical scar

Does not require immobilization

Can be injected into even a single muscle

Can dramatically improve the quality of life for many student with cerebral palsy

Disadvantages of Botox:

Cost of the drug: $400.00 per vial plus the cost of injection (can total $1,000 per treatment)

Students may build antibodies to the toxin rendering it ineffective

Injections must be repeated every three to four months

Not all insurance companies cover Botox treatments

As you are well aware, school systems are highly encouraged to use the total inclusion model vs. the self-contained or resource model. Botox may be a medical agent that could facilitate students with cerebral palsy into regular classrooms settings by reducing muscle spasticity and dystonia. Please see Appendix I for a before and after Botox result.

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APPENDIX I

BOTOX Therapy

BEFORE

AFTER

BOTOX therapy is used to paralyze the small muscles of the face which cause frown lines, crows feet and other wrinkles. BOTOX injections decrease the ability to frown or squint, thereby preventing the progressive worsening of these lines and the appearance of new lines and wrinkles caused by repeated facial expressions. The use of BOTOX for cosmetic purposes is an off-label use of a FDA-approved drug.

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