Comparison of Alcohol and Botulinum Toxin Efficacy in Cerebral Palsy

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Abstract

Background: Spasticity is the most common manifestation of cerebral palsy. In order to decrease the spasticity, oral medications, direct intramuscular injections of alcohol, phenol or Botulinum toxin, or surgery are used. This study aimed at comparing the efficacy of 45% ethanol injection with that of Botulinum toxin injection in the spastic calf muscles of diplegic cerebral palsy children.

Methods: Seventy five children (34 girls, 41 boys) with diplegia were divided into three groups: Group 1 received one injection of 45% alcohol followed by 4 weeks of cast immobilization, and then physiotherapy; group 2 received Botulinum toxin followed by physiotherapy; and group 3 had only physiotherapy with no injection or immobilization. The walking pattern of all three groups were evaluated clinically in one year in terms of independency from walking support, heel-toe gait pattern, neutral position of hind foot at heel strike, and ankle position in stance phase.

Results: At one year, support independency was observed in 60% of group 1, 25% of group 2 and 40% of group 3 treated cases. The results in heel-toe gait were 100%, 90% and 50% respectively. Neutral heel placement was observed in 60%, 25% and 12.5%. Neutral ankle position was seen in 100%, 100% and 10% respectively.

Conclusions: 45% alcohol injection into calf muscles of spastic diplegic cerebral palsy children gives as good or better result than Botulinum toxin injection. Because of its lower cost and easier accessibility, it is preferred over Botulinum toxin.

Keywords: Botulinum toxin Type A; Cerebral palsy; Muscle spasticity