

40. Azzopardi EA, Boyce, DE. Botulinum Toxin for upper limb cerebral palsy in children: evidence of efficacy and rationale for its use. In: O'Brien, M., Ed. British Association of Plastic Reconstructive & Aesthetic Surgeons Winter Conference. Monaco: Royal College of Surgeons in England; 2019.

Abstract

Background: Cerebral Palsy (CP) affects 0.2% of live births worldwide. Its resultant motor spasticity contributes to reduced upper limb function and a significantly reduced quality of life. Intramuscular injection of Botulinum Toxin A (BoNT-A) for upper limb CP is gaining popularity. However, its use for paediatric patients remains off-license and off-label. The administering surgeon therefore requires an up to date, evidence-based rationale to justify its use in an NHS setting, and advise on best-practice.

Method: Randomised controlled trials published since 2010 were appraised against validated critical appraisal framework, to provide current best evidence recommendations regarding injection-localisation methods, muscle-specific dosing, concentration, maximum dosing, ideal concentration and posology. PRISMA reporting methodology was used.

Results: 134 initial studies were retrieved of which 4 studies were appraised as RCT's, on pediatric patients aged 3-19. This evidence discourages manual localisation technique in favour of ultrasound or EM guidance, at a maximum safe dose of (12U/Kg up to 400 U). Emerging consensus reports muscle-specific doses varying from 0.5U/Kg (intrinsic hand muscles) to 2U/Kg (elbow flexors). With accurate localisation, targeted injection of high concentration BonT-A enables lower, weight-adapted doses to be administered, which is advantageous in reducing the incidence of antibody development and non-responders.

Conclusion: This manuscript provides definitive evidence that the use of BonT-A is effective in improving upper limb function in childhood CP, and advises on best practice. The evidence also indicates that use of BonT-A is not effective in isolation, and only effective when combined with appropriate physical therapy. We provide advice on best practice and irrefutable evidence of its efficacy for funding bodies questioning its efficacy.

Level of evidence: 1