

Botulinum Toxin type A for Lower Limb Lengthening and Deformity Correction: A Systematic Review and Meta-analysis

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Abstract : Botulinum toxin type A (BTX-A) is the most popular therapeutic agent for muscle relaxation and pain control. Lately, BTX-A injection received great interest as a part of multimodal pain management for lower limb lengthening and deformity correction. This systematic review aimed to determine the role of BTX-A injection in pain management for during lower limb lengthening and/or deformity correction. We searched Medline, Embase, and CENTRAL. We included randomized controlled trials (RCTs) that compared the BTX-A injection to placebo for individuals undergoing lower limb lengthening and/or deformity correction. We sought to evaluate the following outcomes: pain on visual analogue scale (VAS), range of motion parameters, average opioid consumption, and adverse events. The standardized mean difference (SMD) was used to represent continuous outcomes while risk ratio (RR) was used to represent dichotomous outcomes. A total of 4 RCTs that enrolled 257 participants (337 limbs) deemed eligible. Adjuvant BTX-A injection showed a significant reduction in post-operative pain compared to placebo (SMD=-0.28, 95% CI -0.53 to -0.04). No difference was found between BTX-A injection and placebo in terms of range of motion parameters, average opioid consumption, or adverse events after surgical limb lengthening and/or deformity correction (RR= 0.77, 95% CI -0.58 to 1.03). Conclusions: Adjuvant BTX-A injection conferred a discernible reduction in post-operative pain during surgical limb lengthening and/or deformity without increasing the risk of adverse events.

Keywords : botulinum toxin type A, limb lengthening, distraction osteogenesis, deformity correction, pain management

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