A double-blind, randomized, placebo controlled, crossover trial of botulinum toxin type A in hereditary spastic paraplegia – the SPASTOX trial

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Introduction: Hereditary spastic paraplegias (HSP) constitute a heterogeneous group of diseases with the common predominant feature of lower limb spasticity and weakness. Spasticity reduces gait quality and velocity producing incapacity, but its best management strategy is not well elucidated. In this scenario, we designed a double-blind placebo-controlled cross over trial to evaluate the efficacy and safety of botulinum toxin type A (BTXA) in patients with HSP.

Methods: Fifty-five HSP patients were selected. Each participant was submitted to one injection session of BTXA and one of placebo, separated by a period of 6 months. The primary outcome measure was maximal gait velocity assessed through a 10-meter walk test (10mWT), evaluated by a blind investigator, and secondary outcomes measures changes from baseline in comfortable walking velocity through 10mWT, spasticity, muscle strength, SPRS, pain, fatigue and subjective perception. We also looked at side effects reported by the patients.

Results: The mean age and disease duration of patients was 43 and 17 years, respectively. There were 36 men and 41 with pure phenotype. Mean maximal gait velocity did not differ between treatment or placebo groups after 8-weeks ($p=0.408$) as well as comfortable gait velocity ($p=0.292$) even with reduction in adductors tone ($p=0.002$), which was accompanied by diminution in its muscle strength ($p=0.043$). We did not find significant differences regarding SPRS ($p=0.417$), BPI-S (0.825), BPI-I (0.714) and MFIS (0.874). Subjective perception of worsening was not different between groups ($p=0.156$), likewise the proportion of patients who perceived improvement in overall symptoms ($p=0.253$).

Conclusion: Despite BTXA representing a safe treatment, no improvement was demonstrated according to the measures and instruments used to evaluate its efficacy.