

Conclusions.– This suggests that BoNT-A induces spinal plasticity leading to the recovery of reciprocal inhibition, which is likely to be due to the withdrawal of inhibitory control from Renshaw cells directly blocked by BoNT-A. This could help in limiting ankle muscle cocontractions in the transition phase from stance to swing, to assist dorsiflexion.

Further readings

Aymard C, Giboin LS, Lackmy-Vallée A, Marchand-Pauvert V. Spinal plasticity in stroke patients after botulinum neurotoxin A injection in ankle plantar flexors. *Physiol Rep* 2013.

Marchand-Pauvert V, Aymard C, Gibouin LS., Dominici F, Rossi A, Mazzocchio R. Depression of spinal recurrent inhibition after botulinum toxin A, *J Physiol* 2013.

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CO41-004-e

Central effects of botulinum toxin: Neurophysiological study in post-stroke patients with lower limb spasticity

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Keywords: Stroke; Botulinum toxin; Spasticity; H-reflex

Background.– The therapeutic effects of intramuscular injections of botulinum toxin type A (BTx) on spasticity can be largely explained by its blocking action at the neuromuscular junction. BTx is assumed to also have a central action by affecting the functional organization of the CNS. The aim of the present study is to assess the action of BTx on spinal motor networks by investigating the post-activation depression (post-AD) of the soleus H-reflex in post-stroke patients presenting lower limb spasticity.

Methods.– Soleus H-reflex was investigated in chronic hemiplegic patients before and 3, 6, 12 weeks after BTx-injections in soleus. H-reflex amplitude was analyzed in response to electrical stimulation of the tibial nerve at 0.1 Hz and 0.5 Hz. Post-AD was quantified as the ratio $H_{0.5Hz}/H_{0.1Hz}$.

Results.– The post-AD was significantly reduced in the affected side compared to the non-affected side before BTx injection. Three weeks after injection, the post-AD was reinforced in the paretic leg and significantly higher than in pre-injection condition.

Conclusions.– BTx-treatment restores the post-AD of soleus H-reflex in post-stroke paretic patients. As post-AD amount is correlated to the severity of spasticity, it can be assumed that BTx's effectiveness in post-stroke rehabilitation is also due to induced-changes in spinal motor networks.

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Passive mechanical obstacles vs impairment of neurological command in infant vs adult-acquired spastic paresis

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Background.– Compare muscle length, spasticity angle and active range of motion in adult paretic syndromes due to lesions acquired in infancy vs adult-acquired lesions.

Methods.– Cross sectional study from a retrospective chart review.

Population.– Convenience sample of 2 groups of clinic patients with spastic paresis due to an infant lesion (IL, $n = 11$) or to an adult-acquired lesion (AL, $n = 11$).

Evaluation.– Muscle length (X_{V1}), angle of catch (X_{V3}), spasticity angle ($X = X_{V1} - X_{V3}$), active range of motion (A) and angle of weakness ($X_{V1} - A$) in soleus, gastrocnemius, gluteus maximus, hamstrings, vastus and rectus femoris muscles at the initial evaluation (pre-toxin).

Results.– The IL group had shorter muscle lengths in gluteus maximus (X_{V1} , IL, 101 ± 5 ; AL, 120 ± 5 ; $P = 0.02$, Mann-Whitney) and hamstrings (X_{V1} , IL, 31 ± 7 ; AL, 63 ± 5 ; $P = 0.004$), smaller spasticity angles (X, gluteus maximus, IL, 7 ± 3 ; AL, 15 ± 4 ; $P = 0.04$; hamstrings, IL, 19 ± 4 vs AL, 42 ± 7 ; $P = 0.02$) and smaller angle of weakness across all muscles studied ($P = 0.04$, Wilcoxon). A was strongly correlated with X_{V1} across all muscles in the IL group ($P < 0.05$) while this was only true for plantar flexors and gluteus maximus in the AL group.

Conclusions.– Passive mechanical obstacles have greater impact on motor deficiencies in infant paresis than in adult acquired lesions.

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Posters

P202-e

Safety profile of 400 U onabotulinumtoxinA for the treatment of upper limb spasticity

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Keywords: Botulinum toxin; Safety

Background.– The safety profile of onabotulinumtoxinA for treatment of upper limb spasticity (ULS) was assessed across a range of doses to evaluate treatment with ≥ 400 U.

Methods.– Integrated data from 18 studies of onabotulinumtoxinA for ULS were evaluated by 4 dose groups (< 150 U, 150–250 U, 251–399 U, ≥ 400 U). Treatment exposure, incidence of adverse events (AEs), serious AEs, and possible distant spread of toxin (PDSOT) were assessed, together with the safety profile of patients who received 4 consecutive onabotulinumtoxinA ≥ 400 U treatments.

Results.– Overall, 1342 patients received ≥ 1 onabotulinumtoxinA treatment; 183 received ≥ 400 U, with 6.6% (88/1330), 12.3% (115/936), 23.3% (113/486), and 31.2% (96/308) in treatment cycles 1–4, respectively. AE rates were similar across dose groups, with no consistent increase in incidence of any individual AE/serious AE and no evidence of PDSOT at doses ≥ 400 U across treatment cycles. The overall AE rate among the subset of patients ($n = 51$) with 4 consecutive ≥ 400 U treatments was similar (43.1%, 43.1%, 43.1%, 41.2%), with no overall change in profile for AEs/serious AEs with increasing treatments.

Conclusions.– OnabotulinumtoxinA at doses ≥ 400 U was well tolerated in ULS patients, with no consistent pattern of increase in AEs at doses ≥ 400 U, reported systemic AEs, or change in safety profile over consecutive treatments.

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P203-e

Interests of medical hypnosis during toxin botulinic injections: Preliminary study

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Keywords: Toxin; Spasticity; Hypnosis; Pain

Background.– Our study concerns the efficiency of hypnosis during the injections of botulinum toxin. Hypnosis is widely used in medicine to decrease the anxiety and the painful felt, but few publications are appeared in physical medicine and rehabilitation.

Methods.– In this bi-centrique study, the injections are practised at 30 patient's spastics. Two groups are constituted: the group "hypnosis" (standards analge-