excitability was studied by collecting responses H, M and T, and the stiffness of the ankle in passive conditions measured by applying sinusoidal perturbations. 

Results. – Spastic equinovarus foot is associated with reflex hyperexcitability (ratios Hmax/Mmax average: 0.73; and T/Mmax: 0.66) related to central hyperexcitability plus hyper solicitation of muscle receptors to stretching related to the increased stiffness of visco elastic structures of the ankle (ankle passive stiffness measured average at 64 Nm/rad). This increase in passive stiffness is most probably linked with changes in elastic properties of spastic muscle and also with increased muscle rest tone by increasing the number of residual actin-myosin bridges. Lidocaine block causes a clinical improvement of all parameters associated with a decrease in reflex excitability (ratios Hmax/Mmax average: 0.24; and T/Mmax: 0.12 after block) and a significant decrease in stiffness (measured in passive condition) of 17% on average. The dominant effect of lidocaine is on the Ia afferent fibers but also by an action on the spindle sensitivity and resting muscle tone. The lidocaine block reproduces the effect of selective tibial neurotomy on all clinical and neuromechanical parameters. 

Conclusion.– We validated a complete neuromechanical protocol to study the spastic equinus foot in which it would be interesting to add the gait analysis laboratory. We show the stable long-term effectiveness of selective tibial neurotomy in the treatment of the spastic equinus foot and finally the predictivity of the lidocaine block. 


CO16-004–EN Ultrasound tracking for the identification of finger flexor muscles in the hemiplegic patient for a selective injection of botulinum toxin

P. Sportouch a, b, N. Brada a, S. Ghardimi Nassiri a, L. Stana a, A. Yelnik b

a Service de médecine physique et de réadaptation Widal 1, hôpital Fernand-Widal-Lariboisière, 200, rue du faubourg-Saint-Denis, AP–HP, Paris, France

b Hôpital Fernand-Widal-Lariboisière, Paris, France

*Corresponding author.

Keywords: Ultrasound tracking; Spasticity; Flexor digitorum superficialis and profundus stroke

Introduction. – Hemiplegia is often associated with a pattern of upper limb spasticity with adduction, internal rotation and flexion of the shoulder, pronation, flexion of the elbow, wrist and fingers flexion making difficult to identify and to treat flexor digitorum superficialis and profundus with botulinum toxin. The progress of high-frequency ultrasound probes has for many years allowed a precise location of osteo-articular structures. 

Objectives. – Our study aimed at assessing the feasibility of tracking flexor digitorum profundus and superficialis by ultrasound system in stroke patients. 

Material and method. – Ten post-stroke patients with an Ashworth modified score of at least two on the main upper limb muscles and with the upper limb spontaneously placed with elbow flexion, pronation of the forearm and finger flexion were included. An ultrasound probe with a high frequency of 10 MHz was used for the ultrasonographic tracking. Tracking sonography was performed in each patient’s healthy side, in the anatomical position and then flexion and pronation of the elbow and finger flexion. Then, each patient underwent an ultrasound tracking in the hemiplegic side of the flexor digitorum superficialis and the flexor digitorum profundus. 

Results. – The first set of ultrasounds allowed us to establish key benchmarks. Thus, from an axial section enabling to identify the biceps the brachial artery, then the pronator teres. The flexor digitorum superficialis was viewed from humerus, ulna and radius insertion. By moving the probe down, the flexor digitorum profundus could be identified. These two muscles, as well as the accompanying noble structures can be tracked until their distal end. For patients with moderate spasticity, this technique allows a precise anatomical location of the flexor superficialis and profundus muscles. However, for patients with high spasticity this technique requires an assistant’s help. 

Discussion et conclusion. – This identification technique with ultrasound system is simple and allows us to consider highly selective and safe injections of flexor muscle patients. Patients with neuro-orthopedic deformities and therefore difficult access for botulinum toxin injections could benefit from this technique.


CO16-005–EN Goal setting and attainment pertaining to upper and lower limb function in post-stroke spasticity (PSS) patients: The Botox® Economic Spasticity Trial (BEST)

A. Ward a, J. Wissel b, J. Borg b, N. Wright b

a North Staffordshire Rehabilitation Centre, University Hospital of North Staffordshire, Haywood Hospital, High Lane, Burslem, ST6 7AG

b Stoke-on-Trent, United Kingdom

© 2019 Elsevier Masson SAS. All rights reserved. - Document downloaded on 02/09/2019 It is forbidden and illegal to distribute this document.