CONCLUSION:

The previous works reported the decrease in JPS as a feature of CP. The previous works did not differentiate between the limbs with normal and exaggerated reflexes. Our study strongly suggests that JPS is affected only in limbs with normal reflexes but not in limbs with exaggerated reflexes. So, it is not a common feature related to CP. It seems that the exaggerated reflexes may play a positive role in improving the JPS.

RESULTS:

To determine whether the exaggerated tendon reflexes affect the JPS, the moment of force (R) from individual limbs were classified into two groups: with exaggerated (EX) and no exaggerated (NEX) reflexes. The R data from healthy individuals (n=36) was normally distributed with mean=1.42 and SD=1.33, Range (0.16-4.56), with 95th percentile at 4.17, thus the threshold for classification of exaggerated reflexes was determined as $R \geq 4.17$.

We found that JPS was worse ($p=0.014$) in the limbs with NEX reflexes (57.62±44.58) than in control limbs (11.84±10.85). JPS in limbs with EX reflexes (18.44±15.16) were smaller than in limbs with not exaggerated reflexes NEX, but it was not statistically significant ($p=0.21$). The difference in JPS between control limbs and limbs with EX reflexes was not statistically significant ($p=0.29$).

INTRODUCTION:

Joint-position sense (JPS) is one of the most often evaluated components of proprioception. JPS uses inputs from muscle receptors, joint and cutaneous receptors to define the static limb position in the space. It is well established that the information from muscle spindles contributes to proprioception. A muscular response to tendon tap (tendon jerk) is a clinical representation of short latency stretch reflex that originates predominantly from Ia muscle spindle afferents. Exaggerated reflexes are one of the most common symptoms in patients with cerebral palsy (CP). Decrease in JPS was reported in CP patients. However, the relation between JPS and reflex was never studied.

The aim of the study was to determine whether the exaggerated short latency reflexes affect JPS in subjects with CP. It was achieved by comparing JPS in the limbs of patients with CP with normal and exaggerated reflexes.

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