Hamstrings Muscles Shortenings in Association with Myofascial Pain Syndrome at Chronic Low Back Pain

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Introduction. Hamstrings muscles shortening (HMS) is a very frequent muscular dysfunction in the modern population [Salminen, 2000]. Inactive lifestyle, permanent sitting, growing age and repetitive knee flexion position may cause hamstrings tightness, imbalance and reciprocal inhibition-facilitation of deep back muscles or stabilizers of spine as negative feedback. to the study focused on finding any relationships between HMS and myofascial pain syndrome (MPS) at chronic low back (CLBP) patients according to the D. G. Simons and V. Janda's postulates.

The aim. The aim of the research is to study the correlation between HMS and MPS in patients with CLBP.

Materials and methods. 132 volunteer subjects, 68 men and 64 women, participated in this study. All patients were diagnosed with CLBP of at least 6-months duration. The study was carried out between 2011 2012 in different practices in Latvia. MPS was diagnosed according to D. G. Simons, 1999, MPS criteria [IASP, 2009] and manual muscle strength-length examination (MMS) for hamstrings muscles after F. P. Kendall, 2005. Descriptive statistics were analysed by StatPlus 5.3 and *SPSS 12.0* version. The relationships between HMS and MMS were analysed by Pearson's correlation coefficient (r), standard deviation (SD, σ) and p-value. The study was designed as cross-sectional observational pilot study.

Results. From all (n = 132) the MPS patients with CLBP, HMS was found in 122 cases (94.4%). HMS prevalence in females was observed at 49.1%, in males – 50.9%. χ^2 test for males – 0.21%, p = 0.7 (without statistical significance of sex). MMS at HMS was showed as hamstrings muscle shortening/tightness – 94.4%. HMS stratification by age group showed that 15–20-year-olds possessed 62%, 21–30-year-olds – 71%, 31–40-year-olds – 79%, 41–50-year-olds – 84%, 51–60-year-olds – 88%, 61–90-year-olds – 93% r = 0.87 (SD ± 0.14), p < 0.0001. Correlation between MPS and HMS in patients with CLBP was r = 0.89 (SD ± 0.12), p < 0.0001.

Conclusions. Incidence of HMS in patients with MPS at CLBP was 92.4% without statistical significance of sex. HMS strongly correlates with MPS affected muscle hamstrings. HMS frequently and linearly correlates with aging. Commonly, HMS and MPS showed positive correlation in patients with CLBP. HMS epidemically affects our population and may cause CLBP as one of possible myogenic CLBP causes.