

Muscle Tension is Increased in Fibromyalgia: Use of a Pressure Gauge

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ABSTRACT

PURPOSE: Fibromyalgia (FMS) patients complain of pain all over, including muscle pain. The purpose of our study was to assess intra-muscular pressure in patients with fibromyalgia compared to normal controls.

METHODS: We enrolled 10 patients with a known diagnosis of FMS and 10 healthy controls. We measured intra-muscular pressure in the bilateral trapezius muscles using a pressure gauge machine. This device was adapted from one used by the orthopedic department to assess pressure in anterior compartment syndrome. We collected data on tender points (1-10), pain scale (1-10) and active medications at the time of examination. A two sample Wilcoxon Ranksum (Mann Whitney) test was used to compare the intra-muscular pressure in the two groups.

RESULTS: The mean (\pm SD) age of FMS group and normal controls was 47.4 (\pm 6.8) and 35.4 (\pm 10.1) respectively. All patients were female. The mean and median intra-muscular pressure in the trapezius muscle of FMS patients was 12.5mmHg (\pm 3.7); 13 mmHg on the left side and 12.2mmHg (\pm 2.9) on the right side. The mean and median intra-muscular pressure in trapezius muscles of normal healthy controls was 6.8mmHg (\pm 0.63); 7mmHg on the left side and 6.9mmHg (\pm 0.87) on right side. The level of intra-muscular pressure was significantly higher in patients with fibromyalgia than in control patients ($p < 0.001$). The mean (\pm SD) pain in patients with FMS and normal control was 6mm (\pm 2.2) and 0mm (\pm 0) respectively. The mean (\pm SD) tenderness in patients with FMS and normal control was 5.2mmHg (\pm 1.9) and 0mm (\pm 0) respectively.

CONCLUSIONS: Intra-muscular pressure is significantly higher in patients with FMS compared to normal healthy controls. FMS patients may have chronically tense muscles, which could be a possible mechanism for the diffuse pain these patients experience. The precise explanation for increased muscle tension in FMS patients is uncertain and should be explored further to attempt to understand the pathophysiology of this enigmatic disorder.

PURPOSE

Fibromyalgia (FMS) patients complain of pain all over, including muscle pain. Their muscles usually tender. The purpose of our study was to assess intra-muscular pressure in patients with fibromyalgia compared to normal controls.

Katz et al *Arthritis and Rheumatism* 2006 reported that the cervical spine in FMS patients lacks the normal lordotic curvature, suggesting possible increased muscle tension. In a study in the *Journal of Rehabilitation Medicine* (2002), Kendall et al. reported that perceived general muscle tension correlated with aspects of anxiety proneness, as assessed by the Karolinska Scale of Personality, but did not correlate with surface EMG muscle hyperactivity. In *Pain* (1990) Zidar et al. using surface EMGs also failed to demonstrate any electrically detectible muscle activity in painful muscles. On the other hand, surface electromyograph electrodes on the knee extensors and flexors detected abnormalities in a study by Wachter et al (Spine, 1996).

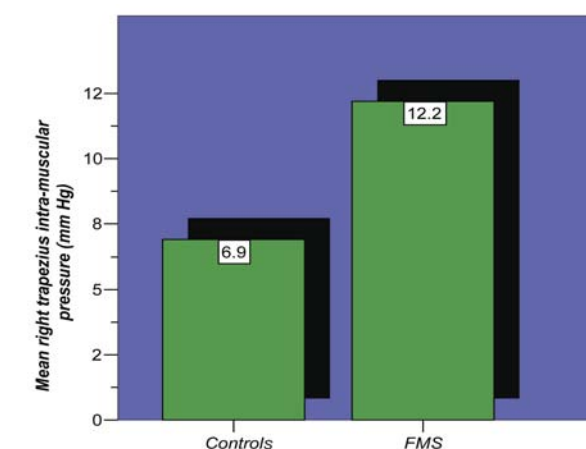
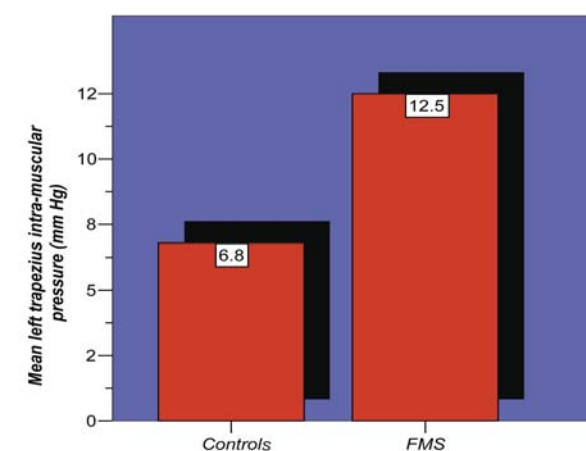
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CONCLUSIONS

Intra-muscular pressure is significantly higher in patients with FMS compared to normal healthy controls. FMS patients may have chronically tense muscles, which could be a possible mechanism for diffuse pain. The precise explanation of increased muscle tension in FMS patients is uncertain and should be explored further to attempt to understand the pathophysiology of this enigmatic disorder.