

Clinical and electroneurophysiological mechanisms of myofascial pain syndrome in relationship with cytokine expression

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Background: Myofascial pain syndrome affects hundreds of millions of people worldwide resulting in higher medical costs due to limited treatment efficiency and the need for preventive measures. Pathognomonic symptoms in myofascial pain are highly sensitive local myofascial nodules in skeletal muscles. Despite numerous ongoing studies regarding etiopathogenesis and treatment of this disorder, it remains highly prevalent (up to 85% of population) pointing to further research. Different medical specialists try to unravel a secret of myofascial pain that confirms the necessity for multidisciplinary approach to this problem. Given the integrative role of central nervous system, its plasticity as the important property enabling adaptive holistic host responses in health and disease, it appears reasonable to examine relationship between clinical-electroneurophysiological mechanisms of myofascial pain syndrome in correlation with cytokine expression profile. There are only few publications on cytokine expression in myofascial pain. They mostly deal with serum and muscle tissue cytokine profiles in athletes performing long-term physical activities.

Aim: To examine clinical and electroneurophysiological patterns in dynamic correlation with cytokine responses in patients with myofascial pain to further delineate pathogenetically based complex treatments including methods of complementary medicine (various acupuncture techniques, osteopathy, hirudotherapy, etc.).

Materials & Methods: Subjects of the study are 54 patients with myofascial pain syndrome (aged 18-55, 34 females, 20 males) and 25 healthy controls matched for age and gender. The informed consent was obtained from all participants. We conduct comprehensive clinical and electroneurophysiological examination combined with quantitative real-time PCR cytokine profile expression (IL-1 β , IL-8, IL-4, IL-10) in core needle muscle biopsies taken from highly sensitive myofascial nodules. Subjects had received advanced treatment involving different methods of osteopathy, acupuncture, hirudotherapy, antihomotoxic preparations.

Results: There is an increase in expression of proinflammatory cytokines IL-1 β , IL-8 in untreated patients versus controls. Patients after treatment up-regulate expression of anti-inflammatory cytokines IL-4, IL-10. Changes in cytokine expression correlate with biomarkers of brain polysynaptic reflex excitability.

Conclusion: Study of tissue cytokine expression in myofascial pain syndrome in correlation with regular clinical and neurophysiological biomarkers might serve for improving personalized diagnosis, choice of treatment modalities, prognosis and prevention.

Biography

Aigul A Safiullina is currently a PhD student at Neurology, Reflexotherapy and Osteopathy sub-faculty at Kazan State Medical Academy-Russian Medical Academy of Continuous Professional Education. She has published more than 20 papers in reputed journals.

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