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## SCAPULOHUMERAL MYOFASCIAL PAIN SYNDROME

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**Abstract:** The latent or active local myofascial hypertonicity is a component of muscular tonic pain syndromes in the scapulohumeral region and a triggering factor in the long chain of subsequent changes. Expansion of contractile activity of several muscles contributes to the formation of regional and generalized muscular-tonic syndromes in the scapulohumeral region. A subsequent clinical pattern is dominated by the independent existence of the syndrome, supported by local and regional degenerative changes of muscle and bone tissue in the affected quadrant. Development of adequate acupuncture recipes for the treatment of pain syndromes in the scapulohumeral region continues to be relevant. The combined use of acupuncture and manual therapy has shown a high therapeutic efficacy in the treatment of patients with myofascial hypertonicity in the scapulohumeral region.

**Keywords:** Myofascial pain, myofascial hypertonicity, scapulohumeral pain syndrome, acupuncture, manual therapy.

### 1. Introduction

The study of myofascial pain is one of the urgent problems of modern neurophysiology, neurology, and vertebral neurology. Myofascial pain includes peripheral and central mechanisms of deformation of the contractile muscle apparatus, changes in the reflex activity of the spinal cord and supraspinal structures, impairment of the movements construction and performance program, distortion of the autonomic regulation of motor processes, reduction in activity and adequacy of the antinociceptive system, and cognitive evaluation of the result of the motor act. The basis of myofascial pain syndrome is a local myofascial hypertonicity, acting as a triggering, supporting and transforming factor of numerous pathophysiological processes.

The study of clinical, electromyographic features of myofascial hypertonicity (triggers) of the rotator cuff is important in the clinical findings, diagnosis, treatment and prevention of common diseases such as the scapulohumeral pain syndrome.

Objective of the study was to develop clinical, electromyographic (spinobulbar-spinal reflex), X-ray criteria for the diagnosis and assessment of the effectiveness of the treatment of the scapulohumeral pain syndrome.

## **2. Objects and Research Methods**

**Materials and Methods.** We observed 120 patients with the myofascial hypertonicity (MFHT) in the shoulder muscles, the degenerative-dystrophic changes in the cervical spine, and the scapulohumeral periarthrosis. Among them were 36 men and 84 women aged 18 to 80 years, with disease age from 1 month to 15 years. We conducted a neurological, radiological, orthopedic, electromyographic, and rheovasographic examinations. The results were processed statistically.

Based on these data, the patients were divided into 4 groups: group 1 - 24 patients with active MFHT in the scapulohumeral region, group 2 - 26 people with latent MFHT in the scapulohumeral region, group 3 - 39 patients with scapulohumeral periarthrosis and active MFHT, and group 4 - 31 patients with scapulohumeral periarthrosis and latent MFHT.

## **3. Results**

Results of the study revealed that groups 1 and 2 had dominant functional disorders of the locomotor system (neck, shoulder girdle), without any organic changes of both the muscle tissue and osteoarticular apparatus in the scapulohumeral region. It was found that these patients have intense pain due to musculo-tonic disorders of cervical and periarticular muscles, which increases at movements in the neck and shoulder. An objective study revealed the first and second degree of shortening of the subscapular, supraspinous, infraspinous, and teres minor muscles, as well as light local muscular hypertonicity on the background of increased muscle tone; range of motion in the shoulder joint and scapula were not constrained. Radiograms showed no shoulder joint restructuring, and the moderately pronounced signs of the deforming spondyloarthrosis and osteochondrosis were revealed in the cervical spine.

The clinical pattern of patients of groups 3 and 4 was characterized by pain and restricted motion in the shoulder joint, considerable MFHT in the adductor muscles of the shoulder joint: subscapular, greater pectoral, infraspinous, teres major, and broadest muscles, apparently due to a long presence of a contractile process, which over time was complicated by the development of degenerative processes in the muscle. The radiograms of the cervical spine showed distinct signs of cervical osteochondrosis and spondyloarthrosis. The radiograms of the shoulder joints had signs of degenerative changes: the osteoporosis of the shoulder girdle bones and greater tubercle, the cystoid

restructuring of small and large tubercles, the hardening of the greater tubercle, shoulder apophysis, and intertubercular fissure, the deformation and calcification of the greater tubercle and shoulder-acromial ligament.

All groups underwent analysis of the dynamics of the latent period of the spinobulbar-spinal (SBS) reflex and the inhibition phenomenon regularity before and after treatment. The studies of found that SBS reflex manifested itself in patients with MFHT (groups 1 and 2) in the chest and in the deltoid muscle, but the differences in SBS reflex performance in the adductor and abductor muscles are impossible to identify. In case of the developed contracture (group 3 and 4), a difference can be clearly seen in the form of a well implemented SBS reflex in the chest muscle and inhibited in the abductor muscle (deltoid). A braking phenomenon in abductor contraction is the same and not regular without muscle contraction.

We developed the feasible methods of therapy, depending on the severity of the disease and the forms of pathological mechanisms underlying the pain syndrome, the techniques of individual selection of acupuncture points with the inclusion of a soft manual therapy techniques. Treatment of patients with pain in the scapulohumeral region was carried out differentially. We used general tonic, locally-segmental points of the main meridians, miracle meridians and auricular points. Acupuncture was combined with post-isometric relaxation of the muscles of the rotator cuff, cervical region, and the positional mobilization of joints.

After the treatment, we observed a good dynamics in the coefficient and degree of recovery of functions and range of motion in the shoulder joint, increase in muscle strength, decrease in muscle soreness performance and degree of muscle tension, as well as the positive electromyographic changes.

## **Summary**

Thus, the latent or active local myofascial hypertonicity is a component of muscular tonic pain syndromes in the scapulohumeral region and a triggering factor in the long chain of subsequent changes. Expansion of contractile activity of several muscles contributes to the formation of regional and generalized muscular-tonic syndromes in the scapulohumeral region.

A subsequent clinical pattern is dominated by the independent existence of the syndrome, supported by local and regional degenerative changes of muscle and bone tissue in the affected quadrant. The combined use of acupuncture and manual therapy has shown a high therapeutic efficacy in the treatment of patients with myofascial hypertonicity in the scapulohumeral region.

## **Conclusion**

Based on the results of the conducted studies, a comprehensive use of acupuncture and soft techniques of manual therapy of myofascial pain syndromes in the scapulohumeral region are efficient and cost-effective methods of treatment. Analysis of the research experience makes it possible to use the techniques of acupuncture and manual therapy, subject to the complaints of the patient, clinical findings, age and severity of disease, and the examination results.

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