



Clinical Approaches to the Treatment of Chronic Pain Caused by Professional Workloads of Dentists

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Annotation: The occurrence of diseases as a result of professional exposure to the body by counteracting factors always has the specificity of multiple symptoms. A special category includes the problems of motor pain disorders associated with overstrain and micro traumatization, where a significant role is played by the defeat of the upper limbs (1, 3).

Keywords: micro traumatization, counteracting factors, myofibrosis, neuroimage.

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The regularity of this fact is due to the anatomical structure of the shoulder girdle, greater functionality to perform power movements, manual labor, physical stress, where a speedy reaction is required (2, 6). Not a little important fact in the professional defeat of the musculoskeletal system plays a forced position, a long monotonous and the same type of characteristic movement, both of individual muscles and of a whole group of muscles (4, 5). Taking into account the reaction of the body itself to the forced load and taking into account the capabilities of the body, diseases of the musculoskeletal system can manifest themselves differently in representatives of the same professions, for some, adaptation to physical activity is favorable, for someone with deformation in the bone structure and muscle dysfunction, inflammation of the joint cavity. More than 40 % of all degenerative-dystrophic diseases of the muscles of overstrain are occupied by myofibrosis of the upper extremities, which occurs at the time of muscle overstrain and their atrophy with the formation of fibrosis (3, 5, 7). Diagnosis by the method of neuroimaging of muscle pathology needs to be widely implemented, and the anamnesis of the connection between myofibrosis and professional activity.

Target. To study the signs of suspicion of myofibrosis in dentists using neuroimaging.

Material and research methods. The examination was subject to doctors of the dental office at the age of 30 to 45 years, in the amount of 50 people. All examined gave their written consent to the examination and diagnosis of occupational myofibrosis. The results of the examination were carried out with the criteria of sanitary and hygienic control, on an outpatient basis (private dental clinics and a dental office 1 - clinic of SamMI), for the period 2020-2021. The work experience of doctors ranged from 5-10 years (Group 1) and from 11-17 years (Group 2). Of these, there were 13 women ,

37 men. The first stage in the study was the determination of a fixed, forced working posture - this is raising the arm above the head and bending the torso. The time used in this working position during the period of dental procedures per patient (based on standard timing data), torso angle in static load. In addition, the examination included the study of complaints (mainly for pain, hypoesthesia), palpation of the muscles of the upper girdle (shoulder and forearm), static-dynamic test. Of the total number of examined, doctors of the dental office (DSC) with suspicion of occupational myofibrosis underwent neuroimaging (MRI) and instrumental examination. Statistical data were performed on an individual computer using the Mann Whitney test.

Research results. The main complaints of the examined VSCs were muscle pain in the forearm and shoulder. At 55% at the end of the working day, 45% during the whole working day, it intensified in the evening. Another common complaint is a decrease in strength in the arm (since of all the examined, only one doctor had a working hand on the left, the decrease in strength was on the right side). All those examined experienced a feeling of numbness, but only 59% experienced pain on palpation, and the strength of the decrease was 38%. In 63%, muscle tissue thickening was noted. That is, the data obtained conclusively confirm the overstrain of a functional nature, in the first group (where the experience reached no more than 10 years, and the age of the doctors was younger) is moderately pronounced, in contrast to the second group. In the second group of VSC, concomitant diseases were found, arthrosis in three doctors of the shoulder joint, in 2 elbow joints (according to the literature data, deforming arthrosis is the result of frequent vibrations of the devices used in the work). As a result of a thorough clinical and neurological examination, attention is drawn to the violation of the vegetative nature of the limb to the touch, pronounced dermographism, dryness of the skin, compared with a healthy hand. Only 5 people out of 50, these are the doctors of the 2nd group, turned to specialists for the treatment of pain in the arm, that is, the duration of the functional load was constant, the doctors did not give themselves the opportunity to "rest" the arm, change the working group, reduce the stress load, some doctors violated the work schedule and worked in 2 shifts (normally 3 hours). Thus, in VSC, myofibrosis could be suspected in the case of a complex indicator of complaints in the muscles of the arm, soreness and tightness in the muscles, muscle strength by 3-4 points, taking into account the work experience and concomitant disease in the form of arthrosis and disorders of the autonomic and peripheral nervous system. Of the total number of examined, 13 doctors of the dental office were suspected of myofibrosis (judging by the symptoms described above). For more accurate information, the study of the muscle structure is proposed by the method of MRI diagnostics (Signa explorer General Electronic (GE -2020) (USA)). Of the 13 people, 4 had signs of the initial stage of myofibrosis, 5 had more than 10 years of experience, signs of the 2nd stage, and 4 had not confirmed the diagnosis. At the 1st (initial) stage, edema of the muscle mass was detected, the optimization diameter was increased, the muscle tissue itself was smaller than normal. If at an early stage there is an inflammatory nature of the disorders, then at a later stage 2, the level of storage of the process is noted, there is no swelling of the muscle tissue, and the muscle is not able to accumulate a contrast agent, which is reflected in the image of the magnetic resonance signal, the optimization thickness is increased, the wavy uneven contour of the muscle tissues, the muscle is atrophied.

If the neuroimaging data, out of the total number of those examined, were relatively scarce, then the electroneuromyography indicators expanded the level of change, indicating the involvement of nerve fibers in the pathological process. So in 27% of the examined, the speed of impulse conduction was reduced both along the motor and sensory fibers, especially since this indicator corrected with complaints of weakness in the arm. The process of stimulation of ENMG in the motor fibers (naturally in the proximal section) showed a decrease in the amplitude of the M-response, and with irritation of the sensitive lines, a noticeable decrease, which indicates the demyelinating nature of the lesion in relation to sensory disturbances and obsonal in relation to motor changes. Only in 2 patients a partial block in the conduction of impulses was found according to the level of severity. In addition to

complaints of pain in the arm and shoulder (mostly on the right side as described above), physicians experienced irradiation of more than 37% to the neck, 10% to the shoulder blade, or to the fingers in 26%. The irradiation had the character of a vegetative disorder, which was of a burning nature of pain, paresthesia 59% in the arm, or goosebumps 18 %, 19% tingling, or “electric shock” 13%, the largest percentage was a feeling of constant cold extremity (arm freezes). In 39%, cyanosis of the skin of the hand was noted, in 10% puffiness was noted (more in the morning). Paleness of the skin, dryness of the skin, brittle bones on the affected side were mainly observed in doctors who complained of irradiation to the cervical region in 12.5% of cases. neuropathic syndrome was found in 40% of the examined, in 7% there was a lesion of the upper primary bundle of the brachial plexus itself, from the side of the lesion. As a result, in the aggregate examination of a detailed clinical and neurological examination, paresis of varying degrees was found, in 9 patients with VSC moderate, in 12 cases mild. Reflexes are reduced on the affected arm (permostal) in 22% of cases, hypotrophy, respectively, in the same amount.

Thus, prolonged relatively moderate pressure on nerve fibers led to chronic peripheral impairment of the upper limb and, in some cases, to myofibrosis in dentists. One of the modern informally logical methods of influencing a spasmodic muscle is kinesio taping . The basis is the application of an elastic adhesive plaster on the skin, in which the adhesive plaster takes over the load on the muscle, with improved lymph and blood outflow. Kinesio taping allows the body to stabilize muscle tissue to improve intercellular circulation, while contracting a certain muscle group, they are restored to their original condition (before the onset of pain). The application of the tape depends on the nature of the pain and the violation of the muscle function described above. Two types of teip were used in the work: U-shaped and I - shaped. The position of the patient must be created as comfortable as possible, and in this position, the muscles on the affected side are maximally stretched. This creates a decompression of the connective tissue, and in turn, by strengthening the space above the inflammatory focus, it reduces the compression of muscle tissue, removes inflammatory mediators, reduces the pain syndrome, and a treatment system is created by relaxing the muscle. Taping was performed in all patients diagnosed with myofibrosis and VSC with suspected myofibrosis . After the completion of the taping procedure, a decrease in pain syndrome was found in 100% of cases. This was especially true for doctors who did not have confirmed myofibrosis , but had chronic myofascial syndrome, 10 people from group 1 (whose experience did not exceed 10 years). In the 2nd group of VSC, where myofibrosis was confirmed, doctors needed to continue and consolidate effective correction - they were prescribed kinesiotherapy (motor stereotype), training and active participation of patients in the development of certain types of exercises. Re-observation of MRI of this group of patients revealed , with this approach to therapy, a significant improvement, the thickness of the epimesia corresponded to the norm, the contours of the muscle itself became clearer, there was no edema due to inflammation of the connective tissue.

Thus, having studied the working conditions of dentists, a professionally conditioned overstrain (statistical) was found, in which, taking into account the long work experience, non-compliance with the working hours, a chronic peripheral disorder of the nervous system of the upper extremities develops. Myofibrosis in dentists was detected in 7 out of 50 people, the peculiarity of the disease is a complex combination, work experience of more than 10 years, other diseases (arthrosis), physical overload. In order to avoid the progression of pathological progress, VSK must comply with the social and hygienic instructions of the work and rest regimen, and be examined by medical colleagues in a timely manner.

CONCLUSIONS

1. Neuroimaging (MRI) of the musculoskeletal system in the diagnosis of myofibrosis , chronic myofascial pain, provides a unique opportunity and advantage over other diagnostic methods, especially in the early and initial stages of the pathological process.
2. The approach to treatment by kinesio taping and kinesiotherapy is aimed at correcting the link of pathogenesis pain syndrome and prevention of myofibrosis does not require certain conditions, an inexpensive non-pharmacological method, which can be quite widely used in medical and recreational institutions.

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