



Consistent Views in the Treatment of Temporomandibular Joint Dysfunction

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Annotation: The article describes the complexity of clinical manifestations of temporomandibular joint dysfunction, which forces patients to turn to doctors of different specialties, which in turn leads to a therapeutic effect on a certain link in the development of the disease. Due to the diversification of the nosological system, a small invasion should be implemented in the treatment of this pathology with the involvement of doctors of a narrow profile. The availability of treatment methods and medicines for the treatment of patients with this pathology of a functional nature is represented by a large range, which in turn causes intricacy in choosing an approach to treatment for a doctor.

Keywords: musculoskeletal dysfunctions, temporomandibular joint, occlusive splints, myogymnastics.

The multiplicity of clinical manifestations of TMJ and masticatory muscle pathology forces patients to turn to doctors of different specialties, which in turn leads to a therapeutic effect on a certain cell of pathogenesis. Since there is no standard or algorithm for providing outpatient care to patients with TMJ and masticatory muscle pathologies from the point of view of most researchers, due to the diversification of the nosological system, a small invasion should be implemented in the treatment of this pathology with the involvement of narrow-profile doctors. The availability of treatment methods and medicines for the treatment of patients with this pathology of a functional nature is represented by a large range, which in turn causes intricacy in choosing a treatment approach for a doctor [4,9,10,16,33].

The available sources describe the use of devices such as the Miller apparatus, the Petrosov fixed splint to limit the opening of the mouth in the treatment of patients with subluxation of the heads of the lower jaw. In the works of V. P. Potapov (2008), it is described about the use of mechanisms limiting the opening of the mouth in patients with dislocations of articular discs. This mechanism consists of a limiting elastic ring and a stamped orthodontic crown to which a hook loop is soldered. The final result of the treatment, which lasted for 3-6 months, was the ordering of the ratio of intra-articular elements [22].

Since one of the main causal mechanisms of the development of musculoskeletal dysfunction (MCD) are occlusion disorders, many researchers prefer orthopedic treatment (occlusion-oriented), while using occlusive splints (splint therapy) and selective grinding of teeth [13,30,31,39].

Based on the functional classification of V.A. Khvatova and S. O. Chikunov (2010), occlusive splints are of 4 types: disconnecting, relaxation, stabilizing, repositional [28].

The use of a repositional tire made of polymer materials for 1-3 months, according to A.V. Adonyeva et al. (2015) promotes the reduction of the mandibular head to the centric position [2]. In the works of A. A. Dolgalev et al. (2016) it is suggested that the use of repositional occlusal splints in the treatment of patients with MSD contributes to the codification of indicators: the volume of movement - during the opening of the mouth in the sagittal plane, and at the time of application - the volume of laterotrusions [11].

Disconnecting splints in the treatment of MSD were used by H. Y. Hanahok et al. (2014), in patients with general somatic diseases with reduced occlusal height, with a narrowed articular gap in the upper-posterior orientation [27].

With excessive volume of movements in the joint, zigzag movement of the lower jaw when opening the mouth, V. Yu. Skorikov et al. (2016), used a stabilizing splint with limiters for vertical movement of the lower jaw. At the same time, an elastic limiter fixed on a bracket, mounted on a canine or premolar, was used [24].

I. N. Baradina (2014) suggested using an individual relaxation splint during restorative measures of the occlusal curve and the prosthetic plane, as well as to restore the muscle tone of the maxillofacial region. By pressing semi-rigid plates with a thickness of 3-4 mm, an individual relax tire is produced[5].

Y.L. Pisarevsky et al. (2005) used an individual acrylic removable device consisting of a palatal plate with overlays on the chewing teeth for deocclusion. This individual acrylic removable device was used to treat the syndrome of hypermobility of the temporomandibular joint. According to the authors, this device has a therapeutic effect due to unplaced hypertrophy of the alveolar process of the upper jaw, a simultaneous increase in the interalveolar distance and the formation of an updated interdental and alveolar height. As a result, the author supervised the normalization of the bio-electrical activity of the masticatory muscles and permanent clinical remission was obtained in 93.6% of cases [20].

S. A. Seifeldin and K. A. Elhayes (2015) conducted a comparative study in the treatment of patients with MSD with a "flexible" elastic splint and a "rigid" acrylic splint. After 120 days of therapy, the best indicators for the state of the TMJ and muscles were noted in patients treated with a flexible splint [40].

As it turned out, in the works of Arsenina O.I. et al. (2016), that at rest, and with a masticatory load of the masticatory and temporal muscles, the use of an elastic mouth guard (elastopositioner-corector) favors a decrease in the activity of these muscles. The use of an elastic mouth guard contributes to the normalization of the coordination coefficient of the masticatory muscles both on the right and on the left and when the dentition is compressed, and the number of teeth in contact with antagonists increases [3].

The use of template trainers, according to A.A. Dolgalev et al. (2017), implemented by the method of hot polymerization from acrylic or by the method of vacuum press from rigid blanks in persons with active function of masticatory muscles, revealed insufficient endurance of acrylic to loads. Greater profitability in the treatment of patients with manifested hypertonicity and parafunctions of the masticatory muscles is achieved by the appropriation of individual orthotics made of variously rigid two-layer silicone. In the integrative method of deocclusion therapy, the authors carried out selective

grinding of teeth to exclude premature and blocking contacts and the occurrence of conditions for shifting the lower jaw to a centric position [12].

Until now, patented methods of selective grinding of teeth by S.N. Schuyler, V.A. Jankelson, X.A. Kalamkarova, N.N. Abolmasova have been used at the practical reception of doctors. Thus, according to the method of V.A. Jankelson, it is possible to eliminate supercontacts only in a centric ratio. The author of this method claims that, during the chewing act, the contact of teeth occurs through a food lump and only in the final phase contact with teeth is dehumidified. For the installation of uniformly occlusal contacts between dental rows, according to S.N. Schuyler, a grinding is needed taking into account the antero - lateral mandibular movements, since they are functional for the patient. Prematurely contact occlusions, according to the method of X.A. Kalamkarov, are directed to the elimination of both function and parafunction. The result of this method is the formation of simultaneous multiple occlusal contacts over the entire surface to preserve the position of the lower jaw. Acting according to the method of N.N. Abolmasov, selective grinding of teeth must be performed in the central, anterior, posterior and lateral occlusions [1].

In patients with myofascial pain syndrome, information is given, in the works of many researchers, about the effectiveness of occlusive splint therapy in comparison with pharmacotherapy. According to the clinical indicators and long-term results, according to R. Rashid and Waseem-Ul-Ayoub (2017), therapy with an occlusive splint turned out to be more effective. [38].

Meanwhile, in the process of analyzing the effectiveness of drug therapy for facial pain, B. Häggman-Henrikson et al. (2017), the use of nonsteroidal anti-inflammatory drugs, glucocorticoid blockade and hyaluronic acid in the treatment of TMJ dysfunction, and muscle relaxants in the treatment of myofascial syndrome proved to be more effective. [37].

Following the references of many researchers in the treatment of complicated hypertonicity of muscles with functional joint disorders, pharmacotherapy is included in complex therapy, with a preference for psychotropic drugs. [32,34].

With TMJ, according to N.V. Plyaskina (2004), in combination with classical therapy, the addition of Fluoxetine (an antidepressant) contributes to the stable elimination of pain in 81.8% of patients [37].

In studies that took place not so long ago, it is stated that botulinum toxin is optimal in the neurological therapy of patients with muscle spasms and pain syndromes. So the results of clinical studies S.N. Fedotov et al. (2017) determined that the addition of intramuscularly botulinum toxin injections into morphologically altered masticatory muscles to complex therapy in patients with TMJ promotes relief of pain sensitivity, an increase in the trajectory of movement of the lower jaw, and stability of the masticatory act. The therapeutic effect was provided 20-25 days after one intramuscular injection of this drug.[6].

For the therapy of disc dislocations, according to O.R. Orlova et al. (2017), botuloneuroprotein can be used by intramuscular injection into the lateral pterygoid muscle.[7].

At the moment, the highly effective inclusion of pharmacotherapy in the complex treatment of TMJ associated with undifferentiated connective tissue dysplasia and disorders of the neuroendocrine system has been established. Together with classical methods of therapy of patients with TMJ and connective tissue dysplasia, in the studies of K. A. Ovchinnikov et al. (2016), the use of magnesium preparations is effective for enzymatic reactions, regulation of cell permeability and neuromuscular excitability.[17].

In some studies, sayings are given about the effectiveness of hormonal adjustments in the general treatment of TMJ in women at different ages. Proved legitimacy, Y.L. Pisarevsky et al. (2000), the use of a combined monophasic oral contraceptive in the complex treatment of TMJ in women of

reproductive age. The researchers found that many women had a long-term postponement of pain in the TMJ area, as well as an improvement in the existing menstrual abnormalities, while there were no remotely observed TMJ [19].

Correction with Diphenin, in the studies of S.V. Fomin (2003), it was proved that with MSD of the TMJ in girls with normal and disturbed menstruation cycles, with an improvement in the course of the disease, the disease weakens prolonged repeated discharges and potentiation in nerve and muscle cells due to membrane-stabilizing activity in motor disorders. [26].

The need to normalize the processes of bone resorption in the postmenopausal period and to increase the mass of bone tissue, as well as to reduce the loss of calcium through the urinary system, the effectiveness of the use of a selective modulator by V.F. Shcherbakova (2008), in the complex treatment of TMJ against the background of estrogen secretion disorders has been proven [29].

Indicate the importance of myogymnastics, V. V. Parshin et al. (2015), in the recovery program for patients with TMJ. These classes make it possible to achieve normalization of the mandibular amplitude, eliminate the pain symptom by affecting individual masticatory muscles to regulate their rhythm, while much attention is paid to the hyperlordosis of the patient through the preparation of personal supinators [18].

The authors, both domestic and foreign, note a huge role in the profitability of osteopathic treatment with combination therapy in patients with TMJ. So if there is postotonic accommodation in the patient and signs of TMJ, then an osteopath should enter into the work. The essence of therapy is to correct visceral abnormalities: correlative, external and ligamentous dysfunctions of the lower extremity levels, pelvic region and spinal column, then the dentist comes into play. If there is a descending postural adaptation (a descending pattern of biomechanical disorder), then after agreeing on tactics, the dentist and the osteopath begin therapy together. The osteopath's therapy includes correction of the musculoskeletal and articular components of the TMJ, balance of structures, functional correction of the tongue and hyoid bone, cervical and thoracic vertebrae, as well as craniosacral dysfunctions (bones, sutures, dura mater) [25,35,36].

To relieve pain syndrome that are expressed in different degrees of MSD, V.V. Konnov et al. (2013), indicate the effectiveness of the use of dynamic electroneurostimulation. Thus, according to the indicators of electromyography, the restoration of the functional state of the masticatory muscles, an increase in the level of mouth opening and stabilization of the denotation of the masticatory muscles were determined [23].

A method of point impact on pain points using a weak electric current in the studies of A.Ya. Vyazmin et al. (2014), with the help of percutaneous electroneurostimulation was observed in 90.3% of patients at the same time, the significant role of this method on the mental status of patients was determined, and this is due to stimulation of blood flow and at the same time metabolic processes are enhanced [8].

In case of inflammation of the muscles, according to A.S. Ivanov (2014), the method of percutaneous polyzonal sequential laser exposure is cost-effective, while a complex of adaptive and compensatory reactions occurring in tissues and organs develops. There is an activation of cell metabolism and an increase in their functional activity. Regenerative processes are also stimulated, blood microcirculation increases, tissue oxygen saturation increases, and immunity increases. Increased oxygen metabolism helps to reduce oxygen starvation, inflammatory processes in muscle tissue cells decrease. Laser therapy should be carried out at the places of painful points in the masticatory muscles, if the entire muscle is painful, then therapy can be carried out on all the surfaces of the muscle. The author pointed out that if there is no result of a classical physiotherapy course, then after fourteen procedures of this therapy, an increase in the amplitude of movement in the TMJ, the absence of pain areas in the TMJ was determined [14].

In the works of A.K. Iordanishvili et al., intra-articular injections are a safe method of therapy of TMJ with connective tissue dysplasia. Intra-articular administration of hyaluronic acid preparations has a positive effect on metabolic processes in the tissues of the joint and in the cartilage: sodium hyaluronate forms a protective film on the damaged cartilage, protecting the cartilage from further destruction and improving the sliding of the contacting cartilage surfaces. In addition, hyaluronic acid preparations penetrate deep into the cartilage, improving its elasticity and elasticity. Thanks to hyaluronic acid, the cartilage that has dried up and thinned during arthrosis restores its cushioning properties. As a result, pain and stiffness in the joint are reduced, the function and volume of movements are restored. Thus, the profitability of therapy in patients eventually amounted to 46.67%, and the long-term result in a year in all patients determined a decrease in the severity of the course of TMJ [15].

In this regard, it is advisable to combine aspects in the treatment of MSD, with the participation of specialists from different professions, and it is necessary to conduct both local and general therapy.[34]. The orthopedic method (occlusion-oriented) therapy includes splint therapy with various modifications, as well as selective grinding of teeth. Due to the fact that the causes and course of MSD are diverse, a large range of pharmacological agents and various physiotherapeutic methods are used in integrative therapy. Myogymnastics and osteopathic treatment occupy an important place in therapy. The non-existence of a fundamental model in the treatment of TMJ ascribes a unique value to this pathology, which has been trying to solve for many years and will be solved by researchers of our vast planet for the same amount of time.

Summing up this literary review, TMJ is now often found among young people with dental and maxillary anomalies and physiological bite. In many works of researchers devoted to determining the causes of this pathology, the role of various factors is evidently indicated and the main one is violations of occlusive contacts, as well as the presence of supercontacts. Due to the fact that the causal factors and the development of this pathology are limitless and every year they change and worsen while forming a kind of cycle that ultimately leads to a complication of this pathology and therefore it is necessary to specify the structural algorithm of diagnosis and introduce the latest methods of etiopathogenetic-therapeutic measures.

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