TM Disorders: (Part 3 of 3)¹

Treatment & Management Considerations

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Temporomandibular disorder (TMD) represents a multiplicity of conditions expressed in the masticatory system affecting the temporomandibular joints, masticatory muscles, and the associated compartments. Many of these conditions share common signs and symptoms; in terventions to effectively treat subcategory of TMD in order to develop a case-specific plan of care.

In addition, etiologic variables and modes of treatment for what perturbation or recurrence of TMD must be appreciated and determined. The patient’s complete evaluation of each case from historical, clinical presentation and individual psychological perspectives must be accomplished. Treatment outcomes can be enhanced by the identification of expectations and management strategies that address all the components involved.

The development of a diagnosis-specific plan with a prioritized problem list is necessary to enhance the treatment process. The primary goals of treatment of TMD are to reduce or eliminate pain, restore a more normal function; allow return to the activities of daily living; reduce long-term health care needs for the problem.

A multi-disciplinary model that includes patient education and self-care, cognitive behavior therapy, physical therapy and orthopedic appliance therapy (inversely to the management of the vast majority of TMD patients. It is important to understand that the natural course of TMD does not reflect a progressive disease process, but rather TMD appears to be a complex disorder that is affected by a multitude of interacting factors serving to maintain or exacerbate or result in recurrence.¹ ² Most TMD patients will obtain significant improvement of signs and symptoms with a conserva-tive model (non-surgical modalities).

Many studies have supported that most TMD patients have minimal or no symptoms after treatment with conservative therapy.³ ⁴ Studies related to temporomandibular disorders have demonstrated that in patients with disc displacement (with or without reduction), the natural progression of the disease can allow for changes that are favorable for a significant number of patients in terms of function and symptoms.⁵

Involving the patient in the physical and behavioral management of his/her condition is essential in the treatment outcome. As clinicians in the development of an individualized plan of management, we must determine if intervention is necessary, if the condition is acute or chronic and what would be the prognosis of the condition with and without treatment. If intervention is in the patient’s best interest, then we have a degree of agreement on the program that will be used. The aim of a self-care program is to prevent further injury to the musculoskeletal system and to allow for a period of healing to take place. The success of self care depends on patient motivation, cooperation, and compliance.⁶ The most important aspect of self-care is ongoing encouragement and reinforcement by the clinician.

Self-directed care typically includes: limitation of mandibular function, habit awareness and modification, a home exercise program with a detailed description of the program will not only enrich the doctor-patient relationship, but will also assure the patient’s compliance, thus making treatment more effective and resulting in a faster rehabilitation.

A program of moist heat and/or ice to the affected areas, massage of the affected muscles, and controlled mandibular movement can enhance joint lubrication and nutrition by encouraging the production of physio- logical quality and quantity of synovial fluid and minimizing the accumulation of biochemical by-products and pain mediating substances.

Identification of the source(s) of stress and the importance of the patient understanding the associations between stress and the course of TMD are also vital. Clinical and health psychologist participation in multidisciplinary approach may be required to enhance your treatment.

Pharmacotherapy

National utilization of pharmacological agents can be valuable in the adjunct treatment of TMD. Drugs must be considered on a case-specific basis. A clinician must remember that the treatment of TMD cannot rely on a single drug for all cases. Understanding the variety of drugs utilized in the management of musculo-skeletal conditions, their potential drug interactions and their side effects can result in a useful tool in our armamentarium.

The most effective pharmacological agents for the management of TMD include antalgics, non-steroidal anti-inflammatory drugs (NSAIDs), corticosteroids, anxiolytics, and agents to reduce pain by-products and pain mediating substances. Pharmacological agents can be classified as non-steroidal anti-inflammatory drugs, corticosteroids, anxiolytics, and antidepresants at very low dosages.⁶ ¹⁰

Non-steroidal Anti-inflammatory Drugs

This category is effective for the management of mild to moderate pain and inflammatory conditions, particularly those of muscle origin. Relief of symptoms is typical achieved prior to the anti-inflammatory effect. In order to obtain anti-inflammatory effects, these medications should be taken for a minimum of two weeks following the recommended schedule. NSAIDs differ in formulation, efficacy and toxicity. It is suggested that if one NSAID fails, another agent should be considered. Common side effects to be considered include gastric distress, inhibition of platelet aggregation, tinnitus/ dizziness, and renal/liver toxicity. A list of the most commonly NSAIDs utilized is found in Table 1.

Steroids

Corticosteroids are typically utilized in cases of non-infectious inflammation when NSAIDs have proven to be ineffective. Systemic corticosteroids are commonly prescribed in the treatment of TMD due to their side effects. They should be considered when in association with the polyarthritis. A corticosteroid is toxic to cartilage and intraarticular injection of corticosteroids has been recommended on a selective basis in cases of severe joint pain or in cases of flare ups where conservative therapy has failed.⁴ ⁵ ⁶ We must recognize that multiple intraarticular steroid injections may have detrimental effects. These medications are also effective in the treatment of inflammatory conditions such as ten- donitis or tendinomysitis where, due to the decreased blood flow to the areas, oral medications will provide less than desirable results. Side effects include decreased resistance to infection, fluid reten- tion weight gain, painless myopa- thy, suppression of the hypotha- lamic-pituitary-adrenal (HPA) axis, osteoporosis and mood al- teration with or without short term use. Steroidal medications commonly used are listed in Table 2.

Anxiolytics

Axiety medication may be utilized as supportive therapy in cases where high levels of emotional stress are associated with symptoms of TMD. Diazepam can be prescribed for acute exacerbation of anxiety and limited basis in cases of severe joint pain or in cases of flare ups where conservative therapy has failed.⁷ ⁸ ⁹ We must recognize that multiple intraarticular steroid injections may have detrimental effects. These medications are also effective in the treatment of inflammatory conditions such as ten- donitis or tendinomysitis where, due to the decreased blood flow to the areas, oral medications will provide less than desirable results. Side effects include decreased resistance to infection, fluid reten- tion weight gain, painless myopa- thy, suppression of the hypotha- lamic-pituitary-adrenal (HPA) axis, osteoporosis and mood al- teration with or without short term use. Steroidal medications commonly used are listed in Table 2.

Muscle Relaxants

Centrally acting muscle relaxants are frequently used in the treatment of temporomandibular disorders.¹² Side effects include drowsiness and nausea. Benzodiazepines are contraindi- cated in patients with narrow-an- gle glaucoma, and can increase CNS depression. A list of anxi- olytic agents typically utilized in TMD, sleep disturbances to include insomnia, and moving disorders such as bruxism are included in Table 3.

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or due to their action as a sedative, they play an important role in the treatment of TMD. Primary indications are for muscle spasm, acute muscle pain, to help prevent the increased muscle activity associated with TMD.

Flector (cyclobenzaprine hydrochloride), which is similar chemically to tricyclic antidepressants, is the drug of choice for generalized chronic muscle pain. Flector has been shown to provide significant relief of muscle pain, and enhance the quality and quantity of sleep. Its combination with an NSAID can be a very effective tool in the treatment of acute TMD. Diazepam is also used as a muscle relaxant. A list of commonly used muscle relaxants is shown in Table 4.

Antidepressants

These medications are helpful with chronic diffuse pain due to myofascial pain, especially when it has been recognized that sleep disturbance is a contributing factor. The analgesic properties of the tricyclic antidepressants are independent of the antidepresant effect. They have shown pain modification properties at therapeutic dosages much lower than those prescribed for antidepressant effect.

The therapeutic effect of the drugs is thought to be related to their ability to increase the availability of the neurotransmitters serotonin and norepinephrine at the synaptic junction in the central nervous system. Studies have demonstrated their use also in the treatment of sleep related bruxism, tension type headache, migraines, head prophylaxis, fibromyalgia and various neuropathic conditions.21,22

Side effects are mainly related to the anticholinergic activity that induces xerostomia, constipation, fluid retention and weight gain. Patients occasionally complain of sedation upon awakening. Contra-indications include cardiac arrhythmias, seizure disorders and patients suffering from panic attacks. Dosages should begin at the lowest level (10 mg) at bedtime and be increased each week only if needed and tolerated by the patient. Table 5 shows a list of some of the most commonly utilized drugs in this class.

Opioids

Typical indications for opioids in the TMD population include exacerbation of pain, postoperatively and in cases of overt trauma. These medications are best indicated for moderate to severe pain over a short period of time. Most common side effects are nausea, respiratory depression and physical dependence. Opioids may be considered in cases of pain refractory for appropriately integrated multidisciplinary care when properly monitored.

Local Anesthetics

Local anesthetics can be useful in the TMD population as a diagnostic tool and also in selective cases as a therapeutic modality.

Table 4. Non-Steroidal Anti-Inflammatory Drugs

- Indications are as a diagnostic block and in the management of myofascial trigger points. Injections into skeletal muscle with local anesthetics that contain a vasoconstrictor can increase the toxicity of the solution.

Typically, lidocaine or carbocaine without a vasoconstrictor is recommended, especially when injected into muscle (to minimize myotoxic effects). Diagnostic anesthesia may be as simple as the usage of a topical agent, somatic blocks (infiltration, field blocks and division blocks), trigger points injections, temporomandibular joint injections and/or a sympathetic neural blockade.

Physical Therapy/Physical Medicine

The goal is to relieve musculoskeletal pain, restore normal function, reduce inflammation, coordinate and strengthen muscle activity and promote repair and regeneration of tissues. Rehabilitation of the compromised masticatory system may require various physical techniques.3 Close cooperation with a physical therapist/physical medicine practitioner who is well trained in the management of musculoskeletal disorders of the head and neck is essential.21-25

Massage

Massage over the painful area is thought to produce an alteration in the sensory input that exerts an inhibitory influence on pain. It is used to reduce edema and to increase blood flow to the area.

Joint Mobilization

The goal is to passively restore joint motion and to improve joint function by repeated digital manipulation of the jaws by the physiotherapist. Mobilization techniques are indicated for decreased range of motion and pain due to muscle contracture, disc displacement without reduction and fibrous adhesions of the joint. A combination of heat, cold, ultrasound and electrical stimulation is often utilized. Local anesthetic

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Cognitive-behavioral strategies, such as relaxation techniques, lifestyle counseling, progressive relaxation, guided imagery, or hypnosis, may also be beneficial. This care is typically provided by a clinical health psychologist. Alternatively, TMD may be related to an underlying psychosocial or psychiatric disorder such as depression, anxiety, or substance abuse. In these cases, a psychiatric or clinical health psychologist referral is indicated. Neurophysiological treatments are employed to increase range of motion. Coordination of muscle function is achieved through biofeedback exercises. Exercises should be constantly modified as symptoms change. The treatment program is recommended with instructions on how to avoid activities that produce pain and tension.

Physical Modalities

The most common modalities used for their analgesic effect are short-wave diathermy, superficial heat and cold, ultrasound, short wave diathermy, transcutaneous electrical nerve stimulation (TENS), iontophoresis, anesthetic agents and acupuncture. These therapies may relax the muscle and increase blood flow to the compromised musculature, thereby producing thermal, histological and physiological changes in the muscle and joints.

Short-wave diathermy provides a deep tissue warm-up whereas ultrasound can transmit heat through tissues to a depth of 5 cm. The purpose of these modalities is to decrease pain, hyperesthesia, increase tissue dis- tensibility and may be neuro- muscular re-education. Iontophoresis uses an electrical current to drive an ion type of medication into the tendon or swollen tissues. Acupuncture has also been used for the treatment of chronic musculoskeletal pain.

Postural-reeducation

This type of therapy involves repositioning the head (neck or mandible) may be a contributing factor in the TMD patient’s symptoms. The opening of the trigeminal nerve and the upper cervical region is well-recog- nized and the utilization of a series of exercises throughout exercises and behav- ior modification should be con- sidered. The participation and guidance of a physician is required for long-term stabilization of the masticatory system.

Behavioral/psychotherapy

The TMD patient’s cognitive, emotional and behavioral re- sponses to pain are key issues in the treatment and evaluation of TMD. The patient’s perception to pain may be maladaptive in the nature of somatization, catastro- phizing and mood and subcon- scious fear. Failure to identify and address these factors will likely compromise the treatment outcome.

Cognitive-behavioral strategies, such as relaxation tech- niques, life style counseling, progressive relaxation, guided imagery, or hypnosis, may also be beneficial. This care is typically provided by a clinical health psychologist. Alternatively, TMD may be related to an underlying psychosocial or psychiatric disorder such as depression, anxiety, or substance abuse. In these cases, a psychiatric or clinical health psychologist referral is indicated. Neurophysiological treatments are employed to increase range of motion. Coordination of muscle function is achieved through biofeedback exercises. Exercises should be constantly modified as symptoms change. The treatment program is recommended with instructions on how to avoid activities that produce pain and tension.

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