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Temporomandibular Disorders. Part 2: Conservative Management
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Shaffer SM, Brismée JM, Sizer PS & Courtney CA

ABSTRACT

Appropriate management of temporomandibular disorders (TMD) requires an understanding of the underlying dysfunction associated with the temporomandibular joint (TMJ) and surrounding structures. A comprehensive examination process, as described in part 1 of this series, can reveal underlying clinical findings that assist in the delivery of comprehensive physical therapy services for patients with TMD. Part 2 of this series focuses on management strategies for TMD. Physical therapy is the preferred conservative management approach for TMD. Physical therapists are professionally well-positioned to step into the void and provide clinical services for patients with TMD. Clinicians should utilize examination findings to design rehabilitation programs that focus on addressing patient-specific impairments. Potentially appropriate plan of care components include joint and soft tissue mobilization, trigger point dry needling, friction massage, therapeutic exercise, patient education, modalities, and outside referral. Management options should address both symptom reduction and oral function. Satisfactory results can often be achieved when management focuses on patient-specific clinical variables.

ANALYSIS

Reviewed by Dr. Jeff Muir DC (Research Review Service)

Author's Affiliations

Department of Rehabilitation Sciences, School of Allied Health Sciences, Texas Tech University Health Sciences Center, USA; Department of Physical Therapy, College of Applied Health Sciences, University of Illinois at Chicago, USA.

Background Information

In part 2 of this 2-part series on assessment, diagnosis and management of temporomandibular joint disorders (TMDs), a review of available treatment modalities is presented and discussed regarding their relative success.

The literature is, unfortunately, sparse with respect to systematic reviews and meta-analyses evaluating treatment options for TMD. A recent review of TMD-based systematic reviews and meta-analyses found that too few published studies exist and that more research is needed before establishing global interpretations of management efficacy (1). The authors contend that while this does not preclude therapists from seeking evidence-based guidelines for TMD treatment, it does reflect the fact that management of TMD requires “a mixture of both art and science”. They add that an important aspect of management is the balance between being sufficiently aggressive with treatment as to provide rapid relief, while not increasing irritability to a point where the patient cannot tolerate treatment.

SUMMARY

Joint Mobilization

Joint mobilization is a staple of TMJ treatment and is thought to facilitate improvements through inhibition of pain, improvement of range-of-motion (ROM), and inhibition of muscle spasm (2). Mobilization may also function by decreasing spinal excitability of nociceptive pathways, via down-modulation of central sensitization mechanisms (3).

A number of mobilizations have been identified as imperative in the treatment of TMD: distraction, anterior glide, anterior glide with pre-positioned mouth opening, medial/lateral glides, caudal-anterior-medial (CAM) glide and CAM glide with pre-positioned mouth opening. Each technique can be performed with varying amounts of mouth-opening to isolate structures and maximize results. Joint mobilization should be applied when a movement restriction is evident, but should be avoided if joint hypermobility is suspected or verified unless a low-grade technique is utilized.

No clinical studies have specifically verified the isolated usage of mobilizations for TMJ management; however, considerable evidence exists that supports their use for improving general joint mobility (4-7). In some cases, teaching the patient self-mobilization techniques can facilitate a more rapid response to treatment. These techniques generally mimic those discussed previously, with the patient focusing on stabilizing one joint while mobilizing the other. Care should be taken when providing these types of recommendations, though, as worsening of pain and mobility can accompany improperly performed mobilizations.

Soft-Tissue Mobilization

Soft-tissue status is an important consideration in all TMD diagnostic classifications; as such, it is an important aspect of conservative management of TMD. However, the available evidence regarding soft tissue mobilization in patients with TMD is limited (8, 9). When attempting treatment, the temporalis, masseter, medial pterygoid, and lateral pterygoid muscles must be considered for soft tissue

mobilization, in addition to cervical spine musculature and accessory muscles of mastication. Extra-oral techniques are valuable in addressing muscle hypertonicity, while intra-oral techniques, directed at the medial and lateral pterygoid muscles, are useful but can be difficult to perform. Care must be taken and experience gained before proficiency is to be expected.

Trigger Point Dry Needling

Trigger point dry needling should be considered as a treatment option, especially in cases where myofascial trigger points are identified. The difficulty with this treatment modality revolves around the limited number of clinicians sufficiently trained to perform the technique, although evidence indicates that it is effective at limiting pain associated with myofascial trigger points (10, 11).

Friction Massage

Research indicates that friction massage can, at the cellular level, influence fibroblasts and other connective tissue components (12). While no studies have been published regarding the effectiveness of friction massage in the management of TMD, empirical evidence suggests that musculature at the lateral joint line, retrodiscal space, the temporalis insertion on the coronoid process, and over myofascial trigger points, respond well to friction massage.

Therapeutic Exercise

Exercise programs specifically designed to address TMD have been suggested, including the Rocabado 6x6 program (13) and the Kraus method (14), although there is little to no evidence to support these types of exercise programs as valuable for TMD symptomatology. In general, no evidence currently exists directing clinicians towards effective exercise programs for TMD.

Patient Education

Patient education is a central component of TMD management. Education should focus on several areas, including: reducing parafunctional habits, addressing psychosocial factors, and providing pain science education. Relevant psychosocial factors may include both anxiety and stress management.

Parafunctional habits are generally defined as activities not associated with routine oral function and are categorized as either bruxism or other parafunctional habits. Bruxism is the most important parafunctional habit and is categorized as either nocturnal or awake. Nocturnal bruxism is generally an unconscious action, while awake bruxism is consciously performed. Addressing the underlying causes of bruxism may require investigation of causes of anxiety and/or stress and may be beyond the scope of rehabilitation clinicians.

Normal functional habits such as mastication and yawning are also areas requiring patient education, such as food consistency, laterality of chewing, symptom behavior, and pain variables as they relate to the clinical presentation. Patients with TMD may require dietary changes to limit harder foods that necessitate increased numbers of chewing cycles and longer times in the mouth before swallowing. Activities such as yawning could irritate joint structures and, as a result, patients with hypermobility may require strategies to modify their daily routines (15, 16).

Cognitive behavioural therapy (CBT) is also often utilized to manage chronic pain and can be used in TMD patients. While studies have yielded mixed results regarding the effectiveness of CBT in TMD patients, it appears to be an advantageous component of comprehensive treatment program.

Modalities

Both IFC and TENS are known to have an analgesic effect (17) in TMD patients and to elevate pain thresholds in pain-free subjects (18). While the analgesic effect is relatively short-lived (approximately 30 minutes), it does provide a short-term decrease in symptoms and can facilitate an increase in ROM.

Biofeedback has been recommended for TMD treatment, utilizing surface electrodes placed over the masseter or anterior temporalis muscles in an attempt to retrain them and increase patient awareness of muscular contraction. A literature review of 6 RCTs found that biofeedback was superior to both no intervention and placebo intervention in five of the six studies.

Iontophoresis with dexamethasone has been recommended for TMD patients, although the evidence supporting this treatment is inconsistent. Concerns center on the ability of the dexamethasone to be adequately absorbed. Currently, there is insufficient evidence to fully support or refute the utilization of iontophoresis with dexamethasone as a component of multimodal TMD management.

Therapeutic ultrasound, a mainstay of rehabilitation practice, is often recommended for TMD treatment; however, a review of 38 studies concluded that there was little evidence supporting its use in the management of musculoskeletal disorders, including TMD (19).

Oral Splints

Oral splints, prescribed and fabricated by dentists, are commonly used for TMD treatment. Splints are designed to be worn at night to limit nocturnal bruxism and minimize muscle contraction. However, EMG studies have shown that the effects of splint usage are transient and insufficiently strong to reduce sleep bruxism (20). Systematic reviews (21, 22) have concluded that there is insufficient evidence to either recommend or refute the use of oral splints for TMD.

Multimodal Approaches

Multimodal approaches to care have been shown to be effective at reducing symptoms associated with anterior disc displacement with reduction (23), anterior disc displacement without reduction (24), TMJ osteoarthritis (25, 26), and myofascial dysfunction of the TMJ (5). In a minimum of five 30-minute sessions, combined treatment with the following was found to be effective at treating symptoms of TMD:

- soft tissue mobilization,
- muscle stretching,
- gentle isometric tension exercises against resistance,
- guided opening and closing,
- manual joint distraction,
- disc/condyle mobilization,
- postural corrections, and
- relaxation techniques.

The variability inherent in the various studies evaluating multimodal approaches makes general conclusions difficult; however, the comprehensive approach to treatment appears to be of significant clinical value.

Cervical Spine Management

While rarely the root cause of TMD, treatment of cervical spine impairments such as limited mobility, muscle hypertonicity and imbalance and accessory movement restrictions should be addressed as part of a comprehensive treatment program for TMD. **Clinical Application & Conclusions**

This 2-part series was produced to provide manual medicine clinicians with information regarding the diagnosis and treatment of TMD. While prevalent in practice, patients are often left without sufficient options for care. The authors conclude that when management focuses on addressing identified impairments through a multimodal approach to care, there is a reasonable likelihood for success.

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