

Recent advances in TMJ management

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ABSTRACT

With three degrees of flexibility, the temporomandibular joint (TMJ) is a synovial bi-condylar joint. It has been observed that temporomandibular joint dysfunction (TMD) affects one-third of adults. Compared to men, females are more frequently impacted. While 75–80% of individuals with TMD require medical intervention and it can take up to three years for the full remission of symptoms, nearly 50% of patients with TMD do not require any treatment and the symptoms resolve on their own within a year of starting. TMD's clinical manifestations include jaw clenching, clicking, and locking as well as occlusion brought on by bad posture. The diagnosis of temporomandibular disorder (DC/TMD) is based on axis I and axis II diagnoses, according to the 2014 diagnostic criteria for TMD. The purpose of this review is to give a general overview of TMD and look at the various treatment options. Numerous conservative treatment approaches, such as intra-articular injections, cognitive behavioural therapy, manual mobilisation, electrotherapy, dry needling, pharmaceutical treatment, physical therapy modalities, self-care strategies, dental treatment strategies, and surgical corrections, have been shown to be successful.

Keywords

TMJ Disorders, TMD, therapy

INTRODUCTION

The term “temporomandibular joint disorder” (TMD) refers to a broad range of issues relating to the temporomandibular joint (TMJ). Approximately one-third of adults experience one or more TMD symptoms [1]. Pain in the TMJ and surrounding tissues is one of the standard clinical symptoms of TMD, and it causes the joint to become functionally limited [2]. While conservative therapies like physical therapy and medication are necessary for many adults with TMDs, the majority of them resolve on their own [3]. Long-term predisposing factors to TMD include clenching of the teeth, discomfort in the muscles, and occlusion of the TMJ as a result of poor posture [4]. The temporomandibular joint, or TMJ, has outstanding stability and mobility.

Fibrous connective tissue covers the maxilla and mandible articular surfaces. Between the articular surfaces lies a joint disc. The articular disc provides mobility to the TMJ, allowing us to easily carry out all daily activities like speaking, swallowing, and chewing [5,6].

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One of the main causes of non-odontic orofacial pain is pain over the face, oral cavity, TMJ, and soft tissues, which is referred to as orofacial pain [7]. The person's physical and mental health are greatly impacted by the TMD [8]. Treatment for TMD can be quite expensive, which can result in psychological problems and sadness [9, 10].

Prior to 2000, clinicians considered malocclusions to be the leading cause of TMD; later on, in early 1990, it was found that role of malocclusion in TMD was minimal [11]. The treatment of temporomandibular problems by surgeons has advanced in the past few years. This is mostly attributable to improvements in our knowledge of pathophysiology, epidemiology, and surgical methods and technologies. When searching for innovative ways to improve patient outcomes, we frequently turn to new technologies. Although TMJ surgery is an example of this, improvements in the fundamental knowledge of the disease state have also greatly benefited patients and surgeons, improving outcomes through improved patient selection for surgical intervention, among other forms of care.

ETIOLOGY

Although the exact cause of TMD is unknown, it is generally thought to be complex. The predisposing factors are just one of the many variables that might cause TMD. There are certain circumstances that contribute to the development of TMD, known as starting factors, and other ones known as perpetuating factors that impede the condition's ability to heal or accelerate its advancement. The muscles push the TM joint to move in order for the teeth to occlude correctly. This may result in a misalignment of the joint capsule. In the event that this occurs, the muscles are placed in a precarious position that leads to spasms and pain. 12

DIAGNOSIS

TMD symptoms include pain, decreased jaw movement, headaches, stiff necks, teeth grinding, and pain when opening the mouth [13]. Physical examination: this includes checking for trigger points or spasms in the masseter, temporalis, and sternomastoid muscles, which are involved in chewing movements. The muscles are carefully palpated to achieve this. Placing the fingers over

the TMJ and asking the patient to open their mouth while you feel for TMJ clicking or popping, which indicates intra-articular disc displacement, is how a

joint assessment is carried out. Inflammation inside the joint is indicated by pain and swelling around the TMJ. Since a forward head posture contributes to oral occlusion and TMD, the cervical posture and head position are evaluated using a plumb line. Reduction in pain, enhancement in function, and daily quality of life are indicators of an effective treatment [14-16]. Differential diagnosis: Significant indications and symptoms of TMD were discovered in 55% of patients with chronic headaches who were referred to a neurologist. Undifferentiated headaches and discomfort are frequent presentations of TMDs. Diagnostic testing: One way to investigate TMD is by radiologic imaging. It is useful and ought to be applied to TMD patients who are the most severe [16].

MANAGEMENT

Education and Self-Care

Education and self-awareness are helpful pain management techniques. When this intervention was contrasted with occlusal splints, a small benefit was seen with education. When this intervention strategy was contrasted with other interventions such as exercise and manual therapy, no further advantages were observed. The cornerstone of the treatment is self-care. Simple exercise prescriptions are part of it, and behavioural changes are urged. A patient with a novel or intermediate clinical presentation should be considered for this [17].

Intra-Articular Injections

By injecting local anaesthetics or corticosteroids intraarticularly, the inflammation of the TMJ and capsule can be reduced. Only severe acute exacerbations and situations when conservative therapies have failed are candidates for these injections. Non-significant evidence supporting repeated intra-articular injections for TMD was discovered in a systematic review. Botulinum toxin and local anaesthetics can be used to treat myofascial pain and chronic bruxism [18].

Conservative treatment

Reducing or eliminating discomfort and/or joint sounds and restoring normal mandibular function are the major objectives of treatment for temporomandibular disorders (TMD). It is commonly known from the literature that conservative treatments like occlusal splints effectively relieve the symptoms of the majority of TMD patients. [18].

Physical Therapy

In order to cure the symptoms of TMD, physical therapy is crucial in lowering discomfort, increasing joint mobility, regaining motor function, and decreasing inflammation. There are various forms of exercise included in the intervention [19]. Rocabado exercises: the patient does a series of exercises after being told to place their tongue on the roof of their mouth and take six deep breaths. Exercises called “goldfish” involve the person placing his tongue against the roof of his mouth, then placing one index finger on the TMJ and the other on the chin.

Anti-depressants

As it is frequently present in long-term TMD patients, tricyclic antidepressants including imipramine, doxepin, and amitriptyline have been demonstrated to be helpful in the treatment of chronic orofacial discomfort at modest dosages. Higher dosages are necessary for the analgesic effects, which are independent of the antidepressant effect. [20].

Electrotherapy for Pain Modulation Transcutaneous electrical nerve stimulation (TENS): this technique uses a little electrical current to minimise discomfort. The TENS is administered to the TMJ using both electrodes, and its secured settings are adjusted to a low intensity frequency of 50–100 Hz and a pulse width of 50–

200 microseconds. Physiotherapists utilise low-level laser treatment (LLLT) to treat a variety of musculoskeletal disorders. It is a single-wavelength light-generating non-invasive therapy method. It produces no sound, vibrations, or heat. Other names for LLLT include photobiology and biostimulation. Both its anti-inflammatory and connective tissue healing properties are accelerated by it. [20].

Bio Behavioural approach

When it comes to diagnosing and treating patients with chronic TMD, the bio-behavioral approach has demonstrated the importance of psychological components in addition to pain history, present emotional and cognitive status beliefs, acquired behaviour, and addressing techniques. With this method, the patient can learn how to take care of himself, which improves their general functioning. The evaluation, diagnosis, and treatment of TMD patients necessitate a multifaceted strategy, which the bio-behavioral approach offers, according to current clinical findings.

The musculoskeletal problems are the focus of this concept. The goals of this strategy are to: (a) lessen the sense of pain;

(b) enhance physical behaviour; and (c) enhance the cognitive and affective aspects associated with the experience of pain [21].

Orthotic jaw appliance

Customised acrylic appliances that fit over mandibular teeth, maxillary teeth, or both are referred to as orthotic jaw appliance therapy. They come in an assortment of colours and materials. The three most popular varieties are: (1) anterior positioning appliances; (2) anterior bite appliances; and (3) stabilisation appliances made of hard, soft, or dual acrylic. The goals of orthotic jaw appliance therapy are to enhance joint function, expand range of motion, and lessen pain associated with the TMJ. These devices' precise mode of operation is unknown. [22].

Surgical Interventions

The arthrocentesis/arthroscopic technique is employed in a variety of situations, including internal derangement, degenerative alterations, and joint pathology. Surgery is not advised in cases with internal derangement; instead, a conservative strategy and rehabilitation are advised. Minimally invasive intervention is employed for different problems such as disc dislocation. More research is needed to confirm the effectiveness of platelet-rich plasma injection and arthrocentesis in treating TMJ osteoarthritis. Recent evidence supports this claim [23].

CONCLUSION

We conclude that TMD, which likewise has a muscle basis, can be treated using the aforementioned techniques, much like other musculoskeletal illnesses. A third of adults have TMD, which has a severe negative impact on their quality of life. Previous research indicates that no one treatment method is effective in relieving pain; rather, a multidisciplinary approach is necessary for a full recovery from the condition. For the majority of TMD patients, conservative treatment is advised. This includes biobehavioral approach, acupuncture therapy, dry needling, education, self-care, dental therapy, occlusal splints, intra-articular injections, topical ointments, pharmacotherapy, physical therapy, and cognitive behavioural and psychological therapies. Surgical intervention is employed if all conservative

measures have been exhausted in trying to alleviate the symptoms. After undergoing surgery to fix a joint's structure or soft tissue, patients should continue physical therapy to fully regain their function and resume their regular lifestyles. Pain management techniques for traumatic migraine disorder (TMD) include soft tissue mobilisation, grade I and grade II joint mobilisation, and electrotherapy modalities including ultrasound and TENS.

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