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An Overview of Treatment approaches for management of Temporomandibular joint Dysfunction: A Scoping Review

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Abstract

Temporomandibular dysfunction is defined as a discomfort in muscles (myalgia of TMJ muscles), pain in the Temporomandibular joint (TMJ arthralgia) of functional complaints like clicking and locking of the Temporomandibular Joint (TMJ). It is formed by two bone mandible and maxilla. Etiology of the TMJ dysfunction includes injury, poor posture behavioral factors, stress, anxiety, clenching this leads TMJ Dysfunction. In assessment range of motion of TMJ and cervical spine, maximum mouth opening. Strength assessment and joint tracking is assessed. Confirmation of the assessment is done by X- ray, MRI. Medical management of the TMJ dysfunction includes NSAIDS, Opoids and muscle relaxants. The non invasive treatment consist of physiotherapy the interventions are as follows Transcutaneous Electrical Nerve Stimulation(TENS), Ultra Sound for pain relief, Postural correction exercises, strengthening exercises. In severe cases surgical intervention is required after which physiotherapy play an important role in restoration of the ROM and functional capacity in the individuals.

Keywords: *Temporomandibular joint, Physical Therapy, Rehabilitation, Review.*

1. Introduction

Temporomandibular joint is a complex highly mobile and sensitive joint, Temporomandibular joint disorders affects millions of people in US(1,2). It is also known as Ginglymoarthrodial joint due to its rotational movement in sagittal plane and a translation on its own axis various movement possible at TMJ includes elevation depression lateral deviation , protraction and retraction cause by temporalis and masseter medial and lateral pterygoid, digastricsetc(3,4). Recent studies have tried to find the relation of the cervical spine posture and TMJ pain. Various studies shows that the forward head posture of the person causes extension at the upper cervical spine causing pulling of the ligament attached to the mandible and causing mandibular retrusion which in long term will lead to Temporomandibular joint dysfunction(5). Forward head posture is caused by tightness in the sub occipital muscles a report suggest that the prevalence of the trigger point is more in the suboccipital muscle as compared to any muscles in patient with TMD. The signs and symptoms of temporomandibular joint include clicking of the joint, Myofacial pain, swallowing difficulty, difficulty in speech, headache. other factor which lead to Temporomandibular joint consist of bruxism, stress, anxiety, which may lead to Temporomandibular joint pain(6). The effectiveness of myofacial release technique was proved in the patient with Temporomandibular dysfunction(7).

2. Etiology/ Causalogy

3. Temporomandibular joint dysfunction can be caused by various factors these factors includes derangement of the masticatory muscles or Mechanical disruption of the joint structure and due to which leads to wear and tear of the articular cartilage leading to osteoarthritis of the TMJ. Other cause of the TMJ joint pain include joint trauma, A direct trauma to the TMJ may alter the joint biomechanics and the soft tissue surrounding the joint this may also cause internal derangement of the TMJ. Occlusional abnormality, orthodontic treatment, bruxism, orthopedic instability, poor health, joint laxity, stress tension. Anxiety and depression behavioral factors such as grinding, clenching, social factors, cognitive factors, emotional factors. Decreased disc to eminence ratio plays a major role in advanced stages of TMJ Derangement(8,9).

4. Diagnosis

The diagnosis of the Temporomandibular joint dysfunctional is done using radiographic imaging and the which includes X- ray, MRI, USG it provides information on the structure and characters of the bone association between condyle, articular tubercle and fossa, soft tissue are evaluated(2,10). other methods of diagnosis include presence of the painless clicking of the joint, reduced joint opening and closing, and altered joint tracking and asymmetry of the jaw may be used as a diagnostic criteria for Temporomandibular joint(11).

5. Management

The medical management of the Temporomandibular joints includes NSAIDs, Opioids, muscle relaxant, anti-depressant, topical medications and intra articular injections which reduces pain and improves the quality of life(2).

Physical Therapy Management:
The standard treatment available for the treatment of Temporomandibular joint consists of the use of occulusional splints and stretching of the masticatory muscle and range of motion exercises and joint mobilization exercise for improving the ROM, pain and reduce symptoms.
Other pain reducing modalities life Transcutaneous Electrical Nerve Stimulation at frequency 50 to 100 Hz with small pulse width and low intensity are used to reduce pain along with exercises such as goldfish exercises, jaw ROM exercise.
Rocabado 6x6 approach can also be used for the treatment of the Temporomandibular joint dysfunction this treatment approach consists of joint mobilizations and distractions along with jaw ROM with the tongue at rest which leads to the stretching of the surrounding structure and helps In improvement in ROM(12).

Minimally Invasive Management:
This includes sodium hyaluronate and corticosteroid injection, arthreoscentesis and arthroscopy, corticosteroids is used for the treatment of osteoarthritis

Invasive Management:

5% of the TMD patient whose non-surgical method fail, joint surgery may be necessary to restore mandibular motion and reduce oral pian(2,11,13,14). Following which a well programmed physiotherapy program consisting interventions for pain reduction such as Myofacial release, joint mobilization, Range of Motion exercises, strengthening exercises for the muscle of mastication and postural correction exercise for to avoid complication(15).

6. Conclusion:

TMD is a multifactorial disorder affecting both the muscles and the bones due to imbalance in the muscle or tightness in the ligament which in long term lead to dysfunction and manifests as pain an recurrent locking of the jaw with reduced mouth opening. Multiple management approaches are available for management of TMJ such as medical, physiotherapy and surgical but a comprehensive rehabilitation approach is proved to deliver promising results.

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