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REVIEW ARTICLE

TEMPEROMANDIBULAR DISORDERS AND IT'S CONSERVATIVE MANAGEMENT – A SYSTEMATIC REVIEW

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ABSTRACT

Temporomandibulardisorders (TMD's) refers to all the conditions affecting the TMJ, or the masticatory muscles and the associated structures such as teeth, ears, cheeks and forehead. TMD's occurs 1.5-2 times more in women. It is one of the most common causes for non – dental pain. The reasons for TMD's are multiple, but hasn't been clearly understood such as, muscular imbalance, TMJ dysjunction, malocclusion, parafunctions and postural alterations. It is often misdiagnosed and hence treatment is not very efficient. Some of the treatment modalities suggested are trigger point acupuncture, stabilizing appliance, counseling of pain, anaesthetic blockage etc.

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INTRODUCTION

The joint of the jaw is the temporomandibular joint (TMJ). It is a bilateral synovial articulation between the mandible and the temporal bone. Temporomandibular disorders (TMD) refers to all the conditions affecting the TMJ, or the masticatory muscles and the associated structures such as teeth, ears, cheeks, and forehead (Nikolaos Christidis *et al*., 2014). According to the studies, the condition affects approximately 10% of the population[2]. TMD's have a female predilection, it occurs 1.5 – 2 times more in women and 80% of the patients treated consist of women (Mirella-Marques, 2013). The reason attributed for the increased prevalence in women is the sensivity of oestrogen on the articular disc. Approximately 30 % of the patients who seek treatment for TMD, report with myofascial pain as the main problem (Josue Fernandez-Carnero, 2010). A particular longitudinal study showed that substantial variations in the time course of myofascial TMD, with 31% persistenting over a 5 – year period, 33% remittenting, and 36 % recurring (Josue Fernandez-Carnero, 2010). Causes for TMD's are many such as muscularimbalance, TMJ dysfunction, malocclusion, parafunctions and postural alterations (Milton Hodosh, 2007).

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Pain is defined as a subjective unpleasant experience (Mirella-Marques Nascimento, 2013). The impact of chronic pain also involves an emotional component in which feelings of failure, misery, guilt and even depression may occur. This explains why psychological suffering, impaired social relations, chronic fatigue syndrome accompanying TMJ pain (Nikolaos Christidis *et al*., 2014). The most common symptom in patients with TMD, are pain and tenderness in the joint capsule and / or the synovial lining of the TMJ as well as pain in the joint during maximum unassisted opening, assisted opening or during the various jaw movements (Nikolaos Christidis *et al*., 2014). The pain manifested as a result of TMD affects the TMJ, jaws and muscles (Josue Fernandez-Carnero, 2010). But, the pain from TMD differs from pain that produces spastic conditions of head and neck such as torticollis or oromandibular dystonia. On close examination of the clinical picture, it closely paralleled complex joint- related conditions like cervicogenic headaches and low back pain (Freund). Though TMD is the most common cause of orofacial pain in non – dental patients, its etiology is poorly understood. However, many studies have shown that the etiology of pain thus caused is multiple, such as occlusion, depression, stress and anxiety (Mirella-Marques Nascimento, 2013). Svensson *et al* described the referred pain patterns from the masseter, the anterior temporalis, lateral pterygoid, medial pterygoid and anterior digastric muscles. According to kupers *et al*, cerebral processing of jaw – muscle pain differs from the processing of

cutaneous pain and that mechanical hyperesthesia is encountered in many patients with TMD (Josue Fernandez-Carnero *et al*., 2010). Myofascial pain maybe induced by stimulation of hyper irritable points of skeletal muscles or in the muscle fascia, which are called trigger points (TrPs). These trigger points maybe active when related to pain as a symptom or can be latent and not causing pain but possibly associated with muscle shortening (FransicoGuedes, 2014). Chaiamnuay *et al* reported the disease rate prevalence for TrPs to be about 11.3 %, when studied over a sample of 2,456 patients (Josue Fernandez-Carnero, 2010). If not intervened, the pain (local as well as referred) may become chronic and restricted range of motion and muscle weakness might occur [3].

DISCUSSION

Though TMD is one of the most common problems seen among the population, the treatment for TMD's have been discussed in the literature for at least two centuries but treatment options have only been established during the last two decades. Disagreement and controversy remain among those who are active in diagnosing and treating TMD's is the main problem. The main issue involved in the treatment of TMD's is that clinicians who treat TMJ disorder usually try to discover the specific cause of their patients pain and dysfunction in order to correct it (Milton Hodosh, 2007). As per a study conducted, it will be easier to discover the specific cause of the TMD when the pain associated with dysfunction is relieved, as pain and muscle spasm frequently create a confusing overlay of biomechanical and psychological signs and symptoms that obscure the original cause of the problem (Milton Hodosh, 2007). Another problem associated with treatment of TMD, is the chance if recurrence.

The various modalities that have been used for the treatment of TMD's can be grouped into the following :

- Systemic applications
- Alternative medicines and physical therapy.

SYSTEMIC APPLICATIONS

Opiods have a direct analgesic effect by way of peripheral receptors. A study performed by Christoph M. Zeigler *et al*., showed that morphine of 10 mg concentration has a significant analgesic effect in patients with TMJ disorders. A total of 48 patients with articular pain related to TMJ were tested with 3 doses of 10 mg intra articular morphine, 16.7 % reported complete relief, 41.7% distinct pain relief, 33.3% had a poor response and 8.3% had no improvement (Christoph, 2010). Botulinum toxin A, is a potent biological toxin produced by clostridium botulinum. BTX-A is a pre synaptic neurotoxin which causes dose dependent weakness / paralysis in skeletal muscles by blocking the Ca mediated release of acetyl choline from the motor nerve endings. It has been used extensively in treatment of oromandibulardystonia, spasmodic torticollis, dysphonia etc. A study performed by B. Freund *et al*. on 46 subjects, showed that the injection of BTX – A into the masseter and temporalis muscles caused a reduction in subjective pain in 40 of 46 subjects, i.e 87 % success rate (Freund).

Alternative medicines and physical therapy: Myofascial trigger point spot in a palpable taut band of skeletal muscle fibers. Kazunori itoh *et al*. conducted a study on the effectiveness of acupuncture treatment. It was a study performed on 16 volunteers with complaints of joint myofascial pain. The results suggested that the analgesic effect of trigger point acupuncture is better than that of sham acupuncture [8]. Another study by Josue *et al*, on 12 female patients showed that dry needling of active myofascial trigger points in the masseter muscle in TMD patients, was much more effective that sham needling (Josue Fernandez-Carnero, 2010). Low level laser therapy is a low cost,non invasive form of treatment. It is said to have pain relieving properties. It reduces inflammation by reduction of PGE2 levels and also COX-2. Low power Ga-As pulse pulse laser had significant stimulatory effects on repair of connective tissue and enhances tissue regeneration. One particular studyisbeing performed by Camila *et al*. on adolescents between the age group of 15-18 years, to analyse the success rate of LLLT in adolescents. LiaAlves da Cunha *et al* conducted a study on the efficacy of low level laser therapy in the treatment of TMD's, on a sample of 40 patients, it was found to have an effect , but was not that very effective (Lia Alves, 2008). Physiotherapy and anaesthetic blockage of auriculotemporal nerve was found to have a good effect in the reduction of pain. Physiotherapy helped to improve the mouth opening as well as jaw protrusion, when performed for a prolonged period of time. Mirella *et al*. proved this to be a very good tool for diagnosis and treatment of acute pain of the joint, by testing this on a sample of 20 patients. though a few patients had complications such as hematoma at the injection site and positive aspiration, the overall success rate was very good (Mirella-Marques, 2013). Prefabricated occlusal appliance helped in 30%pain reduction, according to a study performed by Nikolas Christidis *et al*., with no difference in the emotional functioning scores. the study performed on 48 patients, showed that patients treated with a pre fabricatedocclusal appliance showed an improvement from better to symptom- free, i.e. a success rate of 67 %, and 58 % success rate when treated with a stabilizing appliance (Fransico Guedes, 2014). Another study performed by Ewacarin *et al*., conducted a study on 60 patients, 30 % reduction of pain was observed (Ewacarin Ekberg and Maria Nilner, 2004).

Goal of counseling is to educate the patient about all the possible etiologies of the disorders and provide information about understanding of all etiologic contributing factors and management techniques. Advocating bilateral mastication, soft diet, decreased caffeine consumption, intake of adequate amount of water, postural adjustment, control of tooth clenching have an important role in improvement of patients condition. Wright and Schiffman, quoted that self care management has been considered effective in 60 – 90 % of patients with myofascial pain and should be included as a standard procedure in initial treatment plan. Sleep acts as an important etiologic contributing factor in myofascialpain. Hence sleep plays a fundamental role in reducing myofascialpain. A study performed by Francis *et al*, on 45 patients, showed that treatment with clobenzapine and tizanidine helped improve the quality of sleep which in turn caused a reduction in pain in all the 45 patients who were tested (Fransico Guedes, 2014).

Conclusion

From the above review of literature, it is obvious that temperomandibular disorders is a commonly occurring joint disease which is likely to get under diagnosed or misdiagnosed.

The pathogenesis of this disorder has a psychological component which makes the diagnosis of this condition a difficulty. A number of approaches have been tried in the treatment of this disorder. A good effective approach would be education and counseling of the patient with any one of the therapeutics. If occlusal disharmonies are present, occlusal splints can be used. So to sum up a holistic approach to the management of temperomandibular disorders seems to be the key to success.

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