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COMPARISON OF OCCULSAL SPLINT THERAPY AND PHARMACOTHERAPY IN THE MANAGEMENT OF TEMPORO- MANDIBULAR DISORDERS – A PROSPECTIVE STUDY

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ABSTRACT The Temporomandibular joint (TMJ) facilitates the opening and closing movements of the mandible. One of the most common causes of orofacial pain is the set of disorders called as temporomandibular disorders (TMD's). A wide range of treatment modalities are available for the management of TMD's. This study compares the effectiveness of the two conservative methods of management, i.e. the occlusal splint therapy and the drug therapy in patients with TMJ disorders. 40 Patients were selected for the study visiting our institution between 2014-2015 for a period of one year for the treatment for TMJ pain or clicking. The patients were divided into Group I who were treated using drugs and Group II were treated with occlusal splint therapy. The findings of the patients in each group were segregated and analyzed for effectiveness of each therapy. The occlusal splint therapy is observed to be a more effective method of managing TMD.

KEYWORDS : temporomandibular disorders, occlusal splint, pharmacotherapy

INTRODUCTION

The Temporomandibular joint (TMJ) is a cranio-mandibular articulation that facilitates the opening and closing movements of the mandible. It is a ginglymoarthroidial joint that allows both rotatory and hinge movements. One of the most common causes of chronic orofacial pain is the set of disorders called as temporomandibular disorders (TMD's).

The first description of TMD was given by Costen in 19341.

It is characterized by pain in the pre-auricular area and/or in region of the muscles of mastication; reduction in the range of mouth opening. These conditions may also be associated with joint noises such as, clicking during closing and opening of the mouth. A wide range of treatment modalities are available for the management of TMD's. While majority of the cases are successfully managed with conservative methods such as use of occlusal splints, behavioural therapy, drug therapy, transcutaneous electric nerve stimulation(TENS), a few cases require surgical intervention to provide relief of symptoms.

Of the conservative methods of management, Occlusal splint therapy is simple and cost effective. Soft splints made of polyvinyl sheets can be easily fabricated. This soft material helps in redistributing heavy occlusal loads thereby reducing functional load on the TMJ. Pharmacotherapy is yet another conservative method of management of TMDs in which a wide range of classes of drugs may be used, ranging from plain Non-steroidal Antiinflammatory drugs (NSAID's) to a combination of NSAID's with muscle relaxants.

This study compares the effectiveness of the two conservativemethods of management, i.e. the occlusal splint therapy and the drug therapy in patients with TMJ disorders.

MATERIAL AND METHOD

Patients reporting to our institution for a period of one year between 2014-2015, for the treatment for TMJ pain or clicking were selected for the study. Inclusion criteria were:

- patient with chief complaint of acute pain (duration <2 months) in the joint on at least one side.

Exclusion criteria were

- The presence of systemic diseases (i.e. rheumatic diseases)
- History of recent trauma, wearing of full dentures,
- Therapeutic co-interventions during treatment.

The study comprised of total 40 patients who were randomly allotted into 2 groups.

At the outset, the patients of both the groups were assessed for

- Maximal mouth opening (interincisal distance)
- Pain and tenderness of muscles of mastication during functional manipulation, the severity of which was evaluated by Visual Analog Scale (VAS)
- Joint noises such as clicking during opening and closing of the jaw.

- Group I – were orally administered combination of muscle relaxants and analgesics comprising of Ibuprofen 400 mg, Paracetamol 325 mg, and Chlorzoxazone 250 mg in two doses daily for a period ranging from 5-7 days initially. If the patients reported with recurrence of pain during the follow-up, they were advised to repeat the same treatment regimen.
- Group II- were treated with occlusal splint therapy for a period of three months. Patients were instructed to wear the splint at night to take care of para-functional habits if any.

The findings of the patientsin each group were segregated and analyzed for effectiveness of each therapy in relieving and improving the symptoms.

Statistical analysis: The data attained from both the groups was assessed and analyzed using SPSS-16.0.

RESULTS:

In this study, there is observed to be a male preponderance with a ratio of 3:2(Table 1). The assessment of mouth opening (inter-incisal

distance) in the patients at different time intervals showed a significant improvement in mouth opening in both the groups with more improvement in the occlusal splint group(Table 2). While the VAS scores showed reduction in pain in group I by the end of 1st week of treatment with not much change over the following months of follow up, the VAS scores in patients of group II implied a gradual but significant reduction in pain over the follow up period.(Table 3). Clicking during functional movements of the joint was observed in 27 patients (Group I- 14; group II- 13). A significant reduction in clicking was observed in Group II as compared to Group I during the follow up period.

DISCUSSION:

Providing relief of symptoms and elimination of the cause are the prime concerns of the physician during the management of any disorder. A wide range of treatment options have been proposed for the management of TMD's.

This study evaluates the effectiveness of occlusal splint therapy and drug therapy in the management.

In this study, a significant improvement in mouth opening was observed in patients of both the groups with slightly increased values in the occlusal splint group. This finding concurs with the observations of Naikmasur et al1. In the patients of Group I, the severity of pain was reduced within the first week of treatment, while relief of pain was seen more gradually in the patients of group II.

This can be attributed to the anti inflammatory actions of the drug administered. This finding is similar to the observations of Rapheal et al who observed the reduction in VAS score in patients on occlusal splint therapy during a six week follow up2.

The patients were advised to wear the splint at night time to allow for management of parafunctional habits such as bruxism. The patients showed decrease in the tenderness of muscles of mastication. This is similar to the observations of Naikmasur et al 1 but Davis et al did not observe any significant advantages of particular pattern of splint use3 .

The occlusal splint works by providing a new resting postural position and by increasing the occlusal vertical dimension beyond the freeway space. There is an adaptation to the new freeway space at an increased vertical dimension.

Thus, as the vertical dimension increases, muscular effort decreases resulting in the relaxing of the muscles and the TMJ 1. The NSAID's work by reducing the inflammation in inflammatory conditions, particularly of the musculo-skeletal system4 while the muscle relaxants work by reducing the skeletal muscle tone and a combination of these is used to provide relief of pain in patients with chronic oro-facial pain.

No report of serious side effects due to drug intake in any patient of group I was noted in this study. In the patients of Group II, a feeling of tightness of the appliance in the mouth was reported which gradually reduced over the follow up period.

This results of this study suggest the use of an occlusal splint for correction of TMD's as an effective modality of management with minimal to nil complications. It also leads to gradual correction of the disorder by increasing the vertical dimension and reducing the load on the TMJ.

This study is in agreement with other studies that propose the use of occlusal splint for treatment of TMDs 1,5-11.

CONCLUSION:

Through this study, it can be concluded that the occlusal splint therapy is a more effective method of managing TMD. Occlusal splint therapy provide better results with fewer side effects than pharmacotherapy. This study supports the use of occlusal splint therapy in the management of TMD for better long-term results.

Table 1: Distribution of patients by gender in two groups.

Group	Male	Percentage	Female	Percentage	Total
Pharmacotherapy	11	55	9	45	20
Splint Therapy	13	65	7	35	20
Total	24	60	16	40	40

Table 2 : Assessment of mouth opening at different time interval

TIME INTERVAL	GROUP I (MEAN)	GROUP II (MEAN)
At the time of diagnosis	37.2mm	37.4 mm
1st week after treatment	39.5mm	40.2mm
1st month after treatment	40.5mm	41.1 mm
2nd month after treatment	41.5mm	42mm
3RD month after treatment	41.8mm	42.9mm

Table 3 : Assessment of intensity of pain at different time interval using VAS

TIME INTERVAL	GROUP I (MEAN)	GROUP II (MEAN)
At the time of diagnosis	7	7.2
1st week after treatment	3	6.15
1st month after treatment	3.2	5.2
2nd month after treatment	3.15	4.10
3RD month after treatment	3.18	3.00

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