

A comparison of the efficacy of arthrocentesis alone and arthrocentesis with duloxetine in patients with TMJ pain

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ABSTRACT

Background: Temporomandibular disorder (TMD) is a musculoskeletal disorder within the masticatory system. The present study was conducted to compare the efficacy of arthrocentesis alone and arthrocentesis with duloxetine in patients with TMJ pain.

Materials & Methods: 40 patients with TMJ pain were randomly divided into two groups of 20 each. Group I patients were treated with arthrocentesis alone and group II with arthrocentesis followed by duloxetine 30 mg twice daily for 12-week therapy. Patients were followed up at regular interval at day 1, day 5, day 7, week 4, week 6 and week 12. Outcome assessment of pain and maximal mouth opening was done.

Results: There were 8 males in group I and 9 in ii and 12 females in group I and 11 in group II. VAS score in group I was 5.1, 5.8, 4.9, 4.5, 3.5, 3.3 and 3.0 and in group II was 6.0, 6.5, 4.3, 4.0, 3.2, 2.8 and 1.6 at Pre- op, day 1, day 5, day 7, week 4, week 6 and week 12 respectively. The maximum mouth opening (mm) pre- op, day 1, day 5, day 7, week 4, week 6 and 12 weeks was 34.2, 35.6, 38.4, 40.6, 41.2, 41.9 and 42.5 in group I and 35.4, 36.7, 38.9, 40.5, 42.6, 43.7 and 45.2 in group II respectively. The difference was significant ($P < 0.05$).

Conclusion: Combination of duloxetine with arthrocentesis gave much better outcome than arthrocentesis alone in TMJ pain patients.

Key words: arthrocentesis, duloxetine, TMJ

Introduction

Temporomandibular disorder (TMD) is a musculoskeletal disorder within the masticatory system. It has an adverse effect on jaw function so that patients may present with limited mouth opening or difficult chewing because of pain and locking in the temporomandibular joint (TMJ).¹ Most TMJ disorders include internal derangement which has been described as conditions in which the articular disc has become displaced from its original position in relation to the condylar head and articular eminence.²

Temporomandibular joint pain is one of the distress symptoms, and it disturbs the daily life. The majority of patients with disc displacements have no symptoms, but some patients with disc displacements may experience pain and reduced mouth opening when the disc does not reduce to a normal position on opening. Pain and jaw limitation often have an impact on daily life function, psychosocial well being and quality of life in TMD patients.³

Several interventions have been suggested for the treatment of disc displacements without reduction (DDwoR). Lavage of the TMJ with or without steroid injections has been reported to be effective in reducing pain and in to improve jaw mobility patients with disc displacement without reduction (DDwoR).⁴ Arthrocentesis is recognized increasingly as the first-line surgical intervention in patients who do not respond to conservative management. The physical action of lysis and lavage in the superior joint space rather than repositioning the disc is thought to be responsible for the success of this procedure.⁵ Arthrocentesis is thought to break down adhesions within the joint and remove inflammatory mediators including cytokines and interleukins (ILs), which result in chronic pain. Relief of TMJ pain also leads to improvement in both mouth opening and dysfunction.⁶ The present study was conducted to compare the efficacy of arthrocentesis alone and arthrocentesis with duloxetine in patients with TMJ pain.

Materials & Methods

The present study was conducted among 40 patients with TMJ pain of both genders. All were informed regarding the study and their written consent was taken. All cases were confirmed by RDC/ TMD.

Demographic data such as name, age, gender etc. was recorded. Patients were randomly divided into two groups of 20 each. Group I patients were treated with arthrocentesis alone and group II with arthrocentesis followed by duloxetine 30 mg twice daily for 12-week therapy. Patients were followed up at regular interval at day 1, day 5, day 7, week 4, week 6 and week 12. Outcome assessment of pain, swelling, maximal mouth opening, painful/pain-free lateral or protrusive jaw movement was done. Pre- and post-treatment anxiety and depression was determined by hospital

anxiety and depression (HAD) scale. Results thus obtained were subjected for statistical analysis, with p value significant less than 0.05.

Results

Table I Distribution of patients

Groups	Group I	Group II
Methods	Arthrocentesis alone	Arthrocentesis+ Duloxetine 30 mg
M:F	8:12	9:11

Table I shows that there were 8 males in group I and 9 in ii and 12 females in group I and 11 in group II.

Table II Comparison of pain (VAS) score

Duration	Group I	Group II	P value
Pre- op	5.1	6.0	0.12
Day 1	5.8	6.5	0.06
Day 5	4.9	4.3	0.09
Day 7	4.5	4.0	0.12
Week 4	3.5	3.2	0.15
Week 6	3.3	2.8	0.05
Week 12	3.0	1.6	0.01

Table II, graph I shows that VAS score in group I was 5.1, 5.8, 4.9, 4.5, 3.5, 3.3 and 3.0 and in group II was 6.0, 6.5, 4.3, 4.0, 3.2, 2.8 and 1.6 at Pre- op, day 1, day 5, day 7, week 4, week 6 and week 12 respectively. The difference was significant (P< 0.05).

Graph I Comparison of pain (VAS) score

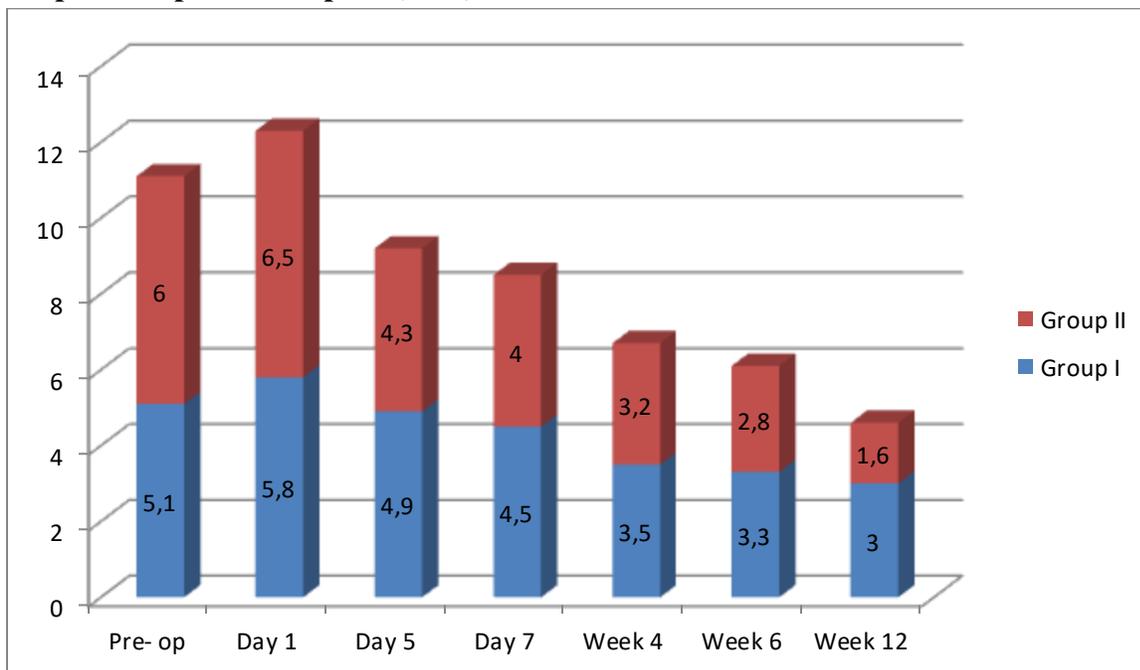
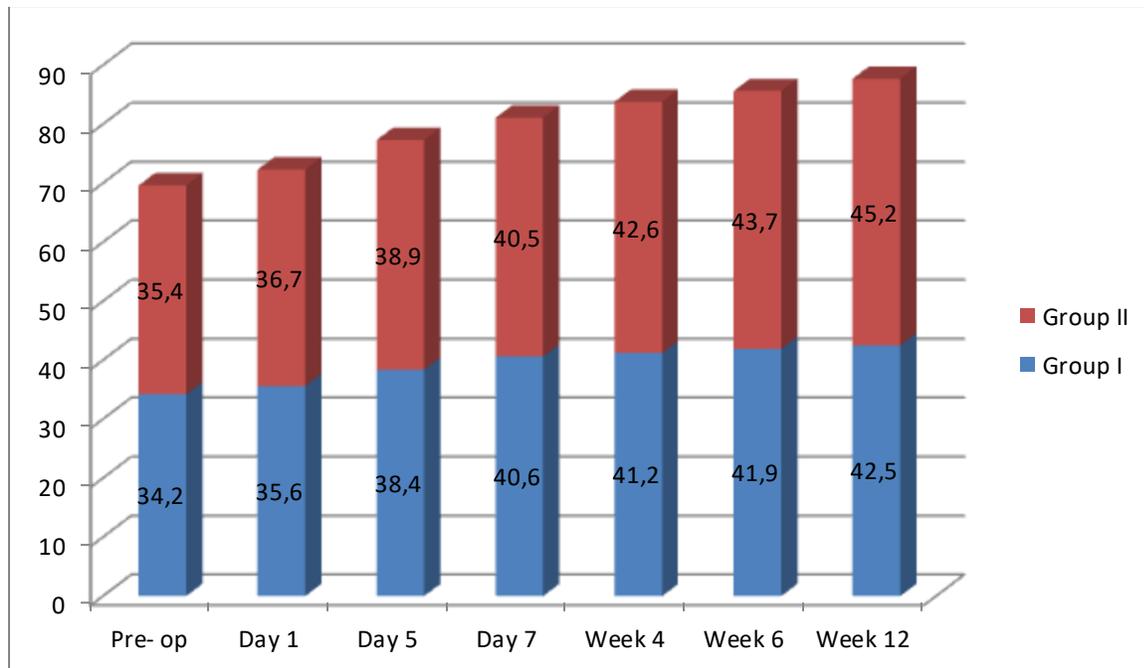


Table III Comparison of maximum mouth opening (mm) in both groups

Duration	Group I	Group II	P value
Pre- op	34.2	35.4	0.14
Day 1	35.6	36.7	0.09
Day 5	38.4	38.9	0.08
Day 7	40.6	40.5	0.11
Week 4	41.2	42.6	0.17
Week 6	41.9	43.7	0.05
Week 12	42.5	45.2	0.02

Table III, graph II shows that maximum mouth opening (mm) pre- op, day 1, day 5, day 7, week 4, week 6 and 12 weeks was 34.2, 35.6, 38.4, 40.6, 41.2, 41.9 and 42.5 in group I and 35.4, 36.7, 38.9, 40.5, 42.6, 43.7 and 45.2 in group II respectively. The difference was significant ($P < 0.05$).

Graph II Comparison of maximum mouth opening (mm) in both groups



Discussion

The displacement of the disc can result in numerous presentations, with the most common being disc displacement with reduction (with or without intermittent locking) and disc displacement without reduction (with or without limited opening).⁷ The disorder has been associated with characteristic clinical findings such as pain, joint sounds, and irregular or deviating jaw function. TMJ pain is one of the distress symptoms which disturb the daily life of the patients. The diagnosis should be made on the history, clinical examination, investigations (routine as well as

specific), and radiographic evaluation.⁸ The management of TMJ-related conditions is necessary because pain limits range of motion, and range of motion is needed to maintain fluid flow in the joint for lubrication between the articular surfaces.⁹ The present study was conducted to compare the efficacy of arthrocentesis alone and arthrocentesis with duloxetine in patients with TMJ pain.

In present study, there were 8 males in group I and 9 in ii and 12 females in group I and 11 in group II. Goyal et al¹⁰ in their study thirty patients with TMJ pain were included in the study who were divided into three groups with ten patients in each group. Group A included patients having only TMJ arthrocentesis; in Group B, only duloxetine therapy (30 mg) was given twice a day orally for 3 months; and in Group C, a combination of TMJ arthrocentesis with duloxetine therapy (30 mg) was given twice a day orally for 3 months. Patients were followed at regular interval of the 1st day, 5th day, 7th day, 4th week, 6th week, and 12th week and assessed in terms of pain, maximum mouth opening (mm), clicking, Hospital Anxiety and Depression Rating Scale. The pain was found to be significantly lower in Group C than other groups at weeks 4, 6, and 12. In Group C, mouth opening increased significantly than Groups A and B on subsequent follow-ups. On biochemical analysis of IL-6 levels in lavage fluid, a significant decrease was observed in levels of IL-6 in lavage fluid in Groups A and C postoperatively.

We observed that VAS score in group I was 5.1, 5.8, 4.9, 4.5, 3.5, 3.3 and 3.0 and in group II was 6.0, 6.5, 4.3, 4.0, 3.2, 2.8 and 1.6 at Pre- op, day 1, day 5, day 7, week 4, week 6 and week 12 respectively. The maximum mouth opening (mm) pre- op, day 1, day 5, day 7, week 4, week 6 and 12 weeks was 34.2, 35.6, 38.4, 40.6, 41.2, 41.9 and 42.5 in group I and 35.4, 36.7, 38.9, 40.5, 42.6, 43.7 and 45.2 in group II respectively. Singh et al¹¹ found that there was significant reduction of pain in both groups, but reduction of pain was more in group B than in group A at week 4, week 6 and week 12. Mouth opening was significantly higher in group B than in group A patients. Reduced painful lateral and protrusive movements were seen in group B than in group A patients. There was no significant difference in hospital anxiety and depression scale among the groups at pre-operative and at 4th week post-operative. Though a significant reduction of IL-6 levels was seen post-operatively, there was no significant difference between the two groups. Carvajal and Laskin¹² found an increase in joint sound post-arthrocentesis in patient having disc displacement with reduction and joint sound not affected in patient having disc displacement without reduction.

Conclusion

Authors found that combination of duloxetine with arthrocentesis gave much better outcome than arthrocentesis alone in TMJ pain patients.

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