**Critically Appraised Topic (CAT)**

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| **Project Team:** |
| **Group 8A-4** |
| **Project Team Participants:** |
| **Jayna Shah, David Wertz, Julia Snell, Trevor Hine** |
| **Clinical Question:** |
| **What treatment can be offered to patients with anterior disc displacement and bilateral masticatory myalgia** |
| **PICO Format:** |
| **P:** |
| **Patients experiencing painful clicking of TMJ** |
| **I:** |
| **Injections of TMJ with occlusal splint** |
| **C:** |
| **Occlusal splint therapy alone** |
| **O:** |
| **Subjective decrease in pain** |
| **PICO Formatted Question:** |
| **In patients experiencing painful clicking of the TMJ, do those who receive injections of the TMJ alongside an occlusal splint notice a greater reduction of pain compared to those who receive an occlusal splint alone?** |
| **Clinical Bottom Line:** |
| **Temporomandibular Disorders consist of multiple different subtypes and it is important to diagnose and treat the pain of the TMD. The traditional method of treatment consists of occlusal appliances. However, injections into the TMJ alongside occlusal appliances may provide a more significant reduction in pain for the patient. It is important to determine the most effective treatment modality in order to best treat our patient with anterior disc displacement with masticatory myalgia.** |
| **Date(s) of Search:** |
| **11/10/20 and 11/11/20** |
| **Database(s) Used:** |
| **PubMed for National Institutes of Health** |
| **Search Strategy/Keywords:** |
| **Trigger Point Injections, Temporomandibular Joint Disorders, Myofacial Pain, Injections, Occlusal Splints** |
| **MESH terms used:** |
| **Trigger Points, Myofacial Pain Syndromes, Temporomandibular Joint Disorders, Occlusal Splints** |
| **Article(s) Cited:** |
| * **Al-Moraissi, Essam Ahmed et al. “The hierarchy of different treatments for arthrogenous temporomandibular disorders: A network meta-analysis of randomized clinical trials.” *Journal of cranio-maxillo-facial surgery : official publication of the European Association for Cranio-Maxillo-Facial Surgery*vol. 48,1 (2020): 9-23. doi:10.1016/j.jcms.2019.10.004** * Bilici, Itır Şebnem et al. “Evaluation of the effects of occlusal splint, trigger point injection and arthrocentesis in the treatment of internal derangement patients with myofascial pain disorders.” *Journal of cranio-maxillo-facial surgery : official publication of the European Association for Cranio-Maxillo-Facial Surgery* vol. 46,6 (2018): 916-922. doi:10.1016/j.jcms.2018.03.018 * **Ozkan, Fatih et al. “Trigger point injection therapy in the management of myofascial temporomandibular pain.” *Agri : Agri (Algoloji) Dernegi'nin Yayin organidir = The journal of the Turkish Society of Algology* vol. 23,3 (2011): 119-25. doi:10.5505/agri.2011.04796** |
| **Study Design(s):** |
| **The first article is a Meta-Analysis of Randomized Clinical Trials**  **This article selected RCTs to compare fourteen different treatments against a control/placebo. It found 36 studies pertaining to pain and 33 pertaining to MMO.**  **The second article is a Retrospective Case-Controlled Study**  **This article looked at the use of stabilization splints alone, trigger point injections (at different frequencies) with stabilization splints, stabilization splints with arthrocentesis, and the use of trigger point injections (at different frequencies) with stabilization splints and arthrocentesis. This article focused on patients with internal displacement of the articular disc and myofascial pain syndrome.**  **The third article is a Randomized Controlled Trial**  **This article looked at 50 patients with myofascial TMD and randomly assigned them to a stabilization splint only group and a trigger point injection and stabilization splint group. 25 people were assigned to each group.** |
| **Reason for Article Selection:** |
| **The first article is a meta-analysis (high level of evidence) that compares different treatment options for TMD in terms of pain reduction**  **The second article has the exact same pt population and diagnonsis as our pt and the treatments discussed are the treatment options under consideration for our pt.**  **The third article is a RCT (a higher level evidence) comparing the two treatment options under consideration and the diagnosis of the pt population in this study is the same as our pt.** |
| **Article(s) Synopsis:** |
| **In terms of pain reduction, the most effective treatment option was inter-articular injectionsn with corticosteroids followed by inter-articular injections with hyaluronic acid. Other minimally invasive treatment modalities followed behind in terms of effectiveness. The least effective treatment modality was the placebo/control group, with the second least effective group being the conservative treatment goup. In terms of increasing maximum mouth opening, arthroscopy was found to be more effective than interarticular injections, both of which being greater than conservative treatments.**  **Pain reduction in trigger point + stabilization splint + arthrocentesis groups found to be effective. Pain reduction in combined therapy groups displayed greater pain reduction than stabilization splint alone, with significant pain reduction occurring earlier on (at 1 month). In combined therapy, trigger point injections occurring 3 times a day on alternating days displayed significantly greater pain reduction than trigger point injections with a frequency of 3 times per week. At three months, all treatment modalities observed had significant decreases in pain.**  **Positive improvement in signs and symptoms for both trigger point therapy + Stabilization splint and stabilization splint only groups. However, there was a significant difference between the combined therapy group when compared to the stabilization splint only group.** |
| **Levels of Evidence:** (For Therapy/Prevention, Etiology/Harm)  See <http://www.cebm.net/index.aspx?o=1025>  **1a** – Clinical Practice Guideline, Meta-Analysis, Systematic Review of Randomized Control Trials (RCTs)  **1b** – Individual RCT  **2a** – Systematic Review of Cohort Studies  **2b** – Individual Cohort Study  **3** – Cross-sectional Studies, Ecologic Studies, “Outcomes” Research  **4a** – Systematic Review of Case Control Studies  **4b** – Individual Case Control Study  **5** – Case Series, Case Reports  **6** – Expert Opinion without explicit critical appraisal, Narrative Review  **7** – Animal Research  **8** – In Vitro Research |
| **Strength of Recommendation Taxonomy (SORT) For Guidelines and Systematic Reviews**  See article **J Evid Base Dent Pract 2007;147-150**  **A** – Consistent, good quality patient oriented evidence  **B** – Inconsistent or limited quality patient oriented evidence  **C** – Consensus, disease oriented evidence, usual practice, expert opinion, or case series for studies of diagnosis, treatment, prevention, or screening |
| **Conclusion(s):** |
| **Article 1: Minimally invasive tx (such as injections of the TMJ) are more effective at reducing pain than conservative tx (such as occlusal appliances). Minimally invasive procedures should be considered as first line or early treatment options for TMD (as opposed to the current thought process of exhausting all conservative tx options before moving on to minimally invasive procedures.**  **Article 2: Combined therapy is more effective than single therapy. For pts with myofascial pain and TMD, it is recommended to start treatment with a stabilization splint in conjunction with TPI 3 times a day every 3 days. If the pt does not recover, arthrocentesis should be considered as an adjunct to the TPI and SS therapy.**  **Article 3: TPI combined with stabilization splint therapy is effective in management of myofascial TMD pain and this combination therapy showed a statistically significant reduction in pain when compared to the use of a stabilization splint alone.**  **Further research, especially higher level research (such as RCT and systematic reviews) may be necessary in order to be able to compare results and have consistent high levels of evidence.** |