

The Efficacy of Dextrose Prolotherapy for Temporomandibular Joint Hypermobility (2011)

Refai H, Altahhan O, Elsharkawy R.[Epub ahead of print] The Efficacy of Dextrose Prolotherapy for Temporomandibular Joint Hypermobility: A Preliminary Prospective, Randomized, Double-Blind, Placebo-Controlled Clinical Trial. Oral Maxillofac Surg. 2011 Jul 12.

Dr. Reeves' Notes: A study on dextrose prolotherapy for TMJ hypermobility was published in the Journal Of Oral and Maxillofacial surgery in 2011. 12 patients with painful subluxation or dislocation of the TMJ were assigned to 4 injections of 6.7% dextrose (2 ml 10% dextrose and 1 ml of 2% mepivacaine) versus 2 ml saline and 1 ml 2% mepivacaine. Three month follow-up after the last for 4 injections which were performed at 6 week intervals.

This was a very interesting design in that the diagnosis of TMJ hypermobility was based on the patient's history and the clinical recognition of an excessive abnormal excursion of the condyle that slides over the articular eminence, catches briefly anterior to the eminence, and then returns to the fossa by self-reduction or medical assistance. The radiographic observation of anterior positioning of the mandibular condyle to the articular eminence on wide opening confirmed the clinical diagnosis. There is a beautiful set of pictures showing how the hypertranslation was shown on X-ray. They used a 30 gauge needle. They used 3 injection sites with 3 separate insertions, superficial to the capsule (0.4 ml), and into superior (0.8 ml) and inferior attachments of the capsule (0.8 ml) - again with excellent pictures. Communication with the authors indicates that 3 ml of the same solution was also injected directly in the TMJ joint. Soft diet for 2 weeks after each injection was requested.

Analysis of data visually did not show dissimilarity between groups but that analysis would have not been significant

statistically due to the small study size. 3 full ml was injected per above distribution. Pain intensity reductions were impressive in each group, mean frequency of luxations (locking episodes per month) was reduced markedly in each group, although maximal mouth opening (in this case considered an improvement) decreased only in the dextrose group (significantly). This study clearly showed a therapeutic benefit of injection which cannot be explained by a placebo effect due to objective locking decrease although pre and post films were not obtained and without actual joint injection. Limitations included the tiny study size which severely hampered statistical analysis of group differences and statistical significance of differences in improvement between groups. The injection with saline and anesthetic should have been considered a treatment comparison group as it would not have been a placebo (needle contact, potential anesthetic irritation of soft tissue, dilution of degenerative cytokines, other mechanisms). A delayed treatment group with pre and post films would be a consideration.

An abstract is available below...

PURPOSE. The aim of this study was to assess the efficacy of dextrose prolotherapy for the treatment of temporomandibular joint (TMJ) hypermobility.

PATIENTS AND METHODS. A prospective, randomized, double-blind clinical study using a placebo control was carried out. Twelve patients with painful subluxation or dislocation of the TMJ were randomly assigned to 1 of 2 equal-sized groups. Patients in the active group received 4 injections of dextrose solution (2 mL of 10% dextrose and 1 mL of 2% mepivacaine) for each TMJ, each 6 weeks apart, whereas patients in the placebo group received injections of placebo solution (2 mL of saline solution and 1 mL of 2% mepivacaine) on the same schedule. A verbal scale expressing TMJ pain on palpation, maximal mouth opening (MMO), clicking sound, and frequency of luxations (number

of locking episodes per month) were assessed at each injection appointment just before the injection procedure and 3 months after the last injection. The collected data were then statistically analyzed.

RESULTS. By the end of the study, each group showed **significant improvement in TMJ pain on palpation and number of locking episodes and insignificant improvement in clicking sound.** With the exception of the MMO, there were no statistically significant differences throughout the study intervals between the active and placebo groups. The active group showed a significant reduction in MMO at the 12th week postoperatively. Differences compared with mean baseline value remained significant at the end of the follow-up period. On the other hand, the placebo group showed an insignificant difference in MMO throughout the study periods. For the last 2 intervals, the placebo group showed statistically significantly higher mean MMO values than the active group. By the end of the 12th postoperative week, the percentages of decrease in MMO were significantly greater in the active group.

CONCLUSION. Prolotherapy with 10% dextrose appears **promising for the treatment of symptomatic TMJ hypermobility**, as evidenced by the therapeutic benefits, simplicity, safety, patients' acceptance of the injection technique, and lack of significant side effects. However, continued research into prolotherapy's effectiveness in patient populations with large sample sizes and long-term follow-up is needed.