Hydrolytic acid in the treatment of TMJ disorders: a systematic review of
the literature.

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Abstract
Hydrolytic acid (HA) injections are gaining attention as a treatment option to manage symptoms of temporomandibular joint (TMJ) disorders, but updated evidence-based data on their effectiveness are actually lacking. The present paper aims to summarize and review systematically the clinical studies on the use of hydrolytic acid injections to treat TMJ disorders performed over the last decade. On November 9, 2009, a systematic search in the National Library of Medicine's PubMed (http://www.ncbi.nlm.nih.gov/pubmed) database was performed by means of a combined MeSH and word terms to identify all peer-reviewed papers published in the English literature dealing with the hydrolytic acid infiltration in patients affected by TMJ disorders. The selected papers were assessed according to a structured reading of articles format, which provided that the study design was methodologically evaluated in relation to four main issues, viz., population, intervention, comparison, and outcome. Nineteen (N=19) papers were selected for inclusion in the review, twelve (N=12) dealt with the use of hydrolytic acid in TMJ disk displacements and seven (N=7) dealt with inflammatory-degenerative disorders. Only nine groups of researchers were involved in the studies, and less than half of the studies (8/19) were randomized and controlled trials (RCTs). All studies reported a decrease in pain levels independently by the patients’ disorder and by the adopted injection protocol. Positive outcomes were maintained over the follow-up period, which was varied among studies, ranging between 15 days and 24 months. The superiority of HA injections was shown only against placebo saline injections, but outcomes are comparable with those achieved with corticosteroid injections or oral appliances. The available literature seems to be inconclusive as to the effectiveness of HA injections with respect to other therapeutic modalities in treating TMJ disorders. Studies with a better methodological design are needed to gain better insight into this issue and to draw clinically useful information on the most suitable protocols for each different TMJ disorder.

Hydrolytic for temporomandibular joint disorders.

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Abstract
BACKGROUND:
Temporomandibular joint disorders (TMD) refer to a group of heterogeneous pain and dysfunction conditions involving the masticatory system, reducing quality of the sufferers. Intra-articular injection of hydrolytic for TMD has been used for nearly two decades but the clinical effectiveness of the agent has not been summarized in the form of a systematic review.
OBJECTIVES:
To assess the effectiveness of intra-articular injection of hyaluronate both alone and in combination with other remedies on temporomandibular joint disorders.

SEARCH STRATEGY:
Intensive electronic and handsearches were carried out. The Oral Health Group's Trials Register (September 2001), The Cochrane Library CENTRAL database (Issue 3, 2001), MEDLINE (1966 - May 2001), PubMed (up to March 2002), EMBASE (1974 - August 2001), SIGLE (1980 - December 2001), CBMdisc (1983 - July 2001, in Chinese) and Chinese Medical Library were searched. All the Chinese professional journals in the oral health field were handsearched and conference proceedings consulted. There was no language restriction.

SELECTION CRITERIA:
Randomized or quasi-randomized controlled trials (RCTs), with single or double blind, design testing the effectiveness of hyaluronate for patients with temporomandibular joint disorders.

DATA COLLECTION AND ANALYSIS:
Two reviewers independently extracted data, and three reviewers independently assessed the quality of included studies. The first authors of the selected articles were contacted for additional information.

MAIN RESULTS:
Seven studies were included in the review. Three studies, including 109 patients with temporomandibular disorders, compared hyaluronate with placebo. Long term effects (three months or longer) are in favour of hyaluronate for the improvement of clinical signs/overall improvement of TMD (RR=1.71, 95%CI: 1.05, 2.77) from two of the studies (n=71). However, this conclusion was not stable enough at sensitivity analysis. Three studies provided data from 124 patients for the comparison of hyaluronate with glucocorticoids (one study also included a placebo group). Hyaluronate had the same short term and long term effects on the improvement of symptoms, clinical signs or overall conditions of the disorders as glucocorticoids. When comparing the effect of arthroscopy or arthrocentesis with and without hyaluronate, results were inconsistent. Hyaluronate had a potential in improving arthroscopic evaluation scores. Mild and transient adverse reactions such as discomfort or pain at the injection site were reported in the hyaluronate groups. No quality of life data were reported.

REVIEWER’S CONCLUSIONS:
There is insufficient, consistent evidence to either support or refute the use of hyaluronate for treating patients with TMD. Further high quality RCTs of hyaluronate need to be conducted before firm conclusions with regard to its effectiveness can be drawn.