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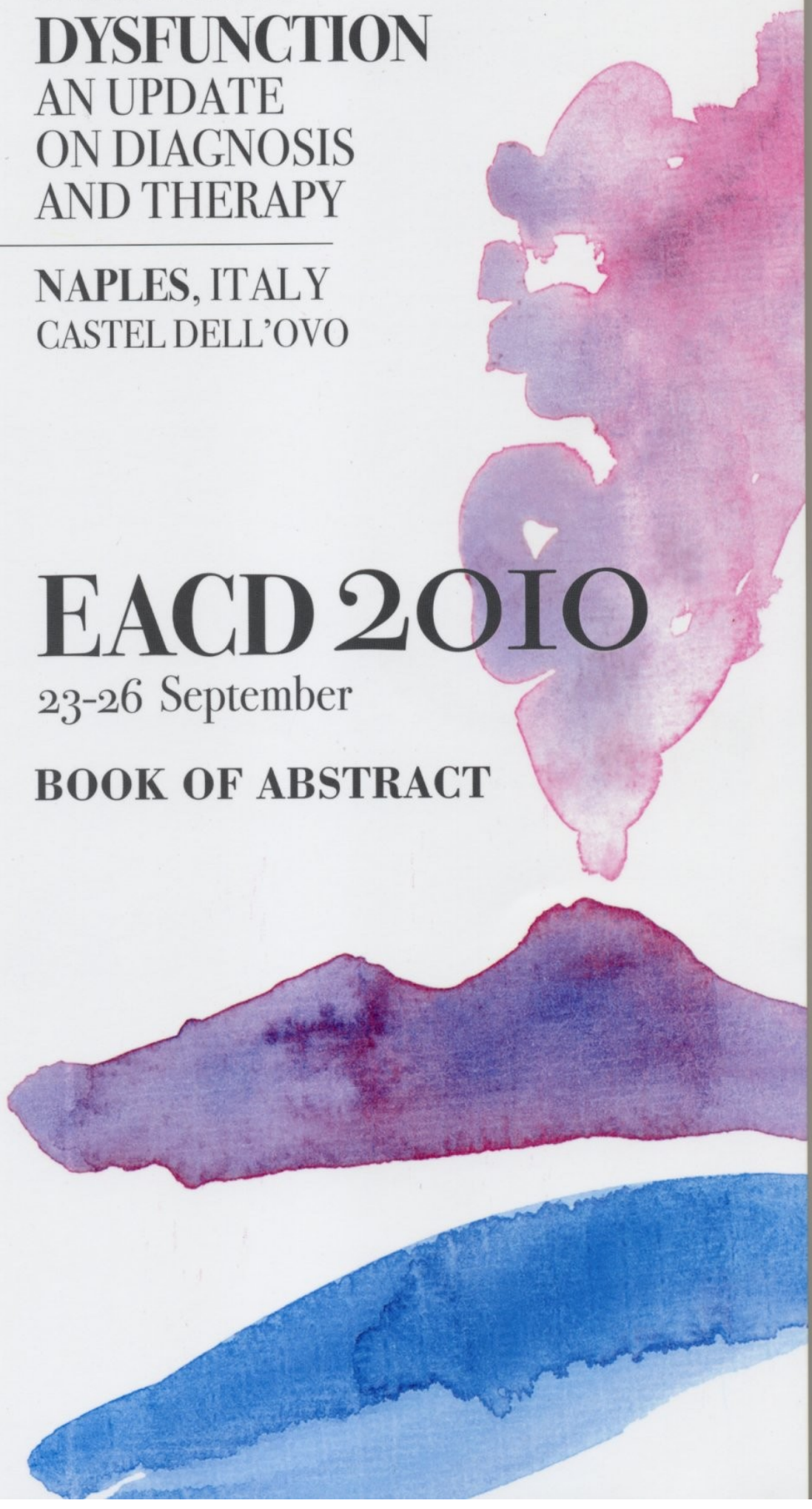
BOOK OF ABSTRACT



Arthrocentesis with or without additional drugs in temporomandibular joint inflammatory-degenerative disease: a randomized and controlled trial on the short-term effectiveness of six treatment protocols

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Background. Literature data suggested that arthrocentesis may be of some benefit to manage symptoms of temporomandibular joint (TMJ) disorders, even though findings are not conclusive as for the potential additional effectiveness achieved with drugs injected immediately following joint lavage. The aim of the present investigation was to compare the effectiveness of six treatment protocols providing TMJ arthrocentesis with or without additional drugs to manage symptoms in patients with inflammatory-degenerative TMJ disease.

Materials and methods. A consecutive series of 72 patients with Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD) version 1.0 diagnosis of osteoarthritis (axis group IIIb) with pain lasting from more than six months were randomly assigned to one of the groups receiving the following treatment protocols: single session two-needle arthrocentesis (A), single session two-needle arthrocentesis plus corticosteroid (B), single session two-needle arthrocentesis plus low-molecular weight hyaluronic acid (HA) (C), single session two-needle arthrocentesis plus high-molecular weight HA (D), five weekly two-needle arthrocentesis plus low-molecular weight HA (E), five weekly single-needle arthrocenteses plus low-molecular weight HA (F). For each patient, a number of outcome parameters, viz., maximum pain at rest and maximum pain at chewing on a 10-point VAS scale, subjective chewing efficiency (VAS), treatment tolerability and perceived treatment effectiveness on a four-point ordinal scale, jaw range of motion function in millimeters, were assessed at baseline, at the end of treatment, and at a three-month follow up. All interventions were performed by one of the two main investigators in accordance to a random sequence of intervention and the outcome parameters were recorded by the same trained dental student blinded to the treatment protocol for all patients. The existence of differences between groups as for changes over time in all the outcome variables was assessed by means of analysis of variance (ANOVA) for continuous variables and Kruskal-Wallis' test for ordinal variables. The percentage of patients of each group reporting an improvement was compared by a chi-square test. Also, ANOVA and chi-square test were performed to investigate respectively for differences in the mean age and to compare sex distribution between groups. For all procedures, statistical significance was set at $p<0.05$.

Results. A total of 60 patients (mean age 50.1 years; 51 females, 9 males) completed the study. The treatment protocol D (arthrocentesis plus high-molecular weight HA) was interrupted after five patients due to the occurrence of unpleasant side effects, viz., joint swelling and strong post-injection increase of pain, in two out of five subjects. Five patients belonging to the other treatment groups dropped out from the study due to different reasons, mainly due to work-related or other difficulties to attend the study sessions. The number of patients completing treatment protocols A, B, C, E, and F, ranged from 9 to 12, and no differences emerged between groups as for the mean age ($p=0.346$) and sex distribution ($p=0.333$). Baseline values of the five treatment groups were not significantly different in any of the outcome variables (p-values ranging from 0.471 to 0.702). At the three-month follow up, improvement with respect to mean baseline values were recorded in all the five treatment groups completing the protocol. No significant differences emerged between groups in any outcome variable

(p-values ranging from 0.083 to 0.983). Despite being not significant with respect to improvement achieved with other treatments, the protocol providing five sessions of two-needle arthrocenteses plus low-molecular weight HA (protocol E) allowed achieving the highest improvement in almost all the outcome variables, among which maximum pain at chewing (5.00 vs. 2.04-2.72 on a VAS scale). Quite surprisingly, protocol E was also the most tolerable by the patients (2.58 vs. 2.11-2.20 on a four-point ordinal scale). Protocol B, viz., arthrocentesis plus corticosteroids injection, endorsed the higher scores in subjectively perceived efficacy (3.00 vs. 2.16-2.66). Differences between groups in the percentage of patients reporting an improvement in pain variables were not significant ($p=0.303$). The highest percentage of improvers was shown in patients belonging to groups E (91.6%), F (66.6%), and C (63.6%), while groups receiving arthrocentesis alone (A) or with corticosteroids (B) had about a 50% percentage of patients who improved with respect to baseline pain values.

Conclusions. The present investigation was designed to get deeper into the study of the effectiveness of TMJ arhrocentesis, and was the first attempt to compare six different treatment protocols by a randomized, controlled clinical trial. Findings suggested that a protocol providing five weekly low-molecular weight hyaluronic acid injections immediately following a classical two-needle arthrocentesis was superior to all the other treatments to reduce pain-related symptoms in patients with inflammatory-degenerative TMJ disease over a three month period. The external validity of these findings needs to be confirmed with future studies on larger samples with longer follow up periods.

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