

Abstract 1 – August 21, 2017

Louca Jounger S, Christidis N, Svensson P, List T, Ernberg M. Increased levels of intramuscular cytokines in patients with jaw muscle pain. *J Headache Pain*. 2017 Dec;18(1):30.

BACKGROUND:

The aim of this study was to investigate cytokine levels in the masseter muscle, their response to experimental tooth-clenching and their relation to pain, fatigue and psychological distress in patients with temporomandibular disorders (TMD) myalgia.

METHODS:

Forty women, 20 with TMD myalgia (Diagnostic Criteria for TMD) and 20 age-matched healthy controls participated. Intramuscular microdialysis was performed to sample masseter muscle cytokines. After 140 min (baseline), a 20-minute tooth-clenching task was performed (50% of maximal voluntary contraction force). Pain (Numeric rating scale 0-10) and fatigue (Borg's Ratings of Perceived Exertion 6-20) were assessed throughout microdialysis, while pressure-pain thresholds (PPT) were assessed before and after microdialysis. Perceived stress (PSS-10) and Trait Anxiety (STAI) were assessed before microdialysis.

RESULTS:

The levels of IL-6, IL-7, IL-8 and IL-13 were higher in patients than controls (Mann Whitney U-test; P 's < 0.05) during the entire microdialysis. IL-6, IL-8 and IL-13 changed during microdialysis in both groups (Friedman; P 's < 0.05), while IL-1 β , IL-7 and GM-CSF changed only in patients (P 's < 0.01). IL-6 and IL-8 increased in response to tooth-clenching in both groups (Wilcoxon test; P 's < 0.05), while IL-7, IL-13 and TNF increased only in patients (P 's < 0.05). Patients had higher pain and fatigue than controls before and after tooth-clenching ($P < 0.001$), and lower PPTs before and after microdialysis ($P < 0.05$). There were no correlations between cytokine levels, pain or fatigue. Also, there were no differences in stress or anxiety levels between groups.

CONCLUSIONS:

In conclusion, the masseter levels of IL-6, IL-7, IL-8 and IL-13 were elevated in patients with TMD myalgia and increased in response to tooth-clenching. Tooth-clenching increased jaw muscle pain and fatigue, but without correlations to cytokine levels. This implies that subclinical muscle inflammation may be involved in TMD myalgia pathophysiology, but that there is no direct cause-relation between inflammation and pain.