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NorJIA
Norwegian JIA Study – Imaging, oral health and quality of life in children with juvenile idiopathic arthritis (JIA)

Localized pain and CBCT features of the temporomandibular joint in patients with Juvenile Idiopathic Arthritis - Preliminary results

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Aims

The aims of this study were first to examine localized pain related to the temporomandibular joint (TMJ) in children and adolescents with juvenile idiopathic arthritis (JIA), next to examine associations between pain and CBCT findings.

Material and Methods

This is part of a longitudinal multicenter study including 228 children aged 4-16 years, with a diagnosis of JIA according to the ILAR criteria. Data from a subset of 72 children examined in Bergen during the period 2015-2017 is included. The clinical examinations were performed by two calibrated examiners according to the diagnostic criteria of simplified versions of two standardized protocols: 1) The Diagnostic Criteria for Temporomandibular Disorders and 2) The EuroTMJaw Recommendations for Clinical TMJ assessment in patients diagnosed with JIA. The presence of self-reported main complaints in the TMJ area and the palpation of masticatory muscles were the determining factors in the investigation and part of the diagnostic criteria.

The CBCT examinations were performed using a 3D Accuitomo 170 (Morita), with a small field of view and a high image resolution of 80 µm.

The observer was masked for all information except for study ID and age, and under standardized conditions scored the examinations for overall impression of structural changes (0=none incl. minimal changes, 1=mild, 2=moderate/severe) (***Figure 1***).

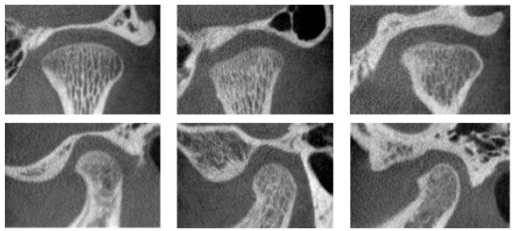

Figure 1. Scoring of CBCT-findings into normal (left column), mild (mid-column) or moderate (right column) structural changes in children with JIA. Top row = coronal views, bottom row = sagittal oblique.

The study was approved by the Regional Ethics Committee (2012/542/REK vest).

Statistical analysis

Descriptive statistics were reported as mean with SDs and percentages or median (ranges). Associations between localized pain and structural changes on CBCT were examined using Fisher's exact/chi-square tests as appropriate. Statistical analyses were performed using SPSS version 25 (IBM Corporation, New York, NY, USA). All tests were two-sided and statistical significance was set to $p<0.05$.

Results

72 children with JIA were included (32 female), mean age 12.5 (SD=3.1).

41 out of 138 TMJs (29.7%) were painful on palpation of the masticatory muscles/TMJ, of which 15 (36.6%) showed structural changes on CBCT (***Figure 2)***.

Of 97 painless TMJs, 31 (32.0%) had mild (n=18) or moderate (n=13) CBCT changes. No associations were seen between pain on palpation and CBCT changes (p=0.97, left side).

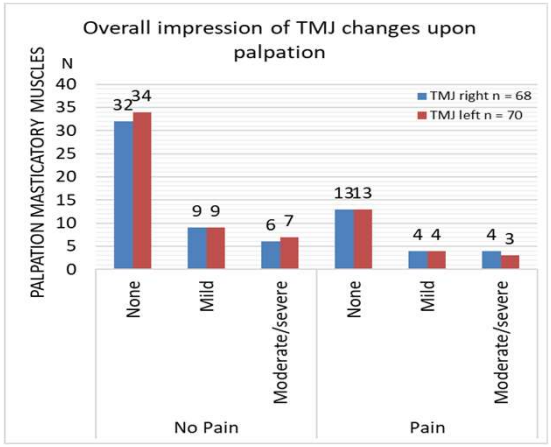

Figure 2 Pain on palpation of the masticatory muscles (left and right) vs. structural changes on CBCT in a cohort of 72 children (aged 4-16 years) with JIA.

In 71 of 141 (50.4%) TMJs, pain was elicited during jaw movement, of which 25 (35.2%) showed structural changes on CBCT; 13 mild and 12 moderate to severe ***(Figure 3).***
No associations were seen between pain on jaw movement and CBCT changes (p=0.87, left side).

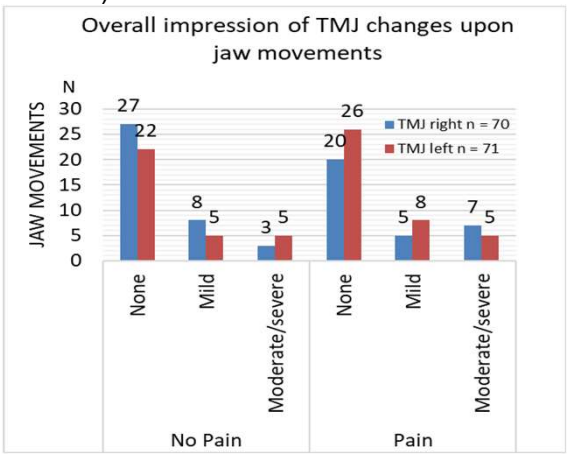

Figure 3 Jaw movements vs. structural TMJ changes on CBCT in 72 children with JIA.

Conclusion

Nearly one third of TMJs in children with JIA were painful on palpation of the masticatory muscles/TMJ, and half were painful on jaw movements. No associations were seen between TMD-related pain and structural changes on CBCT.

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