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NEUROMUSCULAR EVALUATION OF THE EFFECTIVENESS OF ORTHOGNATHIC SURGERY: RETROSPECTIVE CLINICAL STUDY

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Aim: This study investigates retrospectively if the initial electromyography (EMG) status of patients who underwent orthognathic surgery correlates with the extent of postsurgical EMG functional recovery.

Materials and method: Clinical records concerning 40 patients who underwent Le Fort I and/or sagittal osteotomy of the mandibular ramus to correct skeletal dental class III malocclusions were retrieved and presurgical and postsurgical EMG data were analyzed and compared. Additionally, postsurgical EMG recovery was compared with that of a set of healthy, not surgically treated class I patients, with no sign of disorders affecting the temporomandibular joint (TMJ). Finally, the effect of six independent variables (age, sex, time from surgery, extent of segment re-positioning, malocclusion class, upper jaw repositioning) on muscular recovery was investigated by means of correlation analysis.

Results and Conclusions: A significant increase of the average EMG activity after orthognathic corrective surgery was observed [P=0,01]. The postsurgical increase of EMG values showed a negative correlation trend with those collected before surgery (r=-0.38, clenching on teeth; r=-0.33, clenching on cotton rolls). None of the independent variables had any effect on the postsurgical outcome. Orthognathic surgery improves the muscular activity of patients who present skeletal dental class III malocclusions. This improvement can be objectively assessed with EMG measurements. Patients who benefit more from orthognathic surgery seem to be those displaying the lowest presurgical EMG activity.

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