健常男性若年者における握力発揮時の咬合と関連筋活動の関係

近藤大輔

Relationship between Occlusion and Activities of Several Muscles during Exertion of Grip Strength in Healthy Young Men

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Abstract

Purpose: The present study was investigated to clarify the relationship between the electromyographic activities of several muscles and the occluding conditions during exertion of grip strength.

Methods: Twenty healthy young men, having natural dentition and bilateral molars support, were examined. The electromyographic activities of the habitual chewing side of the temporal muscle (Tp), sternocleidomastoid muscle (SCM) and flexor carpi radialis muscle (FCR), and opposite side (opp.) of SCM were recorded under following occluding conditions during exertion of grip strength: 1) mandibular rest position (Rp), 2) voluntary maximum clenching at the intercuspal position (Vmc), 3) maximum clenching with included sheet (Mci), and 4) free occlusion (Fo). They were compared with each other, and results were analyzed with Friedman test. Spearman’s rank correlation test was used to analyze the relationship among the activities of the muscles. Differences of occlusal force and occlusal contact area between their habitual and opposite chewing sides were compared by Wilcoxon signed-rank sum test.

Results: Grip strength increased during Vmc and Fo compared to Rp (p<0.05). In Tp and both sides of SCM, significant differences were observed between Rp and other occluding conditions (p<0.05). Positive correlation was observed between opp.SCМ and FCR in Fo (r=0.650, p<0.05). Differences of occlusal force and occlusal contact area were not significant between the habitual and opposite chewing sides.

Conclusions: The present study clarified the relationship between various occluding conditions and activities of several muscles including the sternocleidomastoid muscle of the opposite side.