Brain Activity in Class II Div. 1 Malocclusion Subjects after Setting Twin-block Appliance

Masakuni HIROSE, Shinji NAKAMURA[1] and Toshihiko HIMURO[1]

The purpose of the study was to clarify the effects of gum-chewing on the primary motor area (PMA) when advancing the mandible with a twin block appliance (TBA). Twenty male adults were divided into the Class I (normal malocclusion, n=10) and Class II (Class II div. 1 malocclusion undergoing mandibular retrusion, n=10) groups. Brain activity, monitored with an Near Infra-Red Spectoroscopy (NIRS), was significantly elevated in the Class I group with a TBA at 0 mm of advancement, while it was also significantly greater in the Class II group without a TBA. Furthermore, when fitted with a TBA with 4-6 mm of advancement, brain activity in the Class II group declined and became near that in the Class I group. These findings indicate the significance of improving the jaw relationship to normal in patients undergoing mandibular retrusion using a TBA from the aspect of brain activity involving the stomatognathic motor area.

Key words : Class II div. 1, brain activity, twin block appliance, mandibular advancement, NIRS

Division of Orthodontics and Dentofacial Orthopedics, Department of Oral Growth and Development, Ohu University School of Dentistry
(Director : Prof. Toshihiko HIMURO)