

ABSTRACT

Backgrounds: Temporomandibular disorders (TMD) represent a group of significant problems in the general population. TMD is a general term used to denote all functional disturbances of masticatory system. Numerous treatment modalities had been advocated for TMD. Much controversy also exists in revealing the etiology factors of TMD.

Objectives: The objectives of this study were first to assess the effectiveness of soft occlusal splint in reducing the postural and maximum clenching electromyographic (EMG) activities of the anterior temporal and masseter muscles in TMD patients, comparing with healthy control subjects. Second is to reassess the effect of soft occlusal splint on muscles activities after six weeks of conservative treatments. Third is to assess the effectiveness of conservative treatments in resolving the pain of patients to resume routine oral function. Fourth is to identify characteristics that were more common among the TMD patients group, which might be indicative of soft splint treatment.

Methodology: In this study, 8 (44.4%) subjects with myofascial pain, 4 (22.2%) subjects with arthralgia with disc displacement, and 6 (33.3%) subjects with both disorders were selected from the patients referred to the Department of Oral Pathology, Oral Medicine and Periodontology, Faculty of Dentistry, University of Malaya. Conservative treatments that comprised patient education and self-care, analgesics and soft splint were prescribed for six weeks. Postural and maximum clenching EMG activity of the anterior temporal and masseter muscle were recorded with and without the splint before the conservative treatment, as well as after six weeks of conservative treatment. Signs and symptoms of patients were followed-up. Patient characteristics were recorded.

Results: Eighteen subjects comprised 9 (50%) Malays, 5 (27%) Chinese and 4 (22%) Indians. The mean age for the experimental group was 28.9 years, with an age range of 14-55 years; whereby males, mean age 33.3 years, age range 15-55 years; and female,

mean age 27.6 years, age range 14-42 years. Before conservative treatment, soft splint significantly reduced the maximum clenching EMG activity of the anterior temporal and masseter muscle of the TMD patients ($P < 0.05$), but not the postural EMG activity ($P > 0.05$); while for that of healthy control subjects, soft splint caused no significant difference ($P > 0.05$). After 6 weeks of conservative treatments, soft splint only significantly reduced the maximum clenching EMG activity of the anterior temporal muscle ($P < 0.05$). Thirteen (72.2%) subjects resumed their routine oral functions after 6 weeks of conservative treatments whereas the remaining 5 (27.8%) did not. All subjects had at least one form of parafunctional habits while 12 (66.7%) subjects had at least one form of adverse usage of the masticatory system.

Conclusion: This EMG results suggested that the soft splint might also reduce the parafunctional muscle activity of the TMD patients such as that of parafunctional clenching. The response of the muscle of TMD patients towards the splint might be more similar to that of healthy individuals as the patients were recovering from TMD. Conservative treatments that comprised patient education and self-care, analgesics and soft splint, seems to be an effective way in resolving the pain of the TMD patients to resume their routine oral function. It seems that functional overloading might be an important etiologic factor in TMD. It was suggested that TMD patients presented with functional overloading such as parafunctional clenching might be beneficial of soft splint treatment.

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