齒顎矯正疼痛對咬肌活動之影響

The Influence of Orthodontic Pain on Masseter Activity

中文摘要

對齒顎矯正疼痛的畏懼，常是病人不敢勇於接受治療的主要因素之一；甚至有百分之八的矯正患者因而中斷治療。然而對於引起齒顎矯正疼痛的原因、起始時間和持續天數仍未有定論，已發表文獻的立論根據亦多為由動物實驗、醫師本身的臨床經驗或依患者描述而得，仍缺乏一客觀的人體試驗佐證。故本研究使用矯正治療過程中常用之齒間分離器（separator），企圖造成牙齒移動進而產生疼痛，要求受測者在疼痛期間根據主觀的疼痛感受劃記於視覺類比尺度（visual analogue scale, VAS）上，同時利用可攜式肌電圖記錄器（portable EMG）客觀地記錄疼痛期間連續數天長程的肌肉活動，最後分析肌電記錄並與VAS結果作一探討，目的在瞭解齒顎矯正疼痛過程的變化及其與咬肌功能之關係。參與本研究之志願對象共九人，依每位受測者感覺矯正疼痛持續天數之不同，做三至六天不等之連續十二小時日常生活的肌電記錄，並同時以VAS評估疼痛程度，最後得到有效之樣本六例。經以「Spearman等級相關」予檢定，結果發現在統計學上有意義（$p<0.05$）的項目，在負荷試驗方面，最多者為咀嚼口香糖一百次之電位中位值，有66.7%（4/6）的案例至少一側有相關；在長程記錄方面，低幅波（low amplitude burst）的持續時間（duration）和個數（burst number）則均有高達100%（6/6）的案例至少一側相關。顯示低幅波的出現與疼痛的程度有密切之關連，肌肉放電量減少的程度與疼痛劇烈程度呈負相關，亦即在疼痛期間會減少肌肉之活性，由此得一結論，齒顎矯正疼痛的持續天數及個別感受的個體差異極大，但皆會造成咬肌活性之下降，而隨著疼痛的緩解，咬肌活性亦隨之增加；長程肌電記錄比短程的更能有效反應肌肉的功能。

英文摘要

Fear of orthodontic pain is one of the factors which discouraged patients from seeking for orthodontic treatment. Evenmore, eight percent of orthodontic patients cease the treatment course. It's still a controversy in the field of the reason, origin and persistent period of orthodontic pain. Associated articles are almost based on the animal experiments, clinical experiences of orthodontists or descriptions by the patients. Objective evidence of human studies in vivo remains obscure. In this study, orthodontic pain induced by tooth movement is obtained by means of separator insertion which is commonly used in orthodontic treatment. Asking volunteers mark the visual analogue scale (VAS) according to his own subjective pain feeling and objectively record the masseter activity by portable EMG. Finally, EMG data is processed and analyzed then correlates to the results of VAS. The aim of this study was to investigate the changes during the period of orthodontic pain and to understand the relationships between those and masseter activity. There were nine volunteers included in this study, according to the differences among subjective pain feelings which were evaluated by VAS. After three to six days of continuously twelve-hours EMG recording six valid datum were obtained. The results tested by Spearman rank correlation showed the items statistically significant ($p<0.05$), in loading test, were the median of potential of the one-hundred strokes of chewing gum which revealed 66.7% (4/6) at least one side related closely; in long-term recording, burst duration and number of low amplitude burst revealed 100% (6/6) at least one side related closely. It was concluded in spite of the persistent days and individual feeling of orthodontic pain varied extremely, all of the volunteers had decreased his own masseter activity, and following the pain relieved the muscle activity recovered gradually. Long-term EMG observation revealed more actually daily muscle exercise than short-term does.