Relationship between Episode of Upper Respiratory Tract Infection and Eruption Pattern of Third Molars in Okayama University Students

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Abstract: The relationship between oral health and respiratory disease has been increasingly debated over recent decades. Partially erupted third molars can increase food packing and plaque retention, which may increase microorganisms in tissue around the third molars and affect the surrounding tissue, including the upper respiratory tract. The purpose of this cross-sectional study was to examine the relationship between episodes of upper respiratory tract infection and the eruption pattern of third molars in university students aged 18-20, when wisdom teeth generally appear.

Of 2,205 first-year students, with an average age of 18.5±2.1 years old (18 to 67 years old), who underwent an oral examination at the Health Service Center of Okayama University in April 2013, 1,964 students (1,130 males, 834 females), aged 18 to 20 years, who were non-smokers and without missing data were analyzed. We examined the oral health status, including the Simplified Oral Hygiene Index (OHI-S), Community Periodontal Index, and eruption pattern of third molars. Students completed a self-reported questionnaire including items of episodes of upper respiratory infection during the past year. We divided the subjects into two groups: with or without experience of the 3 or more episodes of the common cold during the past year. A Chi square test was conducted for the two groups as well as a multivariate logistic regression analysis.

According to the Chi square test, there were significant differences in the eruption pattern of third molars and history of gum pain behind the most posterior molars in the past year between the two groups (P<0.05). A similar trend was observed for OHI-S, although it was not significant (P=0.054). According to logistic regression analysis, which used the sex, OHI-S, eruption pattern of the third molars, and history of gum pain behind last molars in the past year as independent variables, the experience of 3 or more episodes of upper respiratory tract infection was significantly correlated with having 1 or more partially erupted third molars (odds ratio: 1.53, 95% confidence interval: 1.16-2.02, P=0.003), with having no erupted third molars as a reference. In conclusion, having partially erupted third molars was significantly correlated with a higher prevalence of self-reported upper respiratory tract infection episodes in Japanese university students.

Key words: Upper respiratory tract infection, Third molar, Eruption, Young adults, Cross-sectional study

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