Association between Oral Health Status and Perceived General Health (EuroQol-5D)

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The purpose of this study was to examine association between oral health status and perceived general health symptom. We analyzed 14,231 subjects who participated in Korea National Health and Nutrition Examination Survey (2007 ∼ 2009). All individuals were examined by a questionnaire about socioeconomic history, smoking and drinking habit, the frequency of daily tooth brushing, the presence of regular dental visit, and EuroQol-5D. Dental survey was conducted to find the decayed, missing, and filled teeth (DMFT) index and community periodontal index. Subjects with perceived problem with mobility had higher DMFT index (odds ratio, 1.18, p < 0.001). Subjects with with perceived problem with pain/discomfort had higher DMFT index (odds ratio, 1.16, p < 0.001). Self-rating general health symptom was not associated with periodontitis (p > 0.05). Perceived general health was associated with DMFT index. It is recommendable that we can use the perceived general health to predict oral health status.

Key Words: EuroQol-5D, Oral health status, Perceived general health

Introduction

Single-item global self-rating symptoms are frequently used to measure health status1). They have been reported to perform well in predicting mortality and morbidity, screening for high-risk groups2). Such global self-ratings have been used to assess general health, and also to assess oral health status3,4). Health is a state of complete physical, mental and social well-being not merely the absence of disease or infirmity5). By such a definition, it is implied that one’s perception of general health can practically be associated with one’s state of oral health. A Patient’s self-rating oral health often does not correspond to a practitioner’s evaluation6). Many researchers have investigated association between perceived general health and perceived oral health3,6). Locker et al.3) suggested that older adults’ rating of oral health are associated their rating of general health. At the same time, many studies7-9) have been reported to be associated between objective oral health status and perceived oral health.

Some researches10-12) investigated the association between oral inflammation and general health disease such as stroke, cardiac disease, diabetes, and so on. This association can influence self-rating general symptom in those who have oral disease associated with general health problem.
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As a matter of fact, objective findings of oral health status cannot simply be converted into subjective perceptions of general health conditions as not only pain and loss of function derived from oral diseases but also socioeconomic factors such as gender, race, level of education, and oral health related behaviors. So, it needs to declare the relationship in a model reflecting clinical factors, demographic and socioeconomic factors and oral health related behaviors. Moreover, it was reported that quality of life was improved after dental rehabilitation. However, an effort to analyze the association with general health perceptions in such comprehensive models was rare.

The EuroQol items can be used as a descriptive system to illustrate health problem, or they can be used in conjunction with value sets and algorithms to estimate health state utility values. For this analysis the EuroQol-5D (EQ-5D) used as a descriptive system, with the presence of a health problem defined as either ‘some’ or ‘extreme’, and classified into the two strata of 1 non-health problem and 2 ~ 3 health problem.

Increase of chronic disease has suggested the need of the index which included not only complex disease status but also patient’s perceived health symptom. Recently EQ-5D was a tool as health-related life quality in the world.

Decayed, missing, and filled teeth (DMFT) index or community periodontal index (CPI) has been utilized in order to establish or evaluate new policies concerning oral health in Korea. It is crucial to understand the virtue of self-rating general health when formulating oral health policies that can substantially help elevate status of health and therefore the quality of life. This study aims to analyze such relationships between perceived general health and oral health status.

Materials and Methods

1. Study samples

We analyzed 14,231 subjects aged 30 years or older who participated in Korea National Health and Nutrition Examination Survey (KNHANES; 2007 ~ 2009). Subjects aged between 30 and 89 years, and included 42.3% male and 57.7% female. Non-respondents on health variables were excluded.

2. Methods

All individuals were examined by a questionnaire about socioeconomic history, smoking and drinking habit, the frequency of daily tooth brushing and the presence of regular dental visit. Dental survey was conducted to find the DMFT index and CPI.

Objective determinants of oral health status were recorded by DMFT and CPI code while demographic factors were determined by a self-recording questionnaire inclusive of age, gender, income level, education level, and oral health-related behavior such as the presence of regular dental check up and frequency of tooth brushing.

The EuroQol was used to evaluate general health of subjects. The EuroQol contains health status descriptive system (EQ-5D), and records the level of self-reported problem according to five dimensions (mobility, self-care, usual activities, pain/discomfort, and anxiety/depression). Each of the dimensions is assessed based on a single question with three response levels (no problem, some problem, and extreme problems).

Dichotomous variables are presented as percentages variables of oral health status of subjects with chi-square test. Multivariate logistic regression analyses were used to analyze the association of the perceived general health parameter with oral health variables. All variables were entered into the multivariate model with adjustment for age, gender, income, education, regular dental visit, tooth brushing frequency, smoking, drinking, and odds ratios and 95% confidence intervals are given for all factors. All statistical analyses were conducted using with SPSS 15.0 (SPSS Inc., Chicago, IL, USA).

Results

1. DMFT index and socioeconomic status

Male participants responded 42.3% of the participants was male, who responded relatively better perceived general health than female group (p < 0.01), 48.2% of the participants had high DMFT index (≥7), and 39.9% of the participants had periodontitis (CPI ≥3). DMFT index