Oral Health and Nutrition: Epidemiology, Clinical, and Social Aspects

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Summary Oral health is important for nutritional and food intake. In addition to dental health, the impact of various oral functions is attracting attention. Epidemiology studies indicate the importance of oral health on general health, and nutrition and food intake are considered a major pathway. For vulnerable older people, masticatory muscle training intervention has been developed. More fundamentally, oral health promotion considering a wide range of social determinants of oral health is required to prevent tooth loss and maintain oral functions.

Key Words oral health, nutrition and food intake, mediation analysis, population attributable fraction, the Global Burden of Disease study

Oral health is important for nutritional and food intake. Teeth are essential for biting food; therefore, tooth loss makes chewing hard foods difficult. In addition, the concept of oral frailty has garnered attention in this aging world (1). The deterioration of not only biting but also swallowing function affects nutrition and food intake. Therefore, in addition to dental health, the impact of oral health, including swallowing function affected by the tongue and perioral muscles, on nutrition and food intake is attracting attention (2).

In addition to these physical functions, oral health has social processes that may also contribute to nutrition and food. Oral health has a communicative function, such as speaking and smiling, which are important for social interactions. Therefore, dental status, including the number of teeth and denture use, is associated with the risk of being homebound in older people (3). In addition, poor dental status is also associated with eating alone, especially among older people living alone (4). Eating alone possibly increases the risks of depression and death (5, 6).

Therefore, oral health affects general health. Oral diseases are known to be one of the ten leading causes of years lived with disability (7). In addition to the direct burden of oral diseases, deterioration of nutrition and food intake due to poor oral health could increase the risk of diseases. In fact, mediation analyses reported a problem with eating is a mediator between tooth loss and the onset of depression or dementia (8, 9).

There is another aspect to the burden of oral diseases. The Global Burden of Disease study repeatedly reported oral diseases are one of the most prevalent diseases (10, 11). This is an important reason for the adaptation of the resolution on oral health at the 74th World Health Assembly of the World Health Organization in May 2021 (12). When this higher prevalence of oral diseases is combined with the impact of oral diseases on individuals, the burden of oral diseases becomes more significant. A study comparing the impact of modifiable risk factors on mortality in older people uses the population attributable fraction (PAF) (13). PAF indicates the public health impact of exposures in populations rather than the impact on individuals. The study results show that having fewer teeth indicated a greater PAF than most other risk factors such as smoking and comorbidities (13). Especially among men, PAF for the number of teeth was the second largest, followed by age.

These findings indicate the importance of oral health on general health, and nutrition and food intake are considered a major pathway. For vulnerable older people, masticatory muscle training intervention has been developed to improve chewing and biting abilities (14). More fundamentally, oral health promotion considering a wide range of social determinants of oral health from early childhood throughout the life-course is required to prevent tooth loss and maintain oral functions.

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