Risk Factors for Caries of Permanent Teeth in Japanese Infants: A Cohort Study

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Abstract: The objective of this study was to analyze various factors related to dental caries in Japanese infants. Subjects study comprised infants living in a rural area of the northern part of Honshu Island (n=162). They received dental check-ups provided by the local government when they were 18 months, 2 years, and 3 years old.

In the follow-up studies, intraoral examinations, interviews, and mutans scores were recorded using the Dentocult-SM™ at dental check-ups, performed to identify factors affecting the number of decayed, missing, and filled permanent teeth (DMFT) at the age of 11 years.

Contingency table and logistic regression analyses revealed that DMFT scores at 11 years of age were closely associated with the caries incidence in 2 and 3 year olds, brushing teeth by a carer, eating snacks, having a mentor during the daytime, and Dentocult-SM™ scores.

Risk factors for developing dental caries were suggested, and their screening in infants is essential to prevent permanent tooth caries.

Key words: Caries risk factors, Infant dental health examination, Regional characteristics, Caries risk tests, Caries experience

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Introduction

Maternal and infant health services in Japan, particularly health examinations rather than treatment, are provided by local governments.

Local health services depend on the actual health status or peoples’ demands in each community. These services are currently being reformed to be more scientifically based1). The countryside of Akita Prefecture is a typical rural area, in the northeastern part of Honshu Island (known as the Tohoku district).

In this prefecture, various projects have been discussed and carried out since 1985 to improve the dental health service program for infants.

Dental check-ups for infants in the prefecture are characterized by the adoption of the Dentocult-SM™ Strip mutans (Orion Diagnostica, Finland; referred to as the Dent-SM test) as a means of identifying the risk of dental caries. To provide community health services efficiently, the local system for dental health instruction for infants and their mentors must be improved. The system should provide dental health services based on a high-risk strategy to yield much better outcomes2,3).

Moreover, the accuracy of the screening test to detect the dental caries risk also needs to be improved4). The judgment or evaluation of only the Streptococcus mutans level is insufficient, and so oral hygiene has been evaluated by employing various indicators. This is because many risk factors are involved in increasing caries5,6).

A nationwide health promotion campaign, “Healthy Japan 21”, sponsored by the government, is being promoted, and it employs a population strategy. The target of all Japanese goals of the dental health campaign were determined. One of the goals is to reduce the total number of decayed, missing, and filled permanent teeth (DMFT) to less than one in 12-year-old children.

Additional high-risk strategies must be carried out in

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