Studies on the evaluation for the caries activity on the approximal surfaces
— Possibility of the measurement of the caries activity
on the approximal surfaces of the primary teeth —

Seishi Matsumura, Michiko Nishimura, Mitsuharu Ohmura, Yoshihide Okazaki,
Tatsuya Shimamoto, Sutadi Heriandi and Tsutomu Shimono

Department of Pediatric Dentistry, Okayama University Dental School
2-5-1, Shikata-cho, Okayama 700, JAPAN

Abstract Dental caries risk assessment plays a very important role in clinical decision making. A variety of risk assessment methods have been used for diagnostic and caries preventive purposes.

A bacteriological caries activity test, the Cariostat (1975 by Shimono) has been used in Japan to evaluate the caries activity of children. It is a colorimetric test which assesses the acid production of plaque samples in a liquid medium.

The purpose of this investigation was to determine Cariostat scores on approximal surfaces in primary teeth and to evaluate the relationship of the scores to the actual caries activity.

In this study the plaque of the approximal surfaces of the subjects aged 2-8 years were sampled with commercially available dental floss. The samples were placed into the Cariostat media and incubated at 37°C for 48 hours, and at the same time the number of Streptococcus mutans (S. mutans) in the media was examined by the plating method.

The results of this investigation indicated that the caries activity of the approximal surfaces of 5554 5161 6465 was higher than at other locations and that the ratio of the 8584 7475 number of S. mutans to total number of Streptococci from that plaque samples was also high. Bitewing radiographs demonstrated a relationship between the presence of carious lesions and a high Cariostat index. This method of evaluating approximal surfaces appears to be useful in estimating which surfaces have a high risk regarding dental caries or a low risk in individual patients.

Key words Caries activity test, Approximal caries, Streptococcus mutans

Introduction Recently the caries rate reduction in young children has been reported. However according to a Japanese government study in 1986, the caries rate of primary teeth was 34.0% at 2 years of age, 66.7% at 3 years of age and 89.9% at 5 years of age. Tho prevention of pit and fissure caries is being established, Akiyama, et al. reported that the caries rate of the approximal surfaces of primary molar has been gradually increasing in children. In order to reduce the caries rate of young children, caries prevention for the approximal surface is necessary.

At present, the early detection of al mal caries is done by periodic radiographic examination or visual examination, using fiber optic illumination. Caries pi}