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Detection of 6 periodontal bacteria in dental plaque samples from Japanese children

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Abstract We analyzed the distribution of 6 periodontal bacteria (*Porphyromonas gingivalis*, *Prevotella nigrescens*, *Prevotella intermedia*, *Eikenella corrodens*, *Actinobacillus actinomycetemcomitans* and *Capnocytophaga sputigena*) in dental plaque materials from 227 children (3-6 years old). The plaque materials were collected from all erupted teeth sites using a sterile toothbrush. Chromosomal DNA was extracted from each plaque sample, followed by a polymerase chain reaction with species-specific sets of primers. Standard strains of 6 bacteria were used as controls. Total detection rate of *P.gingivalis*, *P.nigrescens*, *P.intermedia*, *E.corrodens*, *A.actinomycetemcomitans* and *C.sputigena* were 5.3%, 47.1%, 8.4%, 83.7%, 83.3% and 81.1%, respectively. *E.corrodens*, *C.sputigena* and *A.actinomycetemcomitans* were very frequently detected at all ages. On the other hand, *P.gingivalis* and *P.intermedia* were detected less frequently. Detection rate of *P.nigrescens*, *E.corrodens* and *C.sputigena* increased with age. The average detection number for each age group increased with age (2.63, 2.98, 3.43 and 3.45 for age 3, 4, 5 and 6, respectively). The number of bacterial species in the plaque materials increased with age as well. Our results indicate that *P.nigrescens*, *E.corrodens*, *A.actinomycetemcomitans* and *C.sputigena* are established quite early in childhood, these bacteria increase with age in the oral cavity.

Key words Children, Dental plaque, Periodontal bacteria, Polymerase chain reaction (PCR)

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