

Antimicrobial effect of sodium fluoride on *S. mutans* and *Lactobacillus spp.* in saliva

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Self-applied topical fluoride preparations like toothpastes are indicated in overall orthodontic treatment and are the standard of care in the orthodontic patient. This study evaluates the antimicrobial effect of sodium fluoride toothpaste with different hygiene regimes and salivary nonmicrobial parameters on salivary mutans streptococci and lactobacilli in children undergoing early phase of fixed orthodontic treatment.

Subjects included in this study were 22 patients scheduled for fixed orthodontic therapy distributed among two groups with different hygiene regimes. Stimulated saliva samples were taken before the onset of orthodontic treatment. All subjects started their orthodontic therapy receiving equal orthodontic braces, bands and brackets, bonded with the same adhesive material. Stimulated saliva samples were also taken at week 6, 12 and 18 during the therapy. Salivary nonmicrobial parameters, salivary flow rate and salivary pH were measured, and the salivary buffer capacity was determined. Saliva samples were cultivated on selective microbial agar, for microorganism detection. During the whole experimental period salivary mutans streptococci were suppressed significantly in the group which used sodium fluoride toothpaste 4 times a day. Subjects with higher salivary mutans streptococci counts before the onset of orthodontic treatment had lower salivary flow rate and lower salivary buffer capacity during the treatment. Salivary lactobacilli were not significantly affected by different regimes of use of sodium fluoride toothpaste containing 0.32% NaF. Subjects with higher salivary flow rate and higher salivary pH had lower salivary lactobacilli counts during experimental period.

The use of the sodium fluoride toothpaste containing 0.32% NaF four times a day, in children with fixed orthodontic appliances has effective antimicrobial activity on salivary mutans streptococci. The use of the sodium fluoride toothpaste containing 0.32% NaF in any hygiene regime, in children with fixed orthodontic appliances has no antimicrobial activity on salivary lactobacilli. Salivary flow, pH and buffer capacity effects on salivary mutans streptococci and lactobacilli during fixed orthodontic treatment.

Keywords mutans streptococci; lactobacilli; fluoride; orthodontic

