

Antimicrobial Effect of Toothpastes Containing Fluoride, Xylitol or Xylitol-Probiotic on Salivary Streptococcus mutans and Lactobacillus in Children

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Abstract : Purpose: The purpose of this study was to compare the antimicrobial effect of toothpastes containing fluoride, xylitol or xylitol-probiotic in vivo, Streptococcus mutans and Lactobacillus in 13-15 years old children. Method: The study consisted of 60 pediatric patients were randomly divided into 3 groups of 20 each. Group 1 received fluoride toothpaste (Colgate Max Fresh), group 2 used xylitol toothpaste (Xyliwhite) and group 3 used xylitol-probiotic toothpaste (PerioBiotic). Subjects were asked to use the allocated dentifrice two times a day, for 6 weeks. We performed tests on the samples of saliva in the beginning of the study and after 6 weeks' duration following the use of toothpaste. Result and Conclusion: All of the participants of the study stated that they brushed their teeth well twice a day by using the toothpastes given to them for 6 weeks. Majority of the subjects had high counts of salivary mutans streptococci and Lactobacillus at baseline. When the number of cariogenic bacteria (S. mutans and Lactobacillus) at the start of the PerioBiotic Probiotic toothpaste usage are compared with the results measured after 6 weeks, an important decrease is observed in the S. mutans and Lactobacillus bacteria according to the CRT Tests. After the 6-week use of Probiotic toothpaste, the S. mutans ($\geq 10^5$) decreased to 20% from 75% in the group with S. mutans and Lactobacillus ($\geq 10^5$) decreased to 30% from 60% in the group with Lactobacillus. In addition, an important decrease was recorded in the participants with the S. mutans percentage (80% - 45%) and Lactobacillus (70% - 55%) after using the Colgate Max Fresh toothpaste for six weeks. On the other hand, it was determined with the Chi-square that there were not important changes between the Xyliwhite toothpaste group and the other groups with S. mutans (80% - 75%) and Lactobacillus (75% - 65%). It was also determined after the comparison of the groups that the decrease in the S. mutans was higher than the group using PerioBiotic Probiotic toothpaste at a significant level, when compared with the Colgate Max Fresh toothpaste and Xyliwhite toothpaste. S. mutans were more sensitive to the antimicrobial activity of the PerioBiotic Probiotic toothpaste and to the Colgate Max Fresh toothpaste when compared with the Lactobacillus. In the light of the data obtained in this in vivo study, the use of probiotics ensure the balance between the bacterial flora in the oral cavity.

Keywords : lactobacillus, probiotic, Streptococcus mutans, toothpaste

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