EFFECT OF A TRICLOSAN CONTAINING TOOTHPASTE ON ORAL MICROORGANISMS

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Triclosan is a broad-spectrum antimicrobial substance which has been incorporated to toothpastes with a co-polymer to give a long lasting antiplaque effect. However, the co-polymer added product could not be marketed at an affordable price to Sri Lankan consumers. Therefore, the objective of the present study was to evaluate the effectiveness of a triclosan containing toothpaste (0.25% triclosan with no added co-polymer) which is already available in the market on the oral micro flora of a group of selected Sri Lankans.

The study group consisted of 31 subjects (mean age was 24 years, age range 21-35). Subjects having a history of using triclosan containing toothpastes or antibiotics within the past 6 months, aggressive periodontal disease or indications for prophylactic antibiotic therapy were excluded. After standardization of brushing techniques (modified Bass), baseline clinical data (plaque scores and bleeding scores) and 1ml of saliva were obtained for determining microbial parameters. All subjects refrained from brushing for 12 hours prior to the examinations. After the examinations, subjects were randomly allocated to test (0.25% triclosan, n=16) and placebo control groups (n=15) and instructed to brush twice daily for the next month. Toothpaste tubes were coded and the examiner was blind to the type of toothpaste given. After one month the examinations were repeated.

After one month there were no statistically significant differences between the test and control groups, in any of the parameters studied. Both groups showed a reduction in plaque scores. However, the reduction in the test group was greater than that of the control group. The total salivary microbial counts of the test group, in all culture conditions (aerobic, anaerobic and capnophilic) had increased. In the control group, the total salivary aerobic count had increased while the total salivary anaerobic and capnophilic counts had decreased.

The increase in total salivary counts in the test group indicates an increase in the number of organisms in planktonic (in suspension- saliva) phase. The decrease in plaque score (reduction of solid phase bacteria) may be due to the inhibitory effects of triclosan on biofilm formation. These findings support the results of previous in vitro studies where triclosan has been shown to inhibit biofilm development and maturation. It appears that the triclosan containing toothpaste tested in this study has the potential to inhibit biofilm formation (reduce plaque formation) to a greater extent than non triclosan containing toothpaste. However, this effect did not reach statistically significant levels which may be attributed to non addition of co-polymer, small sample size and short duration of the study. Further studies devoid of these limitations are needed to arrive at meaningful conclusions.