EFFECT OF TOOTHPASTE CONTAINING NOVAMIN ON STREPTOCOCCOUS MUTANS COUNT IN DENTAL PLAQUE OF HIGH CARIES RISK CHILDREN (RANDOMIZED CONTROLLED CLINICAL TRIAL)

Basma E. Mohamed 1 BDS, Aly A. Sharaf 2 PhD, Dalia M. Talaat 3 PhD,
Azza S. Zakaria 4 PhD

1Bachelor of Dentistry, Faculty of Dentistry, Alexandria University, Alexandria, Egypt
2Professor of Pediatric Dentistry, Pediatric Dentistry and Dental Public Health Department, Faculty of Dentistry, Alexandria University, Egypt.
3Associate Professor of Pediatric Dentistry, Pediatric Dentistry and Dental Public Health Department, Faculty of Dentistry, Alexandria University, Egypt.
4 Associate Professor of Microbiology and Immunology, Microbiology and Immunology Department, Faculty of Pharmacy, Alexandria University, Egypt.

INTRODUCTION

Inhibition of streptococcus mutans (S.mutans) can be effective in preventing caries in high caries risk children. Therefore, new materials such as Novamin, with antibacterial properties and remineralizing effects, have been introduced to promote remineralization and decrease the incidence of dental caries in children (1).

METHODOLOGY

Thirty-four high caries risk children, aged 3 to 6 years, were randomly divided into two groups.

Group I (test group):

Children used Novamin-containing toothpaste.

Group II (control group):

Children used Fluoride-containing toothpaste. They were asked to brush their teeth twice daily using a soft brush and pea-sized amount of the toothpaste for 2-3 minutes for a whole month under their parent’s supervision (2). Plaque samples were collected at baseline and at intervals of 1, 2, and 4 weeks, and cultured on Mitis Salivarius Agar (3). The percent change in S.mutans counts was calculated for each group.

RESULTS AND DISCUSSION

Table (1) Shows the reduction in S.mutans counts in the two study groups when compared to baseline, with the most significant reduction recorded after four weeks of using the toothpaste (P < 0.0001), with statistically significant differences between the two groups. When the two groups were compared using the Mann-Whitney U test, the test group exhibited a higher percent reduction in S.mutans levels than the control group (50.71% and 36.18%, respectively).

Table (1): Comparison of S.mutans levels for all teeth among the study groups at baseline, 1 week, 2 weeks, and 4 weeks after treatment.

<table>
<thead>
<tr>
<th></th>
<th>Group I (n=18)</th>
<th>Group II (n=18)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>4.18 x 10^6</td>
<td>1.45 x 10^6</td>
<td>0.023*</td>
</tr>
<tr>
<td>Log_{10}</td>
<td>6.57</td>
<td>6.11</td>
<td></td>
</tr>
<tr>
<td>1st week</td>
<td>2.73 x 10^6</td>
<td>1.95 x 10^6</td>
<td>0.429</td>
</tr>
<tr>
<td>Log_{10}</td>
<td>5.40</td>
<td>5.27</td>
<td></td>
</tr>
<tr>
<td>2nd week</td>
<td>1.28 x 10^6</td>
<td>6.23 x 10^6</td>
<td>0.002*</td>
</tr>
<tr>
<td>Log_{10}</td>
<td>4.10</td>
<td>4.59</td>
<td></td>
</tr>
<tr>
<td>4th week</td>
<td>1.80 x 10^6</td>
<td>9.85 x 10^6</td>
<td>&lt;0.0001*</td>
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<tr>
<td>Log_{10}</td>
<td>3.92</td>
<td>3.98</td>
<td></td>
</tr>
</tbody>
</table>

Figure (2) and figure (3) show S.mutans colonies on MSA media, before and after four weeks period of using the toothpaste in both test (A) and control (B) groups.

CONCLUSION

Novamin-containing toothpaste showed to be an effective antimicrobial agent, with better effect than fluoride-containing toothpaste in S.mutans count reduction.

REFERENCES

2. Denbesten P, Hee M, Ko S. Fluoride levels in whole saliva of preschool children after brushing with 0.25 g (pea-sized) as compared 1.0 g (full-brush) of a fluoride dentifrice. Pediatr Dent. 1996;18:77-80.