Objective: To compare the antibacterial properties of three pit & fissure sealants and Amalgam using Streptococci Mutans bacteria with Chlorhexidine as the control.

Methods: Streptococcus Mutans bacteria (ATTCC #35668) were streaked on sterilized Petri dishes of Todd-Hewitt broth supplemented with yeast extract (THYE) as a medium of growth.

Twelve samples were tested for each of the following groups - Ultraseal XT (Group I), Embrace Wetbond (Group II), Clinpro (Group III), Amalgam (Group IV) and Chlorhexidine (control group).

For each sample of groups I to IV, a disc measuring 8.5mm in diameter was fabricated according to the manufacturers' instructions from the respective materials. Sterile filter paper discs measuring 8.5mm in diameter were used for the control group and one micro liter of aqueous Chlorhexidine was applied on each of them.

Each sample was then placed in the center of a Petri dish and incubated in a CO₂ enriched atmosphere using an anaerobic jar at 37°C for 48 hours. Zones of bacterial growth inhibition were recorded in millimeters using a digital caliper. One-way analysis of variance (ANOVA) was used to analyze the data.

Results: The one-way analysis of variance (ANOVA) showed statistically significant differences among the 5 groups (p <0.001). Pair-wise t-tests were used to compare each group to the others. Group III showed the lowest mean inhibition and the control group showed the highest (1.52 mm vs. 16.52 mm). There was no statistically significant difference neither between the control group and group II (p=0.077) nor between groups I, III and IV. However there was a significant difference between group II and groups I, III and IV.

Conclusion: Besides the control group, Embrace Wetbond (Group
II) had the highest mean zone of inhibition against Strep. mutans bacteria and had significant anti bacterial properties in comparison to the other test groups(I,III and IV). Research sponsored in part by Pulpdent

Seq #75 - Antibacterial/Caries-inhibiting Effects, Biomaterials, and Bioengineering
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