SDM
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"COMPARATIVE ANALYSIS ON THE MICROBIAL ADHESION TO STAINLESS STEEL CROWNS AND ZIRCONIA CROWNS IN PRIMARY MOLARS-AN IN-VIVO MICROBIOLOGICAL STUDY"

by

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ABSTRACT

Background and objectives- Stainless steel crowns are successful for treating multi-surface carious teeth, the drawback being aesthetics. Advancements in materials led to development of Zirconia crowns. Bacterial accumulation at the interface between teeth and restorative materials leads to secondary caries. The aim of this study was to assess the adhesion of *Streptococcus mutans* to SSC and Zirconia crowns and to evaluate the effects of these restorations on gingival health and oral hygiene.

Methodology- A total of twenty healthy patients (age 4-8yrs) were selected having dmf ≥ 4 including left and right mandibular second primary molars. Each tooth was restored or pulpally treated followed by either type of crown (Split mouth technique). Then one swab from buccal mucosa before restoration and six swabs from both crowns were collected at the end of 1st week, 2nd week, and 4th week from each patient. Gingival Index (GI) and Oral Hygiene Index-Simplified (OHI-S) were recorded before and after treatments. Mitis Salivarius Agar (MSA) medium incubated at 37 °C for 48-72 hrs in 5-10% CO_2 was used as a selective medium for *Streptococcus mutans* growth. Later, bacteria were counted and expressed in colony-forming units (CFU).

Results- At the end of 1, 2, and 4 weeks, no statistical significant difference was observed between SSC and Zirconia at pre-treatment, week 1 and 2 whereas, significant difference was seen at Week 4. When CFU values among different time intervals within the group were considered, there was no statistically significant difference seen for the SSC group whereas a statistically significant difference was seen for Zirconia. There was no statistically significant correlation between GI, OHI-S counts for both the crowns.

Conclusion- The microbial adhesion to SSC is higher than Zirconia. Microbial count statistically decreased after 4 weeks in case of Zirconia crowns.

Keywords: Stainless steel crown; Zirconia crown; *Streptococcus mutans*.