Anti-plaque of New Fluoride Release Adhesion System

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Abstract: Objective: This study examined the anti-plaque effects of a new fluoride-releasing adhesive system including S-PRG filler particles.

Materials and Methods: The bonding agents evaluated were: Mega-Bond, G-Bond and SI-R20401, which is a new fluoride-releasing adhesive system that contains S-PRG filler particles. In vivo anti-plaque tests were carried out by using resin blocks that were coated with the bonding agents. The blocks were bonded on upper first molars of volunteers, debonded, and then observed with SEM. On the other hand, in vitro anti-bacteria tests were performed by immersing the resin blocks previously coated with mucin or albumin, in a solution of bacteria (radioactively labeled), for 24 hrs. The salivary proteins adsorbed by the resin blocks were analyzed (SDS-PAGE).

Results: Large bacterial accumulation was observed in the resin blocks coated with Mega-Bond and G-Bond; however, almost no bacteria were observed in those blocks coated with SI-R20401. Singularity protein was found on the surface of SI-R20401 (18.2-95 kDa).

Conclusions: SI-R20401 bonding agent presented appropriate characteristics and might be useful for caries treatment. Additionally, its anti-plaque quality suggests that application of this bonding agent could maintain the concept of minimal intervention.

Key words: S-PRG filler, Saliva protein, Anti-plaque