Characterization and streptococcus mutans adhesion on air polishing dentin

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Abstrak

Air polishing is known as an effective and time saving tooth cleaning method. However, this method increased surface roughness and bacterial adhesion on dentin surface. The aim of this study was to characterize and examine Streptococcus mutans adhesion on dentin surface after air polishing as compared to the conventional method. The dentin blocks (4 × 4 × 1 mm) were polished by a rubber cup with polishing material (Polishing) and air-polished by 25 μm glycine (G25), 65 μm glycine (G65), and 65 μm sodium bicarbonate (NHC65) microparticles. Surface roughness (Ra) was measured by a laser electron microscope. The amount of adhered S. mutans was quantified using a resazurin reduction assay (alamarBlue®). The Ra of G25 and G65 was significantly ($p < 0.01$) smaller than that of NHC65 and greater than that of Polishing. However, there was no significant difference in S. mutans adhesion among Polishing, G25, and G65, while NHC65 showed significantly ($p < 0.01$) higher S. mutans adhesion. Within the limitations of this in vitro study, air polishing using glycine microparticles conditioned S. mutans adhesion on dentin surface in a similar fashion than the conventional method, and less than air polishing using sodium bicarbonate microparticles.