Original Articles

Effects of Palaseal® Coating Agent on Surface Roughness of Heat-polymerized Denture Base Acrylic Resins

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Abstract

The objective of this study was to evaluate effects of Palaseal® on surface roughness of acrylic resins which passed different polishing techniques. One hundred eighty heat-polymerized polymethymethacrylate specimens were fabricated and finished with abrasive sandpaper. Then they were randomly equally divided into six groups. A control group (N) was neither polished nor Palaseal® coated. The others were experimental groups as follows: No polishing with Palaseal® coating (NC), pumice and Tripoli polishing without coating (P), pumice and Tripoli polishing with coating (PC), silicone points polishing without coating (S), silicone points polishing with coating (SC). Changes in surface roughness were measured with a profilometer and calculated Ra of specimens. SEM was utilized for surface visualization and surface roughness confirmation. Two-way ANOVA and Tukey Honestly Significant Difference (HSD) were used for statistical analysis. Group (N) had the highest mean Ra value (670.5 nm.) whereas group (PC) had the lowest mean Ra value (241.9 nm.). Groups (N, NC) had the mean Ra value (670.5, 394.5 nm.) significantly (P<0.01) more than groups (S, SC) (300.1, 254.9 nm.) and groups (P, PC) (283.2, 241.9 nm.) respectively. Differences of the mean Ra values between Palaseal® uncoated groups (N, P, S) and coated groups (NC, PC, SC) were statistically significant (P<0.01). Lastly, there was interaction between surface polishing and Palaseal® coating. Palaseal® coating on heat polymerized acrylic resins enhanced surface smoothness of acrylic resins polished with pumice and Tripoli and silicone points, including finished with abrasive sandpaper.

Keywords: Acrylic resins, Coating agents, Palaseal®, Surface coating, Surface roughness

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