

Evaluation of color change in CAD-On restorations using different core/veneer thickness ratios and different veneer translucencies.

Amr EL-ETREBY, Mennatallah Mohie, Tarek Salah Morsi

Abstract

Statement of problem

The introduction of partially stabilized zirconium dioxide to the dental field created a path for development of new designs and applications, but still, a minimum framework thickness of 0.5 mm with the remaining thickness of the restoration used for building the ceramic veneer was always recommended. This might have possibly affected the final shade of the restoration due to the whitish color of Y-TZP.

Purpose

This in vitro study was designed to evaluate the color reproduction ability of CAD-veneered zirconia restorations through the effect of different core-veneer thickness ratios and different translucencies of the Cad-on veneering material.

Methods

Sixty CAD-On restorations were constructed and classified into 3 groups (n = 20) of different core/veneer thickness ratios (0.5:1 mm, 0.7:0.8 mm, 1:0.5 mm). Each group was subdivided into 2 sub-groups (n = 10) according to the CAD-On veneer translucency (High Translucency HT, Low Translucency LT). Cad-On restorations were constructed using the CEREC InLab CAD/CAM System. Color change * E) between groups of the CAD-On restorations was measured using Vita EasyShade Compact. All data was statistically analyzed and presented as mean and standard deviation values. Repeated measurements of data were analyzed with analysis of variance (ANOVA) for significant differences.

Results

There was significant difference ($P < 0.05$) for varying the core/veneer thickness ratio over * E) while both the veneer translucency and interaction between the core/veneer thickness ratio and veneer translucency had no significant effect.

Conclusion

There was a visually perceptible color change for all core/veneer thickness ratios and all veneer translucencies, but they were all in the clinically acceptable range.

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