Effect of accelerated aging on translucency of monolithic zirconia

Ashraf Hussien,Omar Abdelbary ,O.Abdelbary M.Wahshb Sherif T.Salah

Abstract

Purpose
The objective of the study was to evaluate the translucency of different thickness of a translucent zirconia before and after accelerated aging.

Materials and methods
Sixty slices of translucent zirconia were obtained by cutting InCoris TZI blocks into slices using Micracut precision cutting machine. The slices were divide into four groups (n = 15) according to their thickness (0.5 mm, 0.8 mm, 1 mm and 1.2 mm). CIE lab coordinates were measured for each slice against black and white backgrounds using vita easy shade and TP was calculated. All specimens were subjected to accelerated aging using autoclave (134 ⁰C, 0.2 MPa) and TP was calculated after accelerated aging. One way analysis of variance combined with a Tukey-post hoc test was used to analyze the data obtained (P = 0.05).

Results
Results of the present study showed that thickness of zirconia has determinal effect on its translucency as there was no statistically significant difference in TP between 0.5 mm and 0.8 mm thicknesses while there were statistically significant differences in TP between 0.8 mm, 1.0 mm, 1.2 mm. Effect of aging was significant on 0.5 mm thickness.

Conclusion
Thickness of zirconia has significant effect on translucency. Aging has significant effect on thinner sections of zirconia. More research is required on zirconia towards making the material more translucent for its potential use as esthetic monolithic restoration.

Future Dental Journal 2016, June