CED/NOF-IADR
2024 Oral Health
Research Congress
12 — 14 Sept 2024
Geneva, Switzerland

0228

Color Comparison of Overlays Made With E.max®Press and E.max®CAD

S. Roger[1], D. Attmane[2], S. Odof[3, 4], C. Maillet[1, 5]

[1]Université de Reims Champagne-Ardenne, UFR Odontologie, CHU Reims, Pôle MBD, Reims, France, [2]Laboratoire de Prothèse Dentaire RDB Ceram, Reims, France, [3]Université de Reims Champagne-Ardenne, ESIREIMS, Reims, France, [4]Université de Reims Champagne-Ardenne, UR7548 ITHEMM, Reims, France, [5]Université de Reims Champagne Ardenne, UR4691 BIOS, Reims, France

Objectives Ceramic overlays are part of modern tissue preservation, adhesive and aesthetic dentistry. Materials composition, production processes and indications are some of the factors behind the development of different types of ceramics. E.max®CAD blocks and E.max®Press ingots by Ivoclar Vivadent enable the design of such dental restorations. But clinical observation seems to reveal a difference in color, and therefore in aesthetic results.The aim of this in vitro study was to compare the color of lithium disilicate overlays produced by hot-press and CAD-CAM techniques at different design stages.

Methods Flat occlusal veneers (n=4) were fabricated from low-translucency (LT) and high-translucency (HT) A3-shaded E.max®Press ingots and E.max®CAD blocks. Color measurements were recorded using a spectrophotometer (CM-2600d, Konica Minolta) after each stage (production, staining, fitting, “try-in” and bonding to in vitro models) and compared using the CIELab color system. Color differences between each material of the same translucency were calculated using the ΔE_{cmc} formula.

Results Immediately after production, a color difference was noted between E.max®Press and E.max®CAD overlays (ΔE_{cmc}=5.2 for HT and ΔE_{cmc}=2.2 for LT). Staining increased the chroma (C*) and decreased the lightness (L*) of all overlays, reducing the color difference between them. Color measurements after the "try-in" and bonding stages were relatively similar.

Conclusions The colorimetric results confirmed the difference in shade perceived by the observer between E.max®Press and E.max®CAD. This difference could be explained by their structure and production process involving various firing cycles. However, the experience of the dental technician is an important factor in the aesthetic harmonization of indirect partial restorations. Colored glycerin gels also enable the practitioner to enhance the final aesthetic result. Nevertheless, the color difference may be minimal compared to the clinical reality and visual sensitivity of each observer.