Survival rate of feldspathic and reinforced feldspathic ceramic single-unit fixed prostheses

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Abstract

Introduction: Thanks to its efficiency and the exclusive use of metal-free ceramics, in oral rehabilitation it has been possible to achieve aesthetic and mechanical standards, maintaining or even exceeding the quality of the treatments compared to traditional metal-ceramic restorations. Currently, free ceramic manufacturing mechanisms are increasingly evolving towards CAD-CAM machined technologies and decreasing their conventional production through the PRESS Injection technique. Objective: Compare the survival rate of single-unit fixed prostheses made with conventional feldspathic ceramics and reinforced with lithium disilicate by the CEREC® CAD/CAM chairside system, with the conventional PRESS laboratory injection method. Methods: A systematic review was conducted of scientific evidence included in papers published until the year 2019 in PubMed, PubMed Clinical Queries, Epistemonikos, Tripdatabase, Cochrane Library, electronic resources of Los Andes Peruvian University, and retrograde bibliography. The papers selected dealt with conventional and lithium-disilicate reinforced feldspathic ceramic single-unit prostheses made by CAD/CAM and/or the conventional method. Results: A total 28 papers met the inclusion criteria. Of these, 21 were observational cohort studies, four were randomized clinical assays and three were non-randomized assays. Short-and mid-term, CEREC® CAD/CAM achieved survival rates of 98% and 91.9%, respectively. The conventional system achieved survival rates of 97.5% short-term and 93% mid-term. Conclusions: As described in the literature, CEREC® CAD/CAM had a slightly higher survival rate than the conventional system in the short term. In the medium term, however, CEREC® CAD/CAM displayed a slight reduction in comparison with the conventional system. No studies are available to determine the clinical survival of the treatments in the long term. Keywords: computer-aided design; ceramic; fixed partial denture; prosthesis precision adjustment; prostheses and implants; prosthesis design; prosthesis failure; dental prosthesis retention; dental prosthesis design.