Abstract

Objectives The aim of the study was to compare the color change produced by tray-delivered carbamide peroxide [CP] versus hydrogen peroxide products [HP] for at-home bleaching through a systematic review and meta-analysis. Materials and methods MEDLINE via PubMeb, Scopus, Web of Science, Latin American and Caribbean Health Sciences Literature database (LILACS), Brazilian Library in Dentistry (BBO), and Cochrane Library and Grey literature were searched without restrictions. The abstracts of the International Association for Dental Research (IADR) and unpublished and ongoing trial registries were also searched. Dissertations and theses were explored using the ProQuest Dissertations and Periodicos Capes Theses databases. We included randomized clinical trials that compared tray-delivered CP versus HP for at-home dental bleaching. The color change in shade guide units (SGU) and ΔE were the primary outcomes, and tooth sensitivity and gingival irritation were the secondary outcomes. The risk of bias tool of the Cochrane Collaboration was used for quality assessment. Data After duplicate removal, 1379 articles were identified. However, only eight studies were considered to be at “low” risk of bias in the key domains of the risk bias tool and they were included in the analysis. For ΔE, the standardized mean difference was −0.45 (95 % CI −0.69 to −0.21), which favored tray-delivered CP products (p < 0.001). The color change in ΔSGU (p = 0.70), tooth sensitivity (p = 0.83), and gingival irritation (p = 0.62) were not significantly different between groups. Conclusions Tray-delivered CP gels showed a slightly better whitening efficacy than HP-based products in terms of ΔE, but they were similar in terms of ΔSGU. Both whitening systems demonstrated equal level of gingival irritation and tooth sensitivity. Clinical significance Tray-delivered CP gels have a slightly better whitening efficacy than HP-based products in terms of ΔE. This should be interpreted with caution as the data of ΔSGU did not show statistical difference between the products.