ABSTRACT

Dental Amalgam is an effective technology used in dental clinic for restoration of dental elements. As it is partially composed of mercury, the Minamata Convention recommended the gradual reduction of its use. The objective of this systematic review was to answer the question: Is the use of dental amalgam in dental restorations safe for oral health professionals and environmental? We adopted the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) recommendation and the protocol was registered in PROSPERO with the number CRD42019129797. MEDLINE platforms via PubMed, The Cochrane Library, Center for Reviews and Dissemination (CRD), Health Evidence, Embase, Virtual Health Library (VHL) were searched without starting date restriction until March 27, 2019, in addition to the gray literature. Studies were included if they reported amalgam toxicity as a primary outcome for oral health worker safety and environmental contamination (air, water or soil) as an environmental safety outcome. Four studies were included at the end of the selection process. Regarding occupational risk, both studies indicate no evidence of exposure with the use of dental amalgam, except for one condition (Early Hysterectomy) where the exposure result pointed to a statistically significant correlation (p <0.04). In the evaluation of wastewater contamination, there was a significant result (mean 0.0561 mg / L Hg), extrapolating the maximum values established (0.01 mg / L Hg). For the assessment of mercury vapor released into the air, the analysis of a single vacuum cleaner model manufactured in 1978 suggests contamination. Current scientific evidence on the safety of dental amalgam is still very critical and studies are insufficient and at high risk of bias. Well-designed, prospective primary studies with longer follow-up are needed to assess the real environmental and occupational injury arising from the use of dental amalgam.

Key words: Dental Amalgam, Mercury, Occupational Risks, Environmental Hazards