

The effectiveness of chlorhexidine is limited in preventing infections in oral procedures

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The human mouth is colonised by a huge variety of bacteria. When surgical procedures such as a tooth extraction are carried out, the bacteria can pass into the bloodstream causing bacteraemia that is generally transient. What is not yet clear is how significant this presence of bacteria in the blood is in terms of the origin and evolution of infectious processes such as endocarditis of the heart valves, prosthetic valves, hip and knee joint replacements generally, and in local infection.

Numerous studies have shown that a mouthwash containing chlorhexidine has a powerful antimicrobial effect on saliva microflora and bacterial plaque. "On the basis of this hypothesis we can assume that antimicrobial mouthwashes used before the [dental procedure](#) should reduce the number of micro-organisms that pass into the patient's bloodstream, yet this is a hotly debated issue," the members of a UPV/EHU's research group write.

In 1997, the American Heart Association (AHA) suggested that patients at risk of infectious endocarditis should use an antimicrobial mouthwash before a dental procedure. In 2006, the British Society for Antimicrobial Chemotherapy (BSAC) recommended a single mouthwash with 0.2 percent chlorhexidine (CHX) (10 ml for 1 minute) before carrying out dental procedures associated with bacteraemia. Yet in 2007 the AHA recommended against adopting any antiseptic prophylaxis protocol.

In an effort to shed scientific light on this issue, the UPV/EHU research group comprising Iciar Arteagoitia, Carlos Rodriguez-Andrés and Eva Ramos conducted a systematic review and meta-analysis of random controlled trials (RCT), following the PRISMA Statement. The aim was to assess the effectiveness of chlorhexidine in preventing bacteraemia following a tooth extraction. The research was conducted in collaboration with the UPV/EHU's Department of

Epidemiology and was published in *Plos One*. The study that included eight clinical trials with 523 patients. There were 267 in the group treated with chlorhexidine, in which 145 cases of bacteraemia were recorded, and 256 in the control group, in which there were 156 cases of bacteraemia. The results of the research therefore indicate that the percentage of cases of bacteraemia that can be prevented if a population undergoes chlorhexidine-based prevention is 12 percent. The NNT, the number of patients that need to be treated to prevent bacteraemia, is 16.

The results point to the relative and not particularly significant effectiveness of the use of chlorhexidine when it comes to preventing the bacteria present in the mouth from passing into the bloodstream when dental extraction is carried out. "Yet, given its low cost and the absence of adverse reactions and complications, we would recommend a mouthwash with [chlorhexidine](#) before a [procedure](#) of this type is carried out," concluded the UPV/EHU's research group.

More information: Iciar Arteagoitia et al. Does chlorhexidine reduce bacteremia following tooth extraction? A systematic review and meta-analysis, *PLOS ONE* (2018). [DOI: 10.1371/journal.pone.0195592](#)

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