problem, which can affect dental care and future dental hygiene behaviors. Audiovisual distraction provides a nonpharmacological intervention that diverts the patient's attention from unpleasant stimuli. It proved more efficacious than traditional distraction techniques based on the ability to engage the child in high-quality visual and auditory experiences. Methods that block out real-world stimuli are preferred by the child.

Liu Y, Gu Z, Wang Y, et al: Effect of audiovisual distraction on the management of dental anxiety in children: A systematic review. *Int J Paediatr Dent* 29:14-21, 2019

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Home remedies for cleaning pacifiers

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BACKGROUND

Pacifiers are widely used and the source of controversial data concerning their benefits and risks for dental problems. It's also been suggested that the use of pacifiers may increase the child's susceptibility to diseases such as otitis media, dental caries, fungal infections, and intestinal parasitosis. Although the silicone nipples used today offer smoother surfaces and lower microbial adhesion, they are in direct contact with the oral microflora, so microbial biofilms could exist on their surfaces. Manufacturers recommend that pacifiers be decontaminated in boiling water for 5 minutes before use but that can be impractical. Antimicrobial sprays are a more viable and convenient option, but low-cost, low-toxicity, readily available sprays can be created using substances commonly found in homes. A combination of vinegar, hydrogen peroxide, and sodium bicarbonate was tested for its efficacy against common oral microbes.

METHODS

Researchers screened substances for their antimicrobial activity against the microbes commonly found in the mouth using the double-layer agar diffusion test. *Streptococcus mutans, Streptococcus pyogenes, Staphylococcus aureus,* and *Escherichia coli* were selected because they are often isolated from the oral milieu and have been associated with human disease. Various combinations were tested, and the substances that had positive bioactivity against enterobacteria/pseudomonas, *Streptococcus* spp, or *Staphylococcus* spp underwent determination of their minimal inhibitory concentration (MIC) and minimal microbicide concentration (MMC). The 2 solutions with the best performance were hydrogen peroxide and apple vinegar. These were tested in 70% concentrations against specimens that were experimentally inoculated with microbial suspensions and against samples from pacifiers used by children at a primary school in São Paulo, Brazil. The results of these tests were reported as colony-forming units per pacifier.

RESULTS

A spray of 70% apple vinegar was able to significantly reduce the viable cells in *S aureus* biofilms compared to other treatments of the experimentally prepared pacifiers. In addition, all the tested solutions were able to significantly reduce viable cells of *S pyogenes, S mutans,* and *E coli* from biofilms. Seventy percent hydrogen peroxide was especially effective against *E coli.*

When 70% hydrogen peroxide was used on in-use pacifier samples, the viable cells of Enterobacteriaceae/pseudomonas were reduced. The other solutions were not effective and had counts similar to the control groups.

DISCUSSION

Solutions of 70% hydrogen peroxide were able to perform well enough to be a good alternative to chlorhexidine digluconate when disinfecting pacifiers. Apple vinegar and hydrogen peroxide had the best antimicrobial activity against the bacterial strains commonly found in the oral cavity.

Clinical Significance

Dentists can help parents of pediatric patients to be aware of the need to disinfect their child's pacifiers regularly. In addition, they can suggest cost-effective and efficacious sprays that can be made from products the parents often have on hand. Apple vinegar and hydrogen peroxide offer good protection while being low in cost, readily available, and low in toxicity.

Pedroso JF, Sangalli J, Brighenti FL, et al: Control of bacterial biofilms formed on pacifiers by antimicrobial solutions in spray. *Int J Paediatr Dent* 28:578-586, 2018

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