randomly populated and given instructions to soak dentures once a week in water, 0.5% sodium hypochlorite, 0.12% chlorhexidine, or 5% sodium bicarbonate. Biofilm samples were obtained from dentures and the palate after 7 and 14 days. When each group completed one of the treatments, the participants began another one until all had used the 4 treatments. Biofilm assessments were done after the seventh and fourteenth days for each protocol.

RESULTS

The counts for *Candida* non-*albicans* and lactobacilli for all treatments, areas, and time points were similar. Statistically significant differences were found for the treatments of denture teeth after 14 days. Sodium hypochlorite was better than water and sodium bicarbonate. Chlorhexidine was better than water and sodium bicarbonate and had results similar to those obtained with sodium hypochlorite. Evaluation of the palate collections yielded similar results.

Streptococcus mutans samples from dentures revealed that sodium hypochlorite had lower counts after 7 and 14 days compared to water. Statistically significant differences were noted for chlorhexidine compared to water after 14 days. Palate samples demonstrated the same results. Sodium hypochlorite was better than water and sodium bicarbonate, and chlorhexidine and sodium hypochlorite performed similarly.

Higher counts of *Candida albicans* and lactobacilli were seen after 14 days. Higher counts of *Streptococcus mutans* and total microorganisms were found after 7 days. When palate samples were considered, *Candida albicans* counts were lower after 7 days when sodium hypochlorite was used compared to water or sodium bicarbonate. These differences in results were not found after 14 days.

DISCUSSION

Microbial viability on denture surfaces was reduced when the dentures were cleansed in sodium hypochlorite and chlorhexidine. These 2 treatments could be used with mechanical tooth brushing to prevent microbial colonization. Lower counts of *Streptococcus mutans* and lower total microorganism counts were noted with the use of sodium hypochlorite and chlorhexidine regardless of whether the samples came from the palate or the dentures.

Clinical Significance

The best course of action for cleansing complete dentures was the use of 0.5% sodium hypochlorite or 0.12% chlorhexidine gluconate solution 10 minutes once a week coupled with thrice daily tooth brushing with toothpaste. This approach will effectively reduce the viability of microbial agents on complete dentures.

Valentini-Mioso F, Maske TT, Cenci MS, et al: Chemical hygiene protocols for complete dentures: A crossover randomized clinical trial. *J Prosthet Dent* 121:83-89, 2019

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DENTAL FLUOROSIS

Treating fluorosis lesions

BACKGROUND

Dental fluorosis can occur when enamel development is disrupted, causing hypomineralization. An increased incidence of dental fluorosis is being seen and is likely the result of an excess of ingested fluoride from caries prevention measures, including toothpaste, mouthrinse, gel, or varnishes, which are incorporated into the enamel. The teeth develop diffuse, symmetrical, discolored white opaque stains and striations. More severe forms involve pitting, porosity, and brownish areas on the enamel surface. These enamel changes can cause patients to suffer adverse psychosocial and quality-of-life effects. Various treatment approaches have been developed, including microabrasion, bleaching, and enamel infiltration with low-viscosity light-cured resins. A comparison of various techniques was undertaken to identify the most effective treatment for mild to moderate dental fluorosis.

METHODS

Nine databases were searched up until December 2016 for randomized trials focused on the treatment of dental fluorosis. Six trials (348 patients) were identified that met the inclusion criteria. Mean patient age was 17.7 years, and a total of 1518 teeth with enamel fluorotic lesions were included. The methods studied in these trials were external bleaching, microabrasion, resin infiltration (with different application times), and a combination of bleaching and resin infiltration.

The primary outcomes measured were esthetic improvement and safety.

RESULTS

Compared to no treatment, bleaching improved all colorimetric aspects. Fewer bleached fluorotic areas had discernible color differences from healthy enamel, but the difference did not reach statistical significance.

When comparisons were made between interventions, bleaching was used as the reference intervention. Microabrasion had significantly smaller esthetic improvement in fluorotic stains 6 months after treatment than were seen with bleaching. The difference was clinically relevant. No difference was found with regard to tooth sensitivity between the 2 methods.

When resin infiltration for various durations or resin infiltration combined with bleaching was compared to bleaching, clinically and statistically greater esthetic improvements were seen for resin infiltration. Fluorotic stain improvement was also greater with the resin infiltration than with the bleaching alone. It was determined that increasing the time for resin infiltration or combining it with bleaching was unlikely to produce better results than the use of resin infiltration alone.

The adverse effects reported include a very mild transient tooth sensitivity after microabrasion or bleaching that subsided after about 1 month. Transient signs of minimal gingival irritation were seen after microabrasion or a combination of microabrasion and bleaching.

DISCUSSION

The most effective means for treating mildly to moderately severe dental fluorosis lesions involves resin infiltration. Bleaching was the runner-up, with microabrasion producing the least impressive results.

Clinical Significance

Conventional resin infiltration was better at managing dental fluorosis lesions than the use of bleaching, microabrasion, or longer application times for resin infiltration. The safety of all these approaches was unquestioned. All of the adverse effects were minimal and limited in duration. Further studies are needed because the available evidence had a moderate to high risk of bias.

Di Giovanni T, Eliades T, Papageorgiou SN: Interventions for dental fluorosis: A systematic review. *J Esthet Restor Dent* 30:502-508, 2018

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DENTAL IMAGING

Cone beam computed tomography

BACKGROUND

Cone beam computed tomography (CBCT) offers cross-sectional imaging with potentially high geometric accuracy that can prove especially useful for dentists planning implant treatment. It also has other uses relevant to dental practice. The major drawback is its higher radiation dose compared to conventional dental radiographs, which has led to concern about its use especially for young patients. A survey was conducted to determine the uses for CBCT in dental practices in the United Kingdom, its optimization, and training for its use.

METHODS

The survey was distributed to 144 practices, of which 49% responded (71 completed surveys). It was possible to reply online or on paper, and most (76%) chose paper. The results were reported according to the questions asked, which numbered 28.

RESULTS

The number of dentists in the practices surveyed ranged from 1 to 26, with the modal number being 4. Fewer dentists in the same practice used CBCT frequently. Fifty-two of the practices reported that just 1 or 2 dentists used CBCT frequently.

Twenty-six different CBCT scanner models from 8 manufacturers were used. None of the respondents had more than 1 CBCT scanner in the practice. Fifty-four practices had had the scanner for less than 5 years, with a third having it for less than 1 year. Sixteen percent of the practices limited its use to their own patients and the rest accepted external referrals.