

Comparative evaluation of oral microflora adherence on modified tissue conditioners – An in vitro study.

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Abstract

Aims: To evaluate the effect of silver nanoparticle, itraconazole and a combination of the two agents on the adherence of *Candida albicans*, *Streptococcus mutans* and *Enterococcus faecalis* on acrylic and silicone tissue conditioners. **Materials and Methods:** 40 pellets of Group 1 (GC Soft Liner) and 40 of Group 2 (Sofreliner) were fabricated. The pellets were immersed in a solution of silver nanoparticles or itraconazole or a 1:1 ratio of the combination of the two medicaments. The amount of biofilm formed was assessed by the ELISA reader. **Results:** A decrease in adherence of *Candida albicans* was seen in acrylic and silicone-based tissue conditioners when compared to the untreated control samples. Silicone based tissue conditioner showed the least adherence of *Candida albicans* when treated with 1:1 ratio of silver nanoparticles and itraconazole. There was a statistically significant difference in microbial adhesion between acrylic and silicone tissue conditioner ($p < 0.001$). Pellets treated with silver nanoparticles were studied for adherence of *Streptococcus mutans*, *Candida albicans* and *Enterococcus faecalis*. A statistically significant decrease in all three microbial adherences was observed with this group. ($p < 0.001$) **Conclusion:** Silver nanoparticles and itraconazole are effective antifungal and antibacterial agents that can potentially decrease microbial colonization of *Candida albicans*, *Streptococcus mutans* and *Enterococcus faecalis* on tissue conditioners. **Clinical implications:** Silver nanoparticles and itraconazole when used will decrease biofilm formation that will not only improve the overall health of the oral cavity but also prevent denture stomatitis and diseases associated with poor oral hygiene protocols. **Keywords:** Silver nanoparticles, tissue conditioners, itraconazole, antimicrobial.

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