DISINFECTION PROTOCOL ON IRREVERSIBLE HYDROCOLLOIDS: EFFECT ON BACTERIA COUNT AND DIMENSIONAL ACCURACY

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Introduction: Disinfection of impression is compulsory to prevent cross-infection to dental personnel. However, prolonged immersion in disinfectants may affect the dimensional accuracy of irreversible hydrocolloid. Different types of disinfectants are available nowadays, including alcohol-based, glutaraldehyde, and chlorine derivatives.

Aim and objectives: To investigate the disinfection protocols and their effect on Candida count and dimensional accuracy of irreversible hydrocolloid.

Materials and methods: For the antifungal activity part, 60 alginate beads were made and treated with different disinfection protocols (2% Aseptoprint, 1% sodium hypochlorite, 3% MD 520 for two minutes, one hour, six hours or 24 hours) except for control group. The beads were contaminated with *Candida albicans* (ATCC MYA 4901). Colony-forming units (CFUs) were counted using a haemocytometer and analysed using two-way ANOVA. For dimensional accuracy assessment, alginate impressions were taken from a master cast and treated with the same disinfection protocols. Three linear measurements of casts from impressions immersed in different disinfection protocols were compared to the master cast. Statistical analysis was determined using Friedman Test.

Results: There was a significant difference in the reduction of CFUs after disinfection with 3% MD 520 and 2% Aseptoprint ($P<0.05$). The dimensional changes of alginates treated for six and 24 hours were statistically significant.

Discussion: 3% MD 520 and 2% Aseptoprint had effective antifungal activity on irreversible hydrocolloids impression. Dimensional changes of alginate were due to imbibition and syneresis, affecting the casts constructed. Longer immersion time yielded less fungal count but resulted in increased dimensional changes.

Conclusions: 3% MD 520 and 2% Aseptoprint are recommended for irreversible hydrocolloid disinfection, with immersion time not exceeding one hour.

Keywords: infection control, irreversible hydrocolloid, antifungal, dimensional accuracy