Casts of Sterilized/Disinfected Impressions, Long Term Evaluation

F. MARTINS, J.A. REIS, P. BRANCO, A. FORJAZ, J. PEREIRA, P. MAURÍCIO

1 Oral Rehabilitation Clinic, Instituto Superior de Ciências da Saúde Egas Moniz, Monte da Caparica, Portugal

INTRODUCTION

A successful rehabilitation depends on many factors such as dimensional stability, detail reproduction of impressions and models (Hamalian et al., 2011). Taking impressions is one of the crucial steps when it comes to oral rehabilitation. Impression quality determines the optimal adjustment of the restoration (Kopp et al., 2000; Bokernstol et al., 2010).

The aim of the impression material is to obtain a replica of the hard and soft tissues of the oral cavity in three dimensions and to be dimensionally stable (Craig e Powers, 2002; Hamalian et al., 2011).

Nowadays, elastomers are considered the standard of care as the material for definitive impressions in Fixed Prosthodontics (Lee, 1999). Within the family of elastomers we can find polysulfides, condensation silicones, addition silicones and polyethers (Noort, 2007). The addition silicones and polyethers tend to be used most frequently due to its physical and mechanical properties (Lee, 1999; Hamalian et al., 2011).

Disinfection procedures weren’t used until the twentieth century. Impressions are necessary to control cross infection in clinical practice (Drennon e Johnson, 1990; Martin et al., 2010).

The null hypothesis is rejected.

The objective is to study the dimensional changes of elastomeric impression materials subjected to autoclaving sterilization and chemical disinfection with sodium hypochlorite 5.25%, analyzing the dimensional changes of印象 materials in three dimensions.

RESULTS AND DISCUSSION

The sanitary authorities require the sterilization of dental materials, mainly elastomeric impression materials, to control the cross infection in clinical practice. The sterilization method most commonly used in clinical practice is steam autoclave sterilization, which has demonstrated to be an effective method (Craig e Powers, 2002; Hamalian et al., 2011).

The Impregum® Pentamix Soft Polyether (3M ESPE™) had the most similar dimensions to the matrix with a maximum dimensional change of 0.15% after 2 weeks and a maximum of 0.09% in A group after the same period. The Normosil Adición Putty Fast (Normon®) casts showed the most evident differences after 2 weeks with a maximum dimensional change of 0.29% and 0.34% in A and B group.

The null hypothesis is rejected.

The impression materials are evaluated for dimensional changes after autoclaving, the addition silicones and polyether suffer dimensional changes, resulting in casts with different dimensions of the matrix. The ADA Specification nº19 (1977) states that the maximum negative change in dimension is 0.1% and the ISO 4823:2000 has a maximum of 1.5%.

The Impregum® Pentamix Soft Polyether (3M ESPE™) casts had the most similar dimensions to the matrix with a maximum dimensional change of 0.15% after 2 weeks and a maximum of 0.09% in A group after the same period. The Normosil Adición Putty Fast (Normon®) casts showed the most evident differences after 2 weeks with a maximum dimensional change of 0.29% and 0.34% in A and B group.

The tests were performed on 5 samples in A group and 5 samples in B group, for a total of 20 samples.

The materials were subjected to autoclaving, chemical disinfection with sodium hypochlorite 5.25% - 10 min. and steam autoclave sterilization at 134ºC - 25 min.

The ADA Specification nº19 (1977) and ISO 4823:2000, therefore the steam autoclave sterilization should be considered a valuable disinfection procedure.

REFERENCES


