Republic of Iraq
Ministry of Higher Education
And Scientific Research
University of Baghdad
College of Dentistry

Effect of Sodium Fluoride Addition as a Disinfectant on Some Properties of Alginate Impression Material

A thesis
Submitted to the College of Dentistry Baghdad University in Partial Fulfillment of the Requirements for the Degree of Master of Science in Prosthodontic Dentistry

By

Alaa Mahdi Hussian

B.D.S.

Supervised by

Dr. Raghdaa Kareem Jassim

Assistant Prof. B.D.S, M.Sc., Ph.D

Baghdad-Iraq

April 2014 Jamady Awal 1435

Abstract

Introduction: Contamination of dental impressions with saliva and blood from the oral cavity occurs readily in dental clinics, direct interaction between dental clinics and dental laboratories makes contaminated dental impressions difficult items to deal with it from the cross contamination point of view. Previous reports indicated that contaminated impressions can cross infect gypsum casts that were poured against them, however immersing or spraying commonly used alginate impression material with disinfectant may adversely affect the accuracy of dies or casts obtained.

Objective: The objective was to evaluate the effect of (0.25%,0.5%,1%, 2%, 3%, 4%) of (NaF) addition on the self-disinfection of alginate impression material and its effect on setting time, tear strength, dimensional change and accuracy of alginate impression materials and to compare this with CHX containing alginate material related to the same properties mentioned above.

Materials and methods: A total No. of 800 specimens were prepared in this study, they were divided into five main groups according to the type of the tests used (tear strength test, setting time test, dimensional change test, dimensional accuracy test, and bacteriological tests (*Streptococcus mutans* and *Candida albicans).*

Six concentrations of NaF from (0.25% to 4%) and 0.1% CHX gluconate were mixed with alginate impression material and compare it with control alginate without disinfectant.

Results: The self-disinfecting impression material containing NaF showed a total kill of microorganisms immediately after impressions were made.

Tear energies for all experimental impression materials were greater than those of the control products. There were no statistically significant

differences between the dimensional change tests and also reproduction of detail test, that contained (NaF) and one that did not.

With regard to setting time of the impressions, statistically significant reduction were seen between the control and experimental groups of alginate impression materials. The experimental material that did not contain (NaF) had a considerably longer setting time than all of the other materials tested.

Conclusion: the use of (NaF) and CHX disinfection when taking alginate dental impression is a good measure in reduction of contamination and cross infection and have a minute effect on dimensional stability and is recommended as step in protecting dentist and dental laboratories teams.