ABSTRACT

Background: The reconstruction of alveolar ridge with bone graft is considered to be able to support the unfavorable structure and function of alveolar bone due to atrophy, periodontal disease, and trauma. Chitosan is an alternative of alloplastic bone graft material that is biocompatible and osteoconductive. It is known that its osteoconductive ability can stimulate the growth of osteoblasts and bone matrix. To form bone, osteoblasts require a source of inorganic materials, such as calcium salts obtained from blood, which is at the same time will encourage and inhibit the activity of osteoblasts in bone remodeling process.

Purpose: The purpose of this experiment was to know about velocity of chitosan powder (150-355 µm) adsorption to blood (type O).

Material and Method: Twenty-eight samples of chitosan powder (150-355 µm) were divided into two groups. The first fourteen samples were inserted into a glass pot containing saline solution (0.9 % NaCl) as control group. On the other hand, other samples were inserted into a glass pot containing blood (type O).

Result: It is known that velocity of the chitosan powder (150-355 µm) adsorption to blood (type O) was 0.0002 ml/s, while that in the saline solution (0.9 % NaCl) was 0.0009 ml/s.

Conclusion: It may be concluded that the average velocity of chitosan powder (150-355 µm) adsorption to blood (type O) is 0.0002 ml/s. Velocity of chitosan powder (150-355 µm) adsorption to blood (type O) in 10 minutes with a 30-second time interval is progressively decreased.

Keywords: Chitosan powder (150-355 µm), velocity of adsorption, blood (type O).