عنوان مقاله:

Immunogenicity evaluation of rBoNT/E nanovaccine after mucosal administration

محل انتشار:

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خلاصه مقاله:

Objective(s): The Botulism syndrome is caused by types A to G of botulinum neurotoxins. The binding domains of these neurotoxins are immunogenic and considered as appropriate candidate vaccines. Due to the low immunogenicity of recombinant vaccines, there have been many studies on the use of biocompatible carriers such as chitosan nanoparticles for the delivery of these vaccines. The aim of this study was evaluating the efficiency of chitosan nanoparticles as carriers for a candidate vaccine, binding domain of BoNT/E, through oral and intranasal routes.Materials and Methods: Chitosan nanoparticles containing rBoNT/E binding domain, were synthesized via ionic gelation. After administration of the nanoparticles to mice through oral and intranasal routes, antibody titers were assessed by ELISA and, finally, all groups were challenged by active botulinum neurotoxin type E.Results: The groups that received nanoparticles containing the antigen, through oral and intranasal routes, and the group that received the bare antigen orally, were able to tolerate 5×102 folds of MLD. The intranasally immunized mice by the bare antigen were able to tolerate 2×103 folds of the toxin's MLD. Conclusion: It seems that the use of chitosan nanoparticles has no significant effect on the protective immunization of the mice against botulinum BoNT/E in either route (P> 0.05), even intranasal administration of the bare antigen gives better mice immunization against the toxin.

کلمات کلیدی:

Botulinum toxin type E, Chitosan, Mucosal administration, Nanoparticles, Recombinant protein