

عنوان مقاله:

A Comparative Study of the Effects of Al(OH)₃ and AlPO₄ Adjuvants on the Production of Neutralizing Antibodies (NABs) against Bovine parainfluenza Virus Type 3 (BPIV₃) in Guinea Pigs

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خلاصه مقاله:

Aluminum-containing adjuvants are extensively used for inactive human and animal vaccines owing to their favorable immunostimulative and safe properties. Nonetheless, there is controversy over the effects of different aluminum salts as an adjuvant for the bovine parainfluenza virus type 3 (BPIV₃) vaccine. In order to find a suitable adjuvant, we studied the effects of two adjuvants (i.e., aluminum hydroxide [Al(OH)₃] and aluminum potassium sulfate [AlPO₄]) on the production of neutralizing antibodies (NABs) for an experimental BPIV₃ vaccine. The animals under study (Guinea pigs) were randomly assigned to five groups of experimental vaccines containing Al(OH)₃ (AH), AlPO₄ (AP), Al(OH)₃-AlPO₄ mixture (MIX), commercial vaccine (COM), and control (NS). The treatment groups were immunized with two doses of vaccine 21 days apart (on days 0 and 21), and the control group received normal saline under the same conditions. The animals were monitored for 42 days, and blood samples were then taken. The results indicated that all vaccines were able to induce the production of NABs at levels higher than the minimum protective titer (0.6). An increase in titer was observed throughout the monitoring period. Moreover, an increase in both the level and mean titer of NABs obtained from the vaccine containing Al(OH)₃ adjuvant was significantly higher than in the other studied groups ($P \leq 0.005$). The comparison of NABs titer in other groups did not display a significant difference. Considering the speed of rising and the optimal titer of NABs production in the experimental vaccine, the Al(OH)₃ adjuvant is a suitable candidate for preparing a vaccine against BPIV₃ for immunization.

کلمات کلیدی:

Aluminum adjuvant, Bovine Parainfluenza type-3, Neutralizing Antibody, vaccine

