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Study of the effect of naloxone-alum adjuvant mixture on IL-17 cytokine in HIV-1 multi-epitopic vaccine model

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Objectives: Cytokines have important role in the control of bacterial and viral infections as like HIV-1. Interleukin 17 which is secreted by Th17 is one of these cytokines with special role in controlling microbial infection .In the present study, adjuvant activity of Alum and Naloxone mixture on immune responses, especially IL-17 cytokine has been studied.

Materials and Methods: Naloxone and Alum adjuvant was mixed with 10 µg of recombinant vaccine HIV-1-gag-pol-tat-env was mixed. Experimental groups consisting of inbred male Balb/c mice divided into six groups, the first group was vaccinated with Alum and Naloxone mixture, group two Naloxone with vaccine, group three Alum mixed with vaccine, CFA with vaccine in group four, groups five with PBS and six with Naloxone (controls) were injected subcutaneously at the days 0, 14 and 28 with total volume of 200 microliters. Two weeks after final injection, mouse spleen in sterile condition was removed and cell suspension was prepared. Lymphocyte proliferation response with Brdu test and cytokines IL-4, IL-17 and INF-γ with using ELISA kit, total antibody and antibody isotypes IgG1 and IgG2a with ELISA test has been evaluated.

Results: All results show that the mixture of alum with naloxone increased cellular immune parameters and specially increase of interleukin 17 that show significant difference with other groups.

Conclusions: It seems that alum and naloxone mixture by affecting the Th17 pathway could control viral infections in which IL17 cytokine has critical role.