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Evaluation of adjuvant effect of BCG along with E7d vaccine for the immunotherapy of TC1 induced cancer in mice model

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Background: Induction of cellular immune response in tumor bearing mice and decrease of suppressor factors may result in controlling and inhibition of tumor progression. In the present study, after immunization with HPV17E7d vaccine using BCG bacteria as adjuvant in tumor bearing mice, the balance of inflammatory and anti-inflammatory cytokines was assessed.

Material and Methods: Tumor was established in C57BL/6 mice with transplantation method. Experimental C57BL/6 tumor bearing mice were vaccinated three times with 10 days intervals with E7d protein formulated in Alum and BCG vaccine adjuvants. One week after final immunization, serum samples were obtained from five mice in each group. Then the quantity of IL-4, INF- γ , TNF- α cytokines and total IgG Antibody were evaluated with commercial ELISA kits. Also, the level of IgG1 and IgG2a were measured. In addition, survival and volume of tumors were monitored during the study period.

Result: Results showed that immunization with vaccine formulated in BCG as adjuvant increased INF- γ and its ratio to IL-4. Also, TNF- α and total Antibody level were significantly higher when compared to PBS control and E7d Alum vaccine groups. In addition, survival of vaccinated mice with BCG adjuvant showed longer lifespan and the tumor volume of mice in this group were significantly lower than others.

Conclusion: Regarding to the present sata it can be concluded that formulation of E7d vaccine in BCG Alum can shift the immune responses to Th1 pattern and cause a better outcome in terms of tumor progress and survival rate.

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