HISTOPATHOLOGICAL ASSESSMENT OF DIFFERENT VACCINES IN EXPERIMENTAL MANSONIASIS

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Abstract

The current study aims to assess the immunogenicity of different single and combined crude antigens used as vaccines experimentally: {cercarial antigen preparation (CAP), soluble worm antigen preparation (SWAP), soluble egg antigen (SEA)} and combined (cocktail) antigens (CAP + SWAP + SEA) against schistosomiasis, by assessment of histo-pathological changes (granuloma size & number) in albino mice infected by Schistosoma mansoni. Laboratory bred Albino male mice, were used in this study. Each mouse was sensitized with an initial subcutaneous injection of 200 µl of the extracted antigen. After two weeks, a second S.C injection of 200 µl of the same antigen was given. The antigen was combined with either Freund’s adjuvant (Adj) or with Bacillus Calmette-Guérin (BCG). Infection was done by subcutaneous injection of each mouse (vaccinated and unvaccinated) with ±80 S. mansoni cercariae after 3 weeks from the first vaccination. The vaccinated and infected control groups were sacrificed 10 weeks post-infection. Histo-pathological changes were studied. The obtained data showed that, the combined antigens (cocktail) supported by Freund’s adjuvant, is the most effective and protective with very high significant reduction in the number and size of hepatic granulomas (90.29%, & 53.16%) respectively. The current work showed that vaccination of mice with the previous different antigens has variable immunoprophylactic effects and may protect liver against infection through reduction in granuloma number & size. Thus, combining these different antigens (CAP, SWAP and SEA) provides augmentation of the protective immunity and reduction of immunopathology when compared to each component administered individually.

Keywords: Schistosoma mansoni – vaccine – CAP – SWAP – SEA – granuloma.