

Acute phase protein profile and clinico-pathological changes in mice associated with the infection of *Pasteurella multocida* type B and the bacterial lipopolysaccharide and outer membrane protein immunogens

ABSTRACT

Haemorrhagic Septicaemia (HS) is a killer disease of cattle and buffalo of economic importance in Asia and Africa. There is insufficient information on the responses of Balb c mice as animal model in respect of immunogens and Acute Phase Proteins (APP) profiles. Therefore, the present study aims to evaluate the acute phase protein profiles in mice associated with the infection of *Pasteurella multocida* type B and the bacterial lipopolysaccharide and outer membrane protein immunogens. Two hundred healthy Balb/c mice of 8-10 weeks old were used in this study. They were divided into four equal groups of 50 mice each. Mice of group 1 were inoculated intra-peritoneal with 1.0 mL sterile Phosphate Buffered Saline (PBS) pH 7, group 2 were inoculated with 1.0 mL of 10⁹ colony forming unit (cfu) of *P. multocida* B: 2. Mice of groups 3 and 4 were inoculated intra-peritoneal with 1.0 mL of LPS and 1.0 mL of OMP, respectively. Acute phase proteins analysis were done using two sites Enzyme Linked Immunoassay (ELISA) highly sensitive test kits. The data was analyzed using SPSS. Haptoglobin concentration increased significantly in group 3 and 4 ($p < 0.05$) following inoculation with immunogens compared to control group. Mice in group 3 and 4 showed significantly ($p < 0.000$) 3 times higher concentrations of SAA and significantly ($p < 0.037$) 1.3 times increased concentrations of SAA, respectively compared to the control group. There was no significant changes in the concentrations of fibrinogen in group 2 ($p = 0.177$), group 3 ($p = 0.088$) and group 4 ($p = 0.359$). C-reactive protein in groups 2 and 3 showed significantly ($p < 0.05$) higher levels than the control group. Albumin showed significant increase ($p < 0.05$) in group 2 compared to the control group. There were significant changes in the concentrations of acute phase proteins and clinical responses post inoculation with immunogens indicating adverse pro-inflammatory reactions in mice in the present study.

Keyword: Acute phase protein; *Pasteurella multocida* type B; Bacterial lipopolysaccharide; Outer membrane protein immunogens; Infection