THE EPIDEMIOLOGY AND PATHOGENESIS OF HAEMORRHAGIC SEPTICAEMIA IN CATTLE AND BUFFALOES

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Introduction

Haemorrhagic septicaemia (HS) is a frequently fatal, contagious disease mainly of cattle and water buffaloes, and it is caused by a particular group of serotypes (6:B and 6:E) within the bacterial species *Pasteurella multocida* (Gilmour, 1992). The disease is still considered as one of the most economically important livestock disease of South East Asia (Carter et al. 1989). In Malaysia, it is enzootic and the organism has been isolated from natural outbreaks from all the States (Chandrasekaran, 1989). The organism is passively carried in lymph nodes of the upper respiratory tract of cattle and buffalo and they were a source for further outbreaks elsewhere. The dormant carriers can only be confirmed by culture of lymph nodes obtained at slaughter (Saharee et al. 1992). Field outbreaks were investigated, however the factors that influence the outbreaks and the pathogenesis of the disease were still not clear. The objectives of the project were: (a) to determine the factors that influence the outbreak of the disease, (b) to conduct experimental transmission studies using lipopolysaccharide (LPS) derived from the cell wall of the bacteria, and (c) to determine the clinical, pathological and immunological response and its effect on blood clotting factors.

Materials and Methods

A Cohort study is being carried out in Kelantan using a questionnaire to determine the incidence of the disease, the factors that may influence its precipitation and disease investigation whenever there was an outbreak. Immune status of the animals in the chosen area was determined by the ELISA test. Five calves were used to study the effect of LPS of *Pasteurella multocida* type 6B. LPS was injected via the jugular vein. Following inoculation the animals were observed and monitored for clinical response. Blood samples were collected hourly to study its effect on blood clotting factors and weekly for the immunological response using the ELISA test.

Results and Discussion

Initial studies in endemic and non-endemic as well as vaccinated and non-vaccinated areas showed that cattle and buffaloes had antibodies. Outbreaks in the study area have not occurred and thus elucidation of factors that could influence the precipitation of disease was still not possible. The experiment in calves using LPS showed early signs, typical of HS. The immune response is still being monitored and no conclusive result could be made yet. Studies on blood clotting factors indicated that there are defects in blood clotting. There is typical disseminated intravascular coagulation (DIC) and utilisation of some factors.

Conclusions

Further experiments are now being carried out to identify the factors utilised in the blood clotting defects, which are manifested clinically as haemorrhages in acute cases.

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