THE EPIDEMIOLOGY AND PATHOGENESIS OF
HAEMORRHAGIC SEPTICAEMIA IN CATTLE AND
BUFFALOES

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Keywords: haemorrhagic septicaemia, epidemiology,
pathogenesis, lipopolysaccharide.

Introduction
Haemorrhagic septicaemia (HS) is a frequently fatal, conta-
gious 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 or-
ganism 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 fac-
tors 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, patho-
logical 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 inves-
tigation 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 ob-
served 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 vacci-
nated and non-vaccinated areas showed that cattle and buff-
aloes 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 ex-
periment 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 clot-
ting 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 mani-
fested clinically as haemorrhages in acute cases.

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Supported by IRPA Grant 01-02-04-0097