

Study on serumic levels of AST and CPK in Healthy cows and cows affected to Bovine Ephemeral Fever

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ABSTRACT

Bovine ephemeral fever is a viral disease of cattle and bubalis besides subclinical Involvement of a variety of ruminant species. The subtropical and temperate regions of Africa, Asia and Australia have experienced the major epidemic of the bovine ephemeral fever but the occurrence in the tropics cannot be overlooked. In present study a total number of 50 head infected cattle to Bovine ephemeral fever and 50 head healthy cows were collected and blood samples from jugular vein of every cow were taken and then seral concentration of AST and CPK were determined. In comparison the seral concentration of CPK and AST in two groups of cows for AST concentration significance different were observed also for CPK in two groups a significance different were observed.

Key words: Bovine ephemeral fever, cow, AST, CPK.

Introduction

The origin of ephemeral fever is obscure. The first reports of the ephemeral fever were probably in mid-nineteenth century when the disease was first noticed in East Africa [1,13] and subsequently in Rhodesia [3], Kenya [4], South Africa [5], Indonesia [7], India [8], Egypt [9], Palestine [10], Australia [11] and in 1949 in Japan [2]. Bovine ephemeral fever is an economically important viral disease of cattle and water buffalo. This disease occurs in Africa, Australia, Asia and the Middle East, often in sweeping epizootics. Its impact includes lost production – decreased milk yield, loss of condition, abortion, temporary infertility in bulls, and prolonged recovery in some animals – as well as trade restrictions. Although mortality is usually low, cattle in good condition are affected more severely; mortality rates as high as 30% have been reported in

very fat cattle. Bovine ephemeral fever is caused by the bovine ephemeral fever virus (BEFV), a member of the genus Ephemerovirus in the family Rhabdoviridae [14,16]. There is only one serotype. Other members of this genus (Adelaide River virus, Kimberley virus, Berrimah virus, Puchong virus and Malakal virus) can cross-react in some serological tests. Only cattle (*Bos sp.*) and water buffalo (*Bubalus bubalis*) develop bovine ephemeral fever. Antibodies to BEHV have, however, been reported in domesticated deer and goats, as well as many wild ruminants including Cape buffalo, hartebeest, waterbuck, wildebeest, kudu, deer, antelope and giraffes. Most of these seropositive animals have been found in Africa. Experimental infections have been established in sheep, but infections have not been reported in this species outside the laboratory [18,19]. The economic effect of BEF is severe and range from mortality to effects on both trades within

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and between countries. The aim of present study was to determine the sermic levels of AST and CPK in healthy and effected cows to ephemeral fever.

Material and method

This study was done on 50 Healthy and 50 infected to ephemeral fever female Holstein cows at a range of 4-6 years old and weight of 370-500 from different industrial farms in Hamadan province (Iran). In group of infected cows this cows after serological test as infected cow to ephemeral fever were distinguished, then in other step blood samples from jugular vein of every cows were taken for AST and CPK seral titration. After sampling blood was allowed to coagulate and the harvested serum was stored at freezing condition until processing. Blood serum AST and CPK were determined spectrophotometrically by using already manufactured colorimetric test kits (Giesse diagnostic co. Italy). With Alcyon 300 auto analyzer. Collected data's analyzed by T-test, with the SPSS program windows (version 14). Significant levels were set at $p < 0.05$.

Results

The results of present study for seral concentration of AST and CPK in healthy cows and infected cows in following tables have been shown.

Table 1: seral titration of CPK (u/l) in healthy and affected cows

cows	CPK seral concentration (u/l)
Healthy group	98±0.2
Infected group	179±0.4

Table 1: seral titration of AST (u/l) in healthy and affected cows

cows	AST seral concentration (u/l)
Healthy group	77±0.2
Affected group	89±0.3

Conclusion:

Ephemeral fever is a disease not completely understood. The virus has been characterized to a fair degree but its relation to other rhabdoviruses needs to be studied. The isolates of BEF virus from different parts of the world indicated that they are antigenically similar although Australian isolates from insects demonstrated some differences. A precise biochemical characterization of all isolates provides the basis of virulent or a virulent property of the virus. Furthermore the function of the Gns and the protein expressed by 1.6 kb region containing several long open reading frames lie between the Gns gene and the L gene consensus sequences need to be elucidated. The persistence of the BEF virus between the epidemics requires an in depth study in epidemic areas viz. tropics of Africa, Asia and Australia. It is proved that both mosquito and culicoides can support

the BEF virus growth but the potential range of insect vector remain to be identi@ed. Until the epidemiology is clearly understood, the economic loss of the cattle industry due to BEF virus is difficult to estimate. A cheap, efficacious killed vaccine should be kept ready to combat the outbreak situations for a short period of time. However, future research should be directed towards the evolvement of a potent live attenuated, recombinant or DNA vaccine which may be a suitable alternative to current vaccines [6,12,15,17]. Knowledge of different kinds of vectors in various parts of the world and the behavior of BEF virus in the vectors would help for the novel and effective management and control of the disease.

In comparison the seral concentration of AST and CPK in two groups of cows for AST concentration significance different ($P < 0.05$) were observed also for CPK in two groups a significance different ($P < 0.001$) were observed. Also in this study affected cows to Ephemeral fever after serum therapy, intravascular calcium injection and injection the NSAID_s, they made recovery.

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