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A Talk on Control and Prevention Plans of Bovine Babesiosis

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ABSTRACT

Cattle are at risk of bovine babesiosis, which is brought on by parasitic Babesia spread by *Rhipicephalus microplus* ticks. The disease's transmission, clinical presentation, and economic consequences are all examined in this article. There is a discussion of various control methods, including immunization, chemoprophylaxis, tick control, and genetic resistance. It is accepted that there are obstacles like vaccine restrictions and resistance to acaricides.

Introduction:

Babesiosis is a parasitic disease caused by *Babesia* (*B.*) *bovis*. It's a pear-shaped parasite which is 2 to 3µm in size. It feeds on the blood of mammals (1). It can cause anemia in animals by destroying their red blood cells. It can lead to huge production losses in dairy cattle and buffalo. *B. bovis* can transmitted through ticks (2). Babesiosis is a zoonotic disease that causes infection in both animals and humans.

Epidemiology

The mortality rate of babesiosis in cattle and buffalo is very high moreover its morbidity depends on environmental factors and the presence of ticks through which it can easily transmitted into cattle and buffalo (3). In subtropical areas like Pakistan, the morbidity rate is high due to the unhygienic environment in backward areas and the majority of farmers having cattle and buffalo are poor and uneducated. It is transmitted through the tick and then completes its sporozoite and merozoite forms in RBCs and then removes its parasitophorous membrane and converts into pre-gametocyte form and then in the midgut of the stomach they change into male and female gametocyte form and replication and repeat their cycle (4).

Control of Babesiosis

Babesiosis can be controlled by various ways and protocols. Starting from prophylaxis to Medications. Some of the effective control measures and protocols for babesiosis are discussed below.

1. Tick Control

Babesiosis can be controlled by controlling their intermediate or transport host ticks. Ticks can be controlled using tick acaricides (tick control agents) like DDT. It should be sprayed throughout the premises of the farms and on the animal's body as a dip (5). These agents should also be used in the dipping or wheeling of the transport vehicle used for the animal's transport and other purposes.

2. Rotational Grazing

It is a method of grazing animals in which animals graze on different pastures in circles. For example, pasture is divided into four equal parts and animals graze on each part on alternate days or weeks (6). Doing this the risk of getting infection decreases as the merozoite/sporozoite get dehydrated and die until the animals again come to that part of pasture for grazing.

3. Intensive Farming system

The intensive farming system, unlike the old traditional farming, proved to be more reliable in maintaining animals and controlling disease. In intensive farming, the animal's movements are restricted to specific endemic areas. Which is always being monitored and disinfected routinely. This decreases the chances of animals getting infested by ticks and this decreases the chances of babesiosis.

4. Genetic Resistance through cross-breeding

Cross-breeding is a very effective way of getting resistance against the ticks which dramatically decreases the chances of babesiosis. It is the general character of Sahiwal cattle that it shakes its skin and removes external parasites and it is more resistant to tick-borne diseases. So if we cross a Friesian cattle with a Sahiwal cattle the chances of the cattle getting babesiosis will decrease.

5. Animal health monitoring and vaccination

Monitoring animal's health regularly and giving prophylaxis to animals will also decrease the chances of babesiosis infection (7). Scientists have been working on making vaccines against babesiosis that animals might get immune to babesia and the risk of production loss and cost of medication decreases.

6. Awareness of Farmers/Breeders

The local farmers and breeders should be educated about the parasite diseases and production losses caused by babesia or other tick-borne diseases. This thing will also help in controlling ticks and tick-borne diseases like babesiosis.

Treatment and Prevention

The drugs of choice for treatment are Imidocarb and diminazin. For their prevention we can go for ticks' control by using Ivermectinother than that, we can also control maintaining proper hygiene. By educating the farmers for a clean and hygienic environment and by controlling ticks we can control the spread of babesiosis (8).

Conclusion

To sum up, combating the risk of babesiosis necessitates a thorough and coordinated strategy. A strong plan for controlling and stopping the development of this parasite disease is formed by the integration of tick control methods, rotational grazing, intensive farming techniques, cross-breeding to create genetic resistance and proactive health monitoring. We can drastically lessen the effects of babesiosis on both human and cattle populations by comprehending the epidemiology and putting preventive measures in place. Furthermore, cultivating a proactive and watchful society that actively engages in halting the spread of these infections depends on educating farmers and breeders about the dangers of Babesia and other tick-borne diseases.

References

[1] Diseases of Cattle in the Tropics: Economic and Zoonotic Relevance, 443-468, 1981
[2] Journal of Range & Forage Science 36 (3), 151-159, 2019
[3] WC Brown, GH Palmer, "Parasitology Today 15 (7), 275-281, 1999"
[4] Pests and vector-borne diseases in the livestock industry, 1695-1702, 2018
[5] Graf JF, Gogolewski R, Leach-Bing N, Sabatini GA, Molento MB,Bordin EL and Arantes GJ (2004). Tick control: an industrypoint of view. Parasitology 129: S427–S442
[6] James, D.M.; Giles, H.M. In Pharmacology and usage. Sons, J.W., Ed.: New York, 1985
[7] Brown, W. C., Suarez, C. E., Shoda, L. K. and Estes, D. M. (1999b).Modulation of host immune responses by protozoal DNA. Veterinary Immunology and Immunopathology 72, 87–94.
[8] Peregrine, A.S.; Mamman, M., Pharmacology of diminazene: a review. Acta Trop, 1993, 54, (3-4), 185-203.

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