Introduction:

Trypanosomiasis in animals is a disease complex caused by several species of protozoan parasites of the genus Trypanosoma. Trypanosomiasis caused by Trypanosoma evansi is the most widely distributed pathogenic, mechanically transmitted vector borne haemoproteozoan disease of domestic livestock and wild animals in India. In tropical countries like India the disease is also called as Surra and is transmitted through a non cyclical method by biting flies such as a Tabanidae. The disease is transmitted cyclically by different species of Tsetse fly ( Glosina sp. ) mainly in Africa. The geographical area affected by trypanosomiasis caused by T. evansi is greater than area affected by tsetse borne trypanosomiasis in Africa. The disease can affect almost all species of mammals but from economic and zoonotic point of view, trypanosomiasis is an important disease of cattle, buffaloes, sheep, goats, horses and camels. It is a potential killer of livestock and causes economic losses to the farmers in terms of morbidity, mortality, abortion, infertility, reduced milk yield, The Office International Epizooties (OIE) mentions the disease under list B diseases of significance in horses. The disease is also reported in rodents caused by T. Lewisi.

Synonym: Surra caused by T. evansi., Tribersa in camels, Dourine in Horses caused by T. equiperdum.

Zoonotic aspect:

Trypanosomiasis in humans is a disease prevalent in Africa and Central and South America. Trypanosoma brucei causes sleeping sickness in Africa and T. Cruzie causes Chagas disease in central and south America. There are very few reports ( one or two ) of accidental transmission of animal trypanosomiasis to human beings in Asia.

Since 2004 three cases of human trypanosomiasis have been reported from three different geographical locations in Maharashtra. The first case was reported in October 2004 and was of a 45 year old male, a cattle breeder by profession from village Shivni, Tal Sindewahi, Dist. Chandrapur and was infected by T. Evansi. The second case was a three month old child from Mumbai, infected with T. Lewisi in September 2006 and a third case was of a 55 year old male from village Paud, Tal. Mulshi, Dist. Pune, also infected with T. Lewisi. The first two cases recovered after administration of Suramin and other supportive therapy, however the third case succumbed to the infection.

Morphology:

T. evansi is a member of subgenus Trypanozoon and is described as monomorphic but may be pleomorphic in some strains with length of 15 to 34 μm. Leaf-like slender forms are characterized by a long free flagellum with narrow and drawn out posterior end.

Epidemiology:

The monsoon and post monsoon seasons are most conducive for propagation of the disease due to the preponderance of tabanid flies. However, cases of surra are encountered throughout the year. Surra has also been detected in animals of arid and semi-arid regions of our state with warm and temperate climate.

Clinical Signs and postmortem findings :

Clinical signs are not pathognomic and hence clinical examination is of little help in pinpointing the diagnosis. T. evansi infected animals show progressive loss of appetite, body weight, oedema of lower parts of body, intermittent fever, bilateral enlargement of prescapular lymph nodes, corneal opacity, salivation, lacrimation and abortion. There is fever, which is intermittent and animals loose condition. They are anemic and there is a severe drop in milk production. Some animals may have improper gait, show circling movements and shaking of head.

Like clinical signs postmortem findings are also not definitive. The carcass is marked by anaemia, emaciation, anasarca, enlargement of lymphnodes, liver and spleen. There may be corneal opacity and testicular degeneration.

Diagnosis :

Confirmative diagnosis of trypanosomiasis must rely on parasitological techniques, that confirm the presence of the parasite either by microscopic examination of blood or by using sophisticated techniques like ELISA and PCR. Though several diagnostic techniques exist for diagnosis of surra., only few tests have been critically evaluated and standardized. Conventional parasitological techniques (CPT) followed include examination of wet blood film and stained thin and thick blood smears. Blood smears should be made from capillary blood collected from peripheral circulation i.e. ( ear tip ). They should be stained with Leishmans or Giemsa stain. Parasites can also be found in other body fluids and tissues.

Mouse inoculation (MI) test is generally regarded and accepted as the most sensitive method to detect the animal trypanosomiasis. If buffy coat is used for inoculating the mice, the sensitivity is further increased.

Serological detection of anti trypanosomal antibodies in serum also helps in diagnosis. Trypanosomiasis is characterized by fluctuating parasitaemia with periods of paroxysms and intermission.

Trpanosomes in blood smear :

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(berenil), quinapyramine sulphate (Antricyde sulphate) and Antricyde prosalt (quinapyramine sulphate + quinapyramine chloride) for treatment and prophylactic use against trypanosomiasis in domestic animals. The dose of quinapyramine sulphate (Antricyde sulphate) is 3 – 5 mg / Kg. body wt. and is given s/c. It is safe and efficient for treating surra and is active against suramin resistant strains. The dose of Antricyde prosalt (quinapyramine sulphate (1.5 parts) + quinapyramine chloride (1 part) w/w) is 7.4 mg / Kg. body wt. s/c. The mixture has the same activity as that of quinapyramine sulphate but chloride compound results in formation of subcutaneous depot from which it is released slowly, resulting in prophylactic effect for about three months. The dose of diminazene aceeturate (berenil) is 3.5 mg / Kg. body wt. I/M. Besides trypanosomiasis it is effective against babesiosis. It is easily excreted, therefore resistance against it is comparatively less. A severe side effect develops in higher doses. In camel and dog it should be used with precaution only under the supervision of veterinarian and along with supportive therapy. There are variable reports on the therapeutic efficacy of diminazene aceturate in buffaloes, but in general, diminazene is considered as sanative drug and found to be very effective in treatment of trypanosomiasis in buffaloes. Quinapyramine sulphate and diminazene remains the mainstay for the treatment because of non-availability of suramin and less activity of samorin.

These available drugs should be used judiciously and in correct doses only after confirmatory diagnosis to avoid drug resistance and toxicity. Resistance develops more quickly to prophylactic drugs as compared to curative drugs, because curative drugs are eliminated rapidly from the body. Among curative drugs, resistance develops only after repeated use in endemic areas. Suboptimal doses of drugs are also responsible for development of resistance. Since trypanosomiasis is an disease transmitted by arthropod vector viz. the tabanus flies, mass campaign for eradication of Tabanus can be tried, but it has limited value under field conditions as elimination or reduction of flies from the environment is difficult.

Immuno prophylaxis is not possible because of non-availability of effective vaccine against trypanosomiasis.

For further details contact:

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