Title
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Citation
The Journal of protozoology research, 17(2): 44-47

Issue Date
2007-12

URL
http://ir.obihiro.ac.jp/dspace/handle/10322/1799

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Epidemiology of small ruminant trypanosomosis in some communities Jos East, Plateau State: A Guinea Savana Zone, North-Central Nigeria

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ABSTRACT
An epidemiological survey of animal trypanosomosis was conducted in some communities of Jos East LGA, Plateau State, Nigeria where 558 peridomestic animals (sheep and goats) were bled for both parasitological and haematological analysis. The screening for the presence of trypanosomes using haematocrit centrifugation technique (HCT), thin and thick films revealed 51 (9.139%) were found positive for trypanosomes. Out of this 36 (6.452%) infected with *T. vivax* while 15 (2.688%) were found to be infected with *T. brucei*. The PCV values were significantly higher in non-infected small ruminants.

Key words: epidemiology; peridomestic (small ruminants); trypanosomosis

INTRODUCTION
Small ruminants form an important part of the livestock industry in the sub-saharan Africa. They serve as valuable supplement to cattle in term of animal protein supply for the teeming population including the provision of manure for field crops. It has also been estimated that over 90% of sheep and goats in the sub-saharan Africa are found in East and West Africa (ILCA, 1989; ILCA, 1990). Inspite the importance of these animals to the rural poor farming communities (dwellers), research into the incidence trypanosome infection in sheep and goats is limited.

In the reports of Krammer (1966) showed that trypanosomosis was of little importance in goats reared in the Eastern part of Nigeria. Also that goats are seldom infected with salivarian trypanosomes (Stephen, 1970). However, experimental studies have shown that small ruminants are fully susceptible to infection with pathogenic trypanosomes (Anosa, 1974; Whitelaw et al., 1985; Shamaki et al., 2006) The roles of small ruminants in the epidemiology of the disease in nature is still not known, but its been shown that goats and sheep could act as reservoir for the spread of animal and human trypanosomosis (Kalejaiye et al., 1995; Yanan et al., 2005; Dede et al., 2005). On the Jos Plateau area in the recent past sheep and goats were screened from the abattoir for trypanosomosis, this revealed prevalent rate of 5.4% in sheep and 2.9% in goats respectively (Eche, 1995). Field surveys of the disease in sheep, goats and in cattle have been reported (Kanyari et al., 1986; Yanan et al., 2005). The results of this investigation presence natural occurrence of trypanosomes infections in small ruminants in these communities, the effect of the disease was discussed.

MATERIAL AND METHODS
Study areas: 4 communities (Angware, Durbi, Fobur and Federe) were the areas surveyed in Jos East LGA, Plateau state, North-Central Nigeria.

Animals: The small ruminants bled comprise mostly of the African dwaft breeds and few Yankasa breed of sheep. 3-5ml was collected from the jugular veins of each sheep and goats following proper
restrained into an ethylene diamine tetracetic acid (EDTA) bottles. Each sample was kept cool under ice pack in a flask after collection and transporting to the laboratory.

Screening of the blood for trypanosomes were carried out using the standard trypanosome techniques, haematocrit centrifugation technique (HCT), buffy coat method (BCM), thick and thin giemsa smear stained films. Also the pack cell volumes (PCV) of all the animals were recorded using micro-heamatocrit reader. Statistical analysis involving the means and standard deviations of infected and non infected PCV values of these animals to determine whether there is significant different between them. The data were subjected to the student’s t-test where P greater than (P> 0.05) considered not significant. All positive dogs were treated with diminazene aceturate at the dose the dose rate of 3.5 mg/body weight.

Rat inoculation: 5 ml of the positive samples from sheep or goats were inoculated into laboratory rats and monitored for possible re-infection 40 days post infection in the laboratory rats for further investigation.

RESULTS

Table I, Showing the number of animals in each communities, the distribution of trypanosomes encountered.

<table>
<thead>
<tr>
<th>Breed</th>
<th>No of animals</th>
<th>No of +ve animals</th>
<th>T. vivax</th>
<th>T. brucei</th>
<th>T. congolense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angware</td>
<td>188</td>
<td>24</td>
<td>9</td>
<td>15</td>
<td>-</td>
</tr>
<tr>
<td>Durbi</td>
<td>260</td>
<td>12</td>
<td>12</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Federe</td>
<td>48</td>
<td>8</td>
<td>8</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fubur</td>
<td>62</td>
<td>7</td>
<td>7</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table II, Trypanosomes infection rates in different breeds of sheep and goats screened in these communities.

<table>
<thead>
<tr>
<th>Breed</th>
<th>No Animals</th>
<th>No of +ve Animals</th>
<th>T. vivax</th>
<th>T. brucei</th>
<th>T. congolense</th>
</tr>
</thead>
<tbody>
<tr>
<td>West African Dwaft</td>
<td>510</td>
<td>28</td>
<td>36(6.45%)</td>
<td>15(2.688%)</td>
<td>-</td>
</tr>
<tr>
<td>Yankasa</td>
<td>48</td>
<td>8</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

DISCUSSION

The small ruminants screened in this survey were predominantly peridomestic animals in these communities belonging to the rural poor farmers, these categories of animals are particularly suited to the traditional systems due to their small size with low feed requirement. Most of these animals were the West African Dwarf (WAD) breed, except for a few Yankasa breed of sheep that were sampled among them. This investigation confirms other reports earlier documented that T. vivax, T. brucei and T. congolense occurs naturally in domestic sheep and goats (Joshua and Ige, 1982; Kalejaiye et al., 1995; Eche, 1995; Yanan et al., 2005; Dede et al., 2005). The dominance of T. vivax infection encountered in this study is a further confirmation calier findings documentd (Joshua and Shantikmar, 1989; Daniel et al., 1994; Kalu and Uzoigwe, 1996; Kalejaiye et al., 2005).

The prevalence rate of trypanosomes recorded in this survey is 9.14% which is in confirmation with other surveys carried out in the recent past in ruminants where 8.4%, 8.3%, 7.5%, 8.85% and 7.5% respectively (Joshua and Ige, 1982; Eche, 1995; Omotainse et al., 2001; Shamaki et al., 2006; Yanan et al., 2003).

The prevalence in sheep and goats ranges almost same with other large ruminants suggestive of the fact that small ruminants are not normally prioritised subjects for veterinary supervision or included in
chemotherapeutic and chemoprophylactic campaigns of government or herdowners for diseases control programmes. The importance of livestock cannot be overemphasized; with the presence infection rate encountered in these small ruminants it is therefore evidently clear that Jos East LGA of Plateau State, Nigeria is enzootic for animal trypanosomosis. If the situation is left unattended to, which is already bad could still go up to an alarming proportion and will have deleterious effect on livestock production in the area. There is the need to embark on a comprehensive survey both wet and dry seasons for trypanosomosis control programme in this area and using modern diagnostic technologies for the identification of different species which these animals maybe serving as reservoir hosts for both animals/humans.

In conclusion, for a sustainable control measures to be put effectively in place, there should also be further investigation on the socioeconomic effect of animal trypanosomosis and the menace fly bites complained by the hunters, herdowners and crop farmers in the area.

REFERENCES

Epidemiology of small ruminant trypanosomosis in Nigeria


