OWNER SURVEY OF SCHISTOSOMIASIS MORTALITY IN SUDANESE CATTLE

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SUMMARY

The estimated mortality in six- to 30-month-old cattle due to presumptive schistosomiasis was 7.1% for 155 interviews conducted in the White Nile Province in 1981. This mortality was higher for those herds under sedentary management than for migratory herds (9.4% vs 3.6%). The interviews were done through an informal visit technique by a veterinarian living in the area. The approximate number (19,000) of cattle over six months old estimated to be owned by those interviewed represents about 1% of the population in that province. The mortality from all causes in the six- to 30-month age group was 9.2%; in the over 30-month age group it was 1.8%. The authors judge the schistosomiasis mortality to be somewhat upwardly biased but the mortality due to all causes (9.2%) is consistent with the few reports available.

INTRODUCTION

Schistosoma bovis and its snail hosts are widely distributed in the Sudan and other countries in northern and eastern Africa (Dinnik and Dinnik, 1965; Malek, 1969; Hussein, 1973). Several studies have shown that S. bovis infection in domestic livestock occurs in various areas of the Sudan but the epidemiology has been most thoroughly investigated in cattle in the White Nile Province where the prevalence in 18-month-old cattle was nearly 90% as indicated by a faecal egg count survey (Majid, Marshall, Hussein, Bushara, Taylor, Nelson and Dargie, 1980a). Also a vaccine was first shown to be effective in reducing infection from natural exposure in cattle in that province (Majid, Bushara, Saad, Hussein, Taylor, Dargie, Marshall and Nelson, 1980b). This discovery has stimulated the investigation of the economic importance of the disease and the search for data on the morbidity and mortality which is critical to the estimation of production losses. Although there were a few isolated observations of outbreaks with high losses (Eisa, 1966) and some undocumented accounts by veterinarians and villagers of frequent disease problems and mortality attributed to S. bovis infection the question of related livestock production losses had not been studied.

This owner survey was conducted to yield data on the annual incidence of clinical disease and mortality due to S. bovis infection in the White Nile Province and to provide a basis from which reasonable extrapolations could be made to other areas where the presence of the disease has been indicated by faecal egg count and abattoir surveys. Prior to this survey a study had been conducted in this area to determine or confirm the diagnostic characteristics of naturally occurring clinical S. bovis infection in cattle (McCauley, Majid, Tayeb and Bushara, 1983). The results of that study established sufficient confidence in the owners' abilities to recognize S. bovis infection (Gorag) as grounds on which to base the survey.
MATERIALS AND METHODS

The survey was done during May, June and July 1981 in villages along the White Nile River near Kosti some 200 miles south of Khartoum. Seasonal events related to the epidemiology of *S. bovis* are shown in Fig. 1. The period of highest new infection rate is February to June. The lowest is July to October which corresponds with the lowest exposure to *S. bovis* cercariae since this is the wet season when cattle are grazed away from the canals, which are then in the process of drying up (Majid *et al.*, 1980a). To the cattle owners the "year" starts about the end of the wet season (September to October). So our discussions with them about disease problems they observed "this year" involved those which they had observed from about October 1980 to the time of the interview; most likely they were talking about problems which had occurred from February onwards since that is the period of highest *S. bovis* new infection rate.

The interviewer (A. Tayeb) is a veterinarian who lives near Kosti. His family and relatives are farmers and cattle owners in many of the villages where interviews were conducted. These connections are important in mitigating the potential bias associated with the mistrust owners have toward outsiders asking questions. He interviewed as many owners as possible regardless of size of their herd or prior knowledge of disease problems. Of the 155 interviews 120 were with sedentary farmers who keep their cattle near their village all year round and 35 were with migratory or nomadic cattle owners who bring their cattle to graze near the White Nile during the dry season. During the wet season they move to grazing areas 100 to 200 miles away.

The interviews were conducted in an informal manner during a visit to the village. Although in many cases those interviewed were aware of our desire to learn more about Gorag, they were asked to talk about disease problems in general, the signs they included in their diagnosis of Gorag, signs they associated with other diseases and signs they observed in cattle which died this year. Also, their comments about the use of fasciolicides and vaccination practices were noted. We then made diagnostic judgements from the interview responses. Our knowledge of the people and the local conditions and the observations from the study on clinical