

PREVALENCE OF FASCIOLOSIS IN NOMADIC PASTORALIST'S CATTLE HERDS IN OYO STATE, NIGERIA

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ABSTRACT

The study was conducted to determine the prevalence of fasciolosis in nomadic pastoralist's cattle herds in Oyo state, Nigeria. Faecal samples were collected from 750 apparently healthy cattle. An overall infestation of 399 (53.2%) were recorded. The prevalence from three selected geographical zones in the state were 82.0%, 34.8% and 42.8% for Ibarapa, Ogbomoso and Oke-ogun zones respectively. The breeds based prevalence recorded were Bunaji 168 (50.9%), Bukoloji 125 (50.8%) and Rahaji 106 (60.9%). Based on sex, the result revealed higher prevalence in females 266 (56.7%) than males 133 (50.4%). In relation to age, higher prevalence was recorded in adults with 249 (56.1%) and the least in young with 150 (49.0%). Seasonal distribution of the disease recorded were 36.9%, 57.4%, 73.4% and 44.9% for early dry, late dry, early wet and late wet seasons respectively. There was significant association between the prevalence of fasciolosis and location and season at $P < 0.01$. However, no significant association was observed between the prevalence of the disease and the sex, age and breeds of cattle ($P < 0.05$). The result of the study showed the presence of fasciolosis in the study area. It is recommended that periodic medication of affected animals and public enlightenment of the nomads on the mode of transmission of fasciolosis should be employed. Control of snails intermediate host is also essential for the control of the disease.

Key Words: Cattle, Fasciolosis, Nomadic, Pastoralists, Prevalence

INTRODUCTION

Fasciolosis also known as fascioliasis is an important disease caused by trematodes of the genus *Fasciola*. *Fasciolagigantica* and *Fasciola hepatica* species are responsible for the disease in tropical and temperate regions respectively (Damwesh and Ardo, 2012). Fasciolosis caused by *Fasciolagigantica* is responsible for heavy economic losses to farmers due to reduced weight gain, poor carcass quality, reduced milk yield, cost of treatment and control, mortality and condemnation of affected livers at abattoirs and slaughtered slabs in Nigeria (Odige and Odigie, 2013; Yahaya and Tyav, 2014).

Walker *et al.* (2008) indicated that the life cycle of *Fasciola* worms involved snail as an intermediate host. The species of snails involved in their life-cycles vary according to geographical distribution and climatic differences. The *Lymnaea natalensis* is the snail for *Fasciolagigantica* and *Lymnaea truncatula* is the intermediate host for *Fasciola hepatica* (Bhatia *et al.*, 2014). The life cycles of *Fasciola* involves five larval stages commencing with eggs which hatches into Meracidium, Sporocyst, Radia, Cercaria and Metacercariae (Anawatet *et al.*, 2015).

Fasciolosis is transmitted by ingestion of metacercaria-infested forage or drinking water containing floating metacercariae (Arjona *et al.*, 1995). Among many parasitic problems of farm animals, fasciolosis is a major disease which imposes direct and indirect economic impact on livestock production particularly of cattle and sheep (Keyyu *et al.*, 2006). Fasciolosis is enzootic in Nigeria and is of great economic importance especially in the northern part where stagnant water and fadamas are used as watering and grazing sites during the dry season (Biu *et al.*, 2006).

The pathological manifestations depend mainly on the number of metacercariae of *Fasciola* ingested; these may result in acute, sub-acute or chronic fasciolosis (Bhatia *et al.*, 2014; Walker *et al.*, 2008).

According to Suhardono *et al.* (2006) the form of the *Fasciolosis* that occurs will depend on the numbers of infective metacercariae ingested and the period of time over which they are ingested. Acute fasciolosis in ruminant is often a syndrome of death without apparent clinical abnormalities (Kelly, 1999). In Sub-acute fasciolosis the infected liver is seen covered with migratory tracts, infiltration of white cells is more in evidence and early fibrosis may be seen. While in chronic fasciolosis there will be loss of weight, sub-mandibular edema and pale mucous membrane. Over a period of weeks shedding of wool or hair may occur in sheep and cattle, also in cattle there will be reduction in milk and chronic diarrhea (Bhatia *et al.*, 2014).

MATERIALS AND METHODS

Faecal samples were collected from 750 nomadic pastoralist cattle from the three selected geographical zones of Oyo State and examined for the presence of fasciolosis using standard sedimentation technique as described by Hanson and Perry (1994). Structured questionnaires were administered in collection of data on the location, sex, age and breeds of cattle.

RESULTS AND DISCUSSION

The study revealed the overall prevalence of 392 (52.3%). This corresponds with 52.1% reported by Olusegun-Joseph *et al.* (2000) from Zaria and 54.0% prevalence observed in Gwagwalada abattoir Abuja by Idris *et al.* (2004). In addition, a higher prevalence of 94.8% was reported by Yohanna *et al.* (2012) in Jos. However, lower prevalence of 46.6% and 2.37% were reported by Hassan and Anwo (2010) and Oladele-Bukala and Odetokun (2014) respectively.

Based on locations, the result showed the highest infection of 82.0% in Ibarapa followed by 42.8% in Oke-Ogun and 34.8% in Ogbomoso zones. The high prevalence in Ibarapa zone might be due to more favourable environmental conditions of the area such as presence of flooded natural pastures, water shed areas, ponds and rivers which favour the development of snail intermediate hosts. It may also be associated with the fact that the zone is neighbouring Ogun State which is characterized by lots of swampy areas and lagoons that may favour the growth of greener pastures that may attract nomad migration during the dry season resulting in congregation of the cattle which will enhance the spread of fasciolosis than in other zones. There was significant association between the prevalence of fasciolosis and location at $P < 0.01$ in this study.

Breed based prevalence indicated 60.9% in Rahaji, 50.9% in Bunaji and 50.8% in Bokoloji. In relation to sex, the result revealed the highest prevalence in female (56.1%) than male (50.4%). The lower margin recorded between the prevalence in males and females may be associated with close cohabitation of the animals as nomadic pastoralist keep both females and males together and grazed them on same pasture and move in search of food and water together which could expose them to similar risks of infection.

The prevalence among the age groups showed that older cattle aged >3 years had higher prevalence of (56.1%) than younger once aged <3 years with (49.0%). This agrees with the report of Iboyi *et al.* (2017) who indicated that fasciolosis prevalence is higher in adult than young cattle. However, the results of this study showed no significant association between prevalence of fasciolosis and breed, sex and age of cattle at $p < 0.05$. This is in line with the finding of Magaji *et al.* (2014) and Adanget *et al.* (2015).

Regarding seasons, the distribution of the disease indicated highest infestation in early wet season with 138 (73.4%) followed by late dry season 108 (57.4%), late wet season 84 (44.9%) and early dry season 69 (36.9%). This corresponds with the report of Damwesh and Ardo (2012) who also observed that the prevalence of fasciolosis was high before and during the onset of rainy season in Adamawa State, Nigeria. Similar results were reported by various researchers (Qureshi *et al.*, 2012; Shahzadet *et al.*, 2014). There was significant association between prevalence fasciolosis and seasons at $p < 0.01$.

CONCLUSIONS AND RECOMMENDATIONS

The results of the study showed that fasciolosis is enzootic in the study area which may affect the performance of the cattle resulting in huge economic losses. It is recommended that all animals in the study area should be dewormed with broad spectrum anthelmintic in the beginning and end of each rainy season, indiscriminate use of flukicide should be avoided as it could lead to the development of drug resistance and nomads should be educated on methods of prevention and control of the disease.

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