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Prevalence of Small Ruminant Diseases/Disorders at Mokola Veterinary Hospital, Ibadan, Nigeria

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Abstract
This research work focused on the prevalent diseases of small ruminant animals brought to Mokola Veterinary Hospital, Ibadan, Nigeria, from January 2009 to June 2013. The objective was to determine the prevalence of diseases in small ruminants so as to establish a pattern of occurrence. A total of 271 cases on small ruminants were brought to the hospital from January 2009 to June 2013. Out of these, 199 (73.43%) were sheep while 72 (26.57%) were goats. All data were subjected to simple descriptive frequency analysis to determine the prevalence of each disease. The results showed that viral, bacterial, metabolic, ectoparasitic, endoparasitic, traumatic, poisoning , nutritional, dystocial, diarrheic and protozoan diseases had prevalences of 9.96% (27), 19.56% (53), 4.79% (13), 11.81% (32), 36.53% (99), 11.07% (30), 1.48% (4), 0.37% (1), 2.58% (7), 1.11% (3) and 0.74% (2) respectively for the aggregate small ruminants. The overall results showed that the most prevalent during the period of study was endoparasitism followed by bacterial, ectoparasitic, traumatic, viral, metabolic, dystocial, poisoning, diarrheic, protozoan and the least being malnutritional diseases/disorders. The results further showed prevalence rates of 15.28% (11), 23.61% (17), 12.50% (9), 31.94% (23), 8.33% (6), 5.56% (4), 1.39% (1) and 1.39% (1) against viral, bacterial, ectoparasitic, endoparasitic, trauma, dystocial, diarrheic, and protozoan diseases/disorders for goats while 8.04% (16), 18.09% (36), 6.53% (13), 11.56% (23), 38.19% (76), 12.06% (24), 2.01% (4), 0.50% (1), 1.51% (3), 1.01% (2) and 0.50% (1) against viral, bacterial, metabolic, ectoparasitic, endoparasitic, trauma, poisoning, malnutrition, dystocial, diarrheic and protozoan diseases/disorders for sheep respectively. Generally, sheep were more affected than goats whereas metabolic, poisoning and malnutrition were not recorded against goats but sheep. Therefore it is recommended that there should be improved vaccination, deworming, hygiene, sanitation, housing, supplementation and regular medical checkup for small ruminant animals to help stamp out or reduce diseases/disorders.
Keywords: Prevalence, Small Ruminants, Veterinary Hospital, Diseases/Disorders

Introduction

Sheep and goats, although representing an important source of animal protein in third world countries including Nigeria, seem to have benefited little from veterinary care and production improvement (Ijaz *et al*., 2008). Animals of these species are often the main source of daily meat and are used in ceremonial festivities throughout the country. Ruminants; Cattle, Goats and sheep represent an important source of animal protein in many countries of the world, supplying a good percentage of the daily meat and dairy products in cities and villages in such countries including Nigeria (Nwosu *et al*., 2007). Apart from being the source of animal protein, their wastes are also very important in agriculture (Nawathe *et al*., 1985; Nwosu *et al*., 2007). These animals are used in special ceremonies such as wedding and burials in most parts of Nigeria (Elele *et al*., 2013). Presently, there is either little or no attention given to these animals in the rural areas which houses most of the sheep and goats in Nigeria (Omoike *et al*., 2014). According to Okoli (Okoli, 2003) a high incidence of infectious diseases constitutes a major impediment to livestock production in most developing countries. Nigeria loses about 15 to 20% of its annual income from the livestock sector to diseases (Akerejola, 1980). FAOSTAT (2008) stated that the world total numbers of goats and sheep were 861.9 and 1078.2million, respectively, while the largest number of goats is observed in Asia, followed by Africa, summing up to 93.5%, out of the world total. Indigenous small ruminants constitute greater percentage of ruminant population in Africa (Lebbie *et al*., 1994). These flocks of animals are commonly found in the rural areas where they are owned and managed under extensive system (Otchere, 1986). Small ruminants play an important role in the lives of most people especially rural farmers whose livelihood entirely depends on them. They provide source of animal protein through their meat and milk (Fajeminsin, 1991).

Disease is an abnormal condition that affects the normal body functions of an animal. It can be caused by various agents such as virus, bacteria, mycoplasma, parasite, rickettsia, trauma, protozoa, and some metabolic disorders caused by inadequate feeding and low standard of management. This leads to reduction in productivity, income and profit of the farmer and sometimes death. Small ruminant management is seriously hindered by diseases in the tropics. Diseases are very important to farmers and affect the production of small ruminants in several ways. It increases cost of production, lowers production level, reduces the quality and quantity of animal products and generally causes great loss to the farmer (Rabiu *et al*., 2013). Infection of goats with helminths

causes considerable economic losses to the livestock industry due to high morbidity and mortality (Nwosu *et al*., 2007; Khan *et al*., 2010; Desouky *et al*., 2011; Cardoso *et al*., 2012; Cardona and Carmena, 2013; Domke *et al*., 2013; Mogove *et al*., 2013). A few goat helminths are also infectious to humans, which can cause significant clinical human diseases, such as echinococcosis, coenurosis and fasioliasis, in countries of different continents and latitudes (Mansoorlakooraj *et al*., 2011; Ziaei *et al*., 2011; Kheirandish *et al*., 2012). Diseases have a major impact on morbidity and mortality rates, with annual losses as high as 30–50% of the total value of livestock products (Anon., 1992; Mukasa-Mugerwa *et al*., 2000; Tibbo *et al*., 2001; Kassa, 2003; Tibbo *et al*., 2003).

Despite the large livestock population of Nigeria, the economic benefits remain marginal due to prevailing diseases, poor nutrition, poor animal production systems, reproductive inefficiency, management constraints and general lack of veterinary care. Clinical records have often been used in monitoring trends in diseases of economic and public health importance in Africa and different agro‐climatic zones of Nigeria (Abdu *et al*., 1985; Mboera and Kitalyi, 1994; Halle *et al*., 1998; Nwanta *et al*., 2000). Therefore, this was designed to estimate the prevalence of different diseases that constitute major danger to small ruminant animals in Ibadan, Nigeria.

Methodology

The case records of small ruminants of Mokola Veterinary Hospital, Ibadan, Oyo State, Nigeria were used to source the diseases of sheep and goats brought to the clinic from January 2009 to June 2013.

Statistical Analysis

Simple descriptive statistics was used for the analysis of data.

Results and Discussion

Table 1 shows the prevalence of diseases/disorders in goats brought to Mokola Veterinary Hospital, Ibadan, Nigeria, from January 2009 to June 2013 for treatment. The result showed that out of 72 goats brought for treatment, endoparasitism had the highest prevalence of 31.94% (23 goats) followed by bacterial infection with 23.61% (17 animals), viral infection with 15.28% (11 animals), ectoparasitism with 12.50% (9 animals), trauma with 8.33% (6 animals), dystocia with 5.56% (4 goats), diarrhea with 1.39% (1 goat) and protozoan disease with 1.39% (1 goat).

Table 2 shows the prevalence of diseases/disorders in sheep brought to Mokola Veterinary Hospital, Ibadan, Nigeria, from January 2009 to June 2013 for treatment. The result showed that out of 199 sheep brought for treatment, endoparasitism had the highest prevalence of 38.19% (76 sheep), followed by bacterial infection with 18.09% (36 sheep), trauma with 12.06% (24 sheep), ectoparasitism with 11.56% (23 animals), viral diseases with 8.04% (16 sheep), metabolic diseases with 6.53% (13 sheep), poisoning with 2.01% (4 sheep), dystocia with 1.51% (3 sheep), diarrheoa with 1.01% (2 sheep), malnutrition with 0.50% (1 sheep) and protozoan infection with 0.05% (1 sheep).

Table 3 shows the combined prevalence of diseases/disorders of goats and sheep from January 2009 to June 2013. The results showed that out of a total of 271 small ruminants comprising 72 goats and 199 sheep, endoparasitism (36.53%) was the most prevalent followed by bacterial infections (19.56%), ectoparasitism (11.81%), trauma(11.07%), viral infections (9.96%), metabolic diseases (4.79%), dystocia (2.58%), poisoning (1.48 %), diarrhea (1.11%), protozoan (0.74%) and the least was nutritional disease (0.37%). The results also revealed that sheep were generally more affected than goats in all aspects of the diseases excepting dystocia where goats had upper hand while they were the same with respect to protozoan infection. It is also noteworthy that metabolic disorder, poisoning and malnutrition were not observed in goats at all. Disease is a state of ill health, which implies that some parts of the body are not functioning as they should (Henderson, 1990). The prevalence of diseases/disorders in small ruminants depends on the animal's environment (Dela-Fuente *et al*., 1997). The small number of small ruminants brought to the veterinary hospital indicated low patronage and possible unawareness of the importance of medicating small ruminants. It is also probable that veterinary ambulatory services overshadowed the need for regular visitations to the veterinary hospitals. Nonetheless poverty could also be a factor of interest in this trend. This supports the assertion of Omoike *et al*. (Omoike *et al*., 2014) who stated that scanty number of diagnosed small ruminants reflects the low level of patronage of veterinary clinics in the rural areas in Nigeria localities. In general, endoparasitism was highest during this protracted period suggesting the importance of elevating surveillance on endoparasitism of small ruminants. The economic impact of endoparasitism is enormous. Herlich (1978) estimated that the total animal loss due to endoparasitism world wide is equivalent to 30 million goats and sheep. This trend is corroborated by works of several authors who found endoparasitism to be a major scourge of small ruminants (Ragassa *et al*., 2006; Osakwe and Anyigor, 2007; Ahid *et al*., 2008; Nath *et al*., 2011; Tefera *et al*., 2011; Tesfaheywet, 2012; Elele *et al*., 2013; Vanessa *et al*., 2014). Helminthosis was also cited as the major animal health problem facing sheep and goat industry in Kenya (Waruira *et al*., 1998). The observation of more infestation of sheep than goats is in

tandem with the reports of others (Tekyle, 1991;Waruira *et al*., 2005; Asif *et al*., 2008). The possible reason for this trend could be the more selective grazing behavior of goats as well as the browsing habit too. This is in line with the fact that goats prefer to browse shrubs (Taylor, 1985) which might reduce the infection rate by reducing larval consumption during grazing. The findings of our work is in a harmony with different researchers (Ragassa *et al*., 2006; Keyyu *et al*., 2006; Raza *et al*., 2007) who have found a direct influence of grazing characteristics on the prevalence of most of gastrointestinal helminthes and this is assumed to be due to the grazing habit of the sheep where they graze closer to the ground fostering opportunity of exposure to parasites (Tesfaheywet, 2012). Bacterial infection was next to endoparasitism probably because these free range animals scavenge on kitchen waste, decomposed dead animals and graze on pastures and rangelands littered with various dead animate objects. The next in prevalence was ectoparasitism in which case the sheep had more prevalence compared to goats which could be that goats are more resistant to ectoparasites. This trend is in line with Adesh *et al*. (2007) who reported that goats are generally less susceptible to ectoparasites' infestation and accommodate less abundance of ectoparasites when compared to other small ruminants such as sheep. The relatively high prevalence of ectoparasitism could be ascribed to environmental conditions under which the animals are kept, as well as the age and sex of the animals (Soulsby, 1978). In Nigeria and most other developing countries, some additional factors that enhance spread of ectoparasites among economic animals include; increase in livestock trade, absence of veterinary regulations for ectoparasites control in the movement of livestock across borders, poor awareness of farmers, poor level of management, irregular ectoparasite control and possible development of resistance to chemical control substances (Cunha, 2000) as well as high temperature and sunlight that also favour ectoparasitic infestations (Van-den-Broek *et al*., 2003). Generally, the 11.81% prevalence for small ruminants in this study is lower than some other authors (Okoh and Gadzama, 1982; Adeoye, 1999; Ofukwu and Akwuobu, 2010). Also lower than the overall prevalence of 77.9% (Uttah *et al*., 2012) and 56.1% reported by Yakhchali and Hosseine (Yakhchali and Hosseine, 2006). It was however higher than 3.98% overall prevalence of mange mite infestation reported by Desie *et al*. (2010). The viral infections assumed the fourth spot with sheep having higher prevalence possibly due to low resistance that could be physiologic. Metabolic disease, trauma, poisoning, dystocia and nutritional diseases are non infectious diseases of sheep and goats which result in the animal's death and cause great economic losses. Goats are considered to be resistant to trypanosome infection, showing only a mild or subclinical manifestation of disease under natural conditions (Stephen, 1970; Oladele and Adenegan, 1998).

Conclusion

The prevalence of diseases/disorders appeared to be more among sheep than in goats. This therefore calls for more attention toward the health management of sheep. This could be attributed to the indiscriminate feeding habit of sheep viz-a-viz goats as well as stupidity inclination of sheep particularly where extensive system of rearing animal is still predorminant like the study area.

Table 1: Summary of the prevalence of diseases\disorders in goats brought to Mokola Veterinary Hospital, Ibadan, Nigeria, from January 2009 –June 2013.

Diseases	Number of Goats	Prevalence [%]
Viral	11	15.28
Bacterial	17	23.61
Ectoparasitism	9	12.50
Endoparasitism	23	31.94
Trauma	6	8.33
Dystocia	4	5.56
Diarrhea	1	1.39
Protozoan	1	1.39
Total	72	100

Table 2: Summary of the prevalence of diseases\disorders in sheep brought to Mokola Veterinary Hospital, Ibadan, Nigeria, from January 2009 –June 2013.

Diseases	Number of sheep	Prevalence [%]
Viral	16	8.04
Bacterial	36	18.09
Metabolic	13	6.53
Ectoparasitism	23	11.56
Endoparasitism	76	38.19
Trauma	24	12.06
Poisoning	4	2.01
Malnutrition	1	0.50
Dystocia	3	1.51
Diarrhea	2	1.01
Protozoan	1	0.50
Total	199	100

Table 3: Summary of the prevalence of diseases\disorders in sheep and goats brought to Mokola Veterinary Hospital, Ibadan, Nigeria, from January 2009 –June 2013.

Diseases	Goats [%]	Sheep [%]	Total [%]
Viral	11(4.06)	16(5.90)	27(9.96)
Bacterial	17(6.27)	36(13.28)	53(19.56)
Metabolic	0	13(4.79)	13(4.79)
Ectoparasitism	9(3.32)	23(8.49)	32(11.81)
Endoparasitism	23(8.49)	76(28.04)	99(36.53)
Trauma	6(2.21)	24(8.86)	30(11.07)
Poisoning	0	4(1.48)	4(1.48)
Malnutrition	0	1(0.37)	1(0.37)
Dystocia	4(1.48)	3(1.11)	7(2.58)
Diarrhea	1(0.37)	2(0.74)	3(1.11)
Protozoan	1(0.37)	1(0.37)	2(0.74)
Total	72(26.57)	199(73.43)	271(100.00)

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