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SITUATION OF RABIES IN A SOUTHWESTERN STATE OF NIGERIA: A RETROSPECTIVE STUDY (1997-2007)

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ABSTRACT

Retrospective data from 1997 – 2007 on reported cases of rabies in human and animals as well as antirabies vaccination were collected from medical records and epidemiological sections of the various veterinary and human hospitals in the four socio-cultural zones of Ogun State. Suspected cases of rabies were reported in animals with 8 (88.90%) in dogs and 1(11.10%) in goat. The study revealed that most cases occurred in the rainy season with August having the highest number of cases (38.3%). Similarly, 12 cases were reported in humans with 8(66.7%) males and 4(33.3%) in females. Children between the ages 0-12 years accounted for 75% of all reported human rabies cases while 25% occurred in Adults. Dogs were the only species implicated in these cases resulting into 100% mortality. Routine antirabies vaccinations were conducted for 4,781 dogs and highest exposure was recorded for Egba Zone (62.85%) and lowest for the Veterinary Teaching Hospital, Abeokuta (1.05%). In conclusion, accurate record keeping on rabies cases in Animals and Humans as well as vaccination exposure are hereby recommend in order to give the true picture of rabies in Nigeria. Also mass vaccinations, control of stray dogs, public education on rabies and government subsidies on cost of vaccination are also recommended.

Keywords: Rabies, Animals, Humans, Retrospective study.

INTRODUCTION

Rabies, as in many parts of the world, endangers both human and animal health (Radostitis *et al.*, 1995). Rabies is fatal encephalitis caused by Lyssa virus genotype 1 of the family Rhabdoviridae a Neutrotropic RNA virus commonly transmitted by bite of infected animals (Arai *et al.*, 2003).

Reservoirs of rabies vary throughout the

world. Canine rabies predominates in Africa, Asia, Latin, America while in North America and Europe it is by wild life. However, rabies has been eradicated in Australia and New Zealand.

In Nigeria rabies has been traditionally associated with dog rather than any other animal. The world health organization has estimated 60,000 human deaths each year due to dog bite (Sonika *et al.*, 2007). In the World

Health Organization (WHO, 1984) reports the world survey of rabies 35,000 – 50,000 deaths were estimated (Department of Health, 2000). Rabies is endemic in Nigeria with the first available record of human rabies contained in the annual report for South Nigeria in 1912 (Bougler and Hardly, 1960). Since then there have been several reported cases of both dog and human rabies by several other authors (Boulger and Hardly, 1960; Nuru 1973; Ogunkoya, 1984; Okoh, 1989). However, deaths due to rabies in Nigeria are grossly under reported, due to lack of necessary diagnostic facilities, misdiagnoses and also the population most affected tends to occur in the rural settlement.

Despite numerous control efforts such as periodic free vaccination campaign by the various arms of government in Nigeria, the disease continues to plague its community. In addition, vaccination coverage in Nigeria has been observed to be inadequate, hence increasing the exposure of humans to this deadly disease (Adeyemi *et al.*, 2005). Vaccination, control and complete eradication of rabies have been observed to be less effective in community without government inducements such as free or subsidized vaccination costs, enforced regulations for dog registration, vaccination, licensing, stray dog elimination, imported/interstate dog movement control and quarantine (Adeyemi *et al.*, 2000).

This study is aimed at determining the prevalence and seasonal occurrence of dog and human rabies in a southwestern state of Nigeria between 1997-2007.

MATERIALS AND METHODS

Study location

The study was conducted in Ogun State located in the southwestern part of Nigeria.

It is located on lat 3° 35'E and longitude 7° 00'N with an area of 16,762km² and a population of 4,054,272. There are 4 socio-cultural zones (Egba, Ijebu, Remo and Yewa) from which the animal study was conducted. Five hospitals were randomly selected for human studies.

Data Collection

Retrospective data of reported cases of both animal and human rabies as well as dog bites from January 1997 to December 2007 were collected from medical records of the various human and veterinary hospitals in the 4 social-cultural zones.

Information collected for human cases include town, year, age, occupation, sex, history of exposure, animal specie involved and post exposure treatment. Rabies diagnosis in humans was based on clinical signs and history of animal bite.

Data collected in the case of animal rabies include number of cases per year, species of animal, laboratory results (confirmed/suspected) as well as antirabies vaccinations.

RESULTS

Human rabies in Ogun State

Fig 1 shows the number of suspected human rabies cases in Ogun state. A total of 12 cases were reported in the ten year retrospective study. The highest numbers of cases were reported in 2004 and lowest number of cases at least in 1997, 2000, 2001, 2002 and 2007, respectively. The study also revealed that 75% of cases were reported in children under the age of 12 years old. Suspected rabies in males was high which was 66.7% of the total cases and 33.3% in the females.

A 100% mortality was recorded and all had the history of dog bite.

Animal rabies in Ogun State

Figure 2 shows the prevalence of animal rabies in Ogun State in the past ten years. A total of 9 cases of animal rabies were reported with 8 (88.9%) as suspected and only one (11.1%) case in a goat was confirmed positive in Nigeria Veterinary Research Institute, VOM laboratory. The seasonal occurrence shows that the highest number of cases (88.9%) were reported during the rainy season with the month of August having the highest number of animal rabies cases and lowest 11.1% during the dry seasons. There is a significant difference ($p < 0.05$) in the reported cases of rabies during the rainy and the dry seasons.

Antirabies vaccination in human and animals

Table 1 shows a gradual increase in the number of antirabies vaccinations in dogs with a significant increase in the year 2007. The Egba Zone had a record of 3,005 antirabies vaccinations in dogs and the lowest which is 88 dogs in Yewa Zone.

Table 2 shows the trend of human antirabies vaccination. In the case of human exposure, there was a total of 89 post exposure to antirabies vaccinations especially those with history of dog bites. No pre exposure vaccinations against rabies were recorded.

DISCUSSION

The number of reported suspect cases of animal rabies with one confirmed case in goat and humans are considered to be very low. This reflects a gross under-reporting or lack of proper record keeping. It is also noted that many cases occur in rural areas which are not reported to appropriate veterinary clinics or hospitals. This agrees with Nuru (1973) who reported that many rabies

cases are probably unreported especially in rural areas where veterinary and human hospitals are inadequate. In addition suspected human cases of rabies was high in children under 12. This may be attributed to the fact that children are more vulnerable to dog bites. Majority of these bites go unreported and unrecognized by parents and health officials. Consequently, exposed children do not receive timely and complete post exposure treatment hence die of undiagnosed rabies.

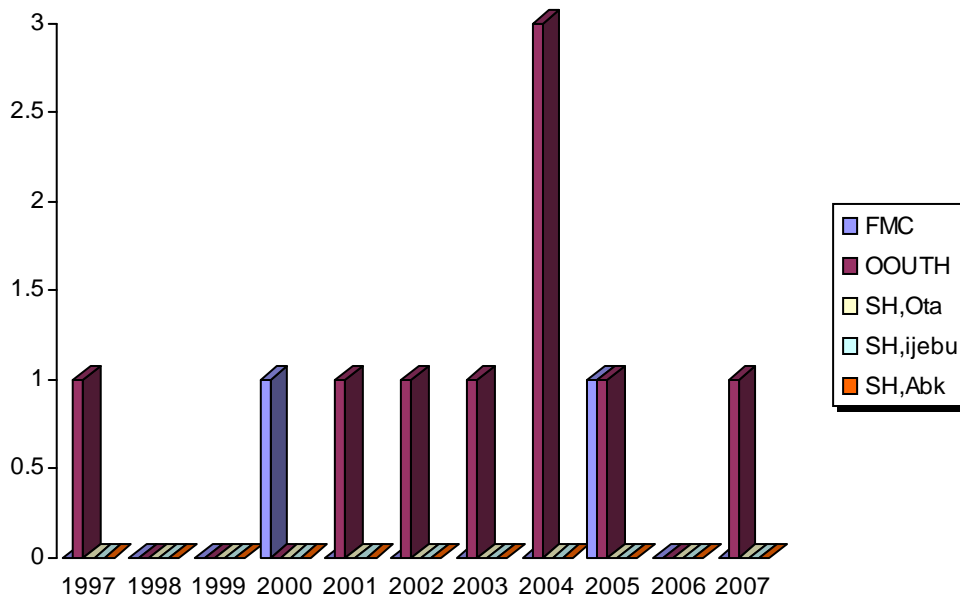
Moreover, most cases of rabies (88.98%) reported in this study occurred during the rainy season which coincides with the breeding period when many dogs roam the streets for mating. This supports a similar work by Bello *et al.* (2007) who reported 59 and 72.7% prevalence of animal rabies during the rainy seasons in Oyo State and Bauchi State respectively. On the contrary a study conducted in Ethiopia reported that there was not significant peak in the seasonal prevalence of animal rabies in Ethiopia and that dogs appear to bite people at a constant rate throughout the year with constant risk of contracting rabies by humans from rabid dogs.

The number of 4,781 anti rabies vaccinations reported during the study period compared to the number of dogs in Abeokuta is very low. In addition it is very low when compared with WHO recommendation that a society can be free of rabies if at least 76% of dog population is vaccinated (WHO, 1984). This low level reflects the state of awareness of the populace about the seriousness of this disease. Rabies a disease of all warm blooded animals (Greene and Dresses, 1970) and has been reported in other species apart from dogs (Bello *et al.*, 2007). It is therefore important that the public be educated to vaccinate other warm blooded ani-

mals particularly the ones they keep as pets.

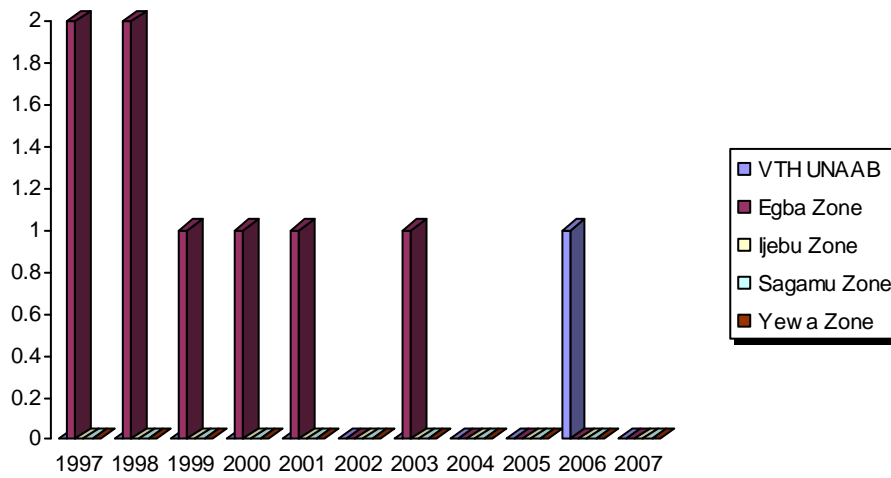
Human pre-exposure to anti-rabies were by no means recorded. This indicated that people who are at occupational risk of exposure such as veterinarians, animal technologists, animal handlers and zoo officers

are not vaccinated in order to prevent them against this deadly zoonotic disease. It is however recommended that this set of people should be protected by giving pre exposure prophylaxis of antirabies vaccine.



- FMC Abeokuta – Federal Medical Centre Abeokuta
- OOOUTH Sagamu – Olabisi Onabanjo Teaching Hospital Sagamu
- SH, Ota, - State Hospital Ota
- SH Ijebu-Ode- State hospital Ijebu-Ode
- SH Abeokuta – State hospital Abeokuta.

Fig. 1: Prevalence of Human rabies in Ogun State, Nigeria



- VTH- Veterinary Teaching Hospital, University of Agriculture, Abeokuta.

Fig. 2: The prevalence of Animal rabies in Ogun State, Nigeria

Table 1: Antirabies vaccination in animals(Dogs)

Year	Egba Zone	VTH UNAAB	Yewa Zone	Ijebu Zone	Remo Zone	Total
1997	-	-	-	-	-	-
1998	-	-	-	-	-	-
1999	-	-	-	-	-	-
2000	205	-	-	14	55	274
2001	196	-	3	6	65	270
2002	301	-	7	2	56	371
2003	346	-	6	10	67	429
2004	403	-	5	21	108	537
2005	426	-	5	6	153	590
2006	377	-	7	4	135	523
2007	751	50	355	359	272	1787
Total	3005	50	388	427	911	4781

Table 2: Anti-rabies vaccination in human subject in Ogun State

Year	Pre-exposure	Post exposure	Total
1997	-	-	-
1998	-	3	3
1999	-	8	8
2000	-	3	3
2001	-	5	5
2002	-	6	6
2003	-	7	7
2004	-	10	10
2005	-	6	6
2006	-	17	17
2007	-	24	24
Total	-	89	89

CONCLUSION

In conclusion, all the above findings illustrate that rabies is well established In Nigeria and control measures are still very inadequate. This can be attributed to a number of factors such as poor vaccination coverage, lack of regulation for impounding and elimination of stray dogs, poor record keeping and public awareness.

Dog is highly implicated in maintaining the continuous persistence as well as dissemination of rabies in the country. Therefore, awareness should be encouraged especially at grassroot level through campaign programmes; incorporation of information in extension teaching and learning activities; extension programme planning, monitoring and evaluation. At every stage of planning, participatory approach should be adopted in

order to ensure the full cooperation of the public and sustainability of the initiative among the public. In addition, government and private bodies should sponsor mass vaccination campaign programmes against rabies for total eradication of the deadly disease in the country.

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