

The Prevalence of Human African Trypanosomosis In Maiduguri, Nigeria.

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Abstract: A case study of the University of Maiduguri Teaching Hospital, Maiduguri was carried out using case files and records from year 1990 to 2000. 28 suspected cases were retrieved. However, only 6 of these were clinically confirmed as Human African Trypanosomiasis. The infection prevalence was at 95% confidence limit. Between years 1990, 1991, 1993, 1996 to 2000, the confidence interval was 13.4 – 47.0%. It was 0% in 1992 and 0.1 -0.9% between 1994 and 1995. The relatively high prevalence of the zoonotic disease recorded between 1990-1995, and its slight increase in health problems over the years can be indicted on the lack of effective disease reporting in the locale of interest, as well as poor disease management and animal husbandry practices among cattle rearers. Some rigorous campaign and awareness on the implication of this endemic disease on cattle production and public health hazards are needed.

Keywords: Prevalence, Human African Trypanosomiasis, zoonotic, UMTH, Maiduguri

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I. Introduction

Trypanosomiasis in humans has been poorly reported over the years, despite affecting an alarming number of persons. There are over 60 million people in endemic areas all over the world (Onyebiguwa *et al.*, 2010). Disease surveillance and reporting of cases of Human African trypanosomiasis is still in the rudimentary stage in the sub-sahara regions of the world especially Nigeria (Kalu *et al.*, 1991). Several trypanosome species cause important animal diseases; however, significant human diseases are caused by 2 species of trypanosome.

In Nigeria, as in some other western African regions, *Trypanosoma brucei gambiense* is the etiology of sleeping sickness or Human African trypanosomiasis (Akish *et al.*,2016). The second stage (meningoencephalitic stage) of the infection is usually severe, affecting the cerebrospinal fluids of humans unlike the first stage (hemolymphatic stage) which is usually less severe (Onyebiguwa *et al.*,2010). Some of the clinical presentations include; dullness, intermittent somnolence and apparent confusion. Also, intention tremor in all limbs and myoclonic jerks are often seen (Akish *et al.*,2017). Trypanosomes possess Variant Surface Glycoprotein (VSG) which constitutes a characteristic molecular interface between the protozoan and the human host immune system, thereby evading lysis by complement alternative pathway (Musa *et al.*, 2015). There is usually a high level of serum IgM due to sensitization of polyclonal B-cells in the blood. Human African Trypanosomosis has been attributed as the deadliest diseases in the world by the World Health Organization (WHO 2010). The treatment of this menace has since been a burden because of the adverse drug reactions that most drugs present when administered to patients (Ugoji *et al.*, 2014). Sporadic transmission of trypanosomes can occur when there is a contact between Glossina species and humans from tse-tse flies that normally enjoy a blood meal on cattle, especially in Northern part of Nigeria. Human African Trypanosomosis (HAT) and Animal African Trypanosomosis (AAT) or Nagana occur in 37 sub-Saharan countries covering more than 9 million km², an area which corresponds approximately to one-third of the Africa's total land area (Edeghere *et al.*, 1992).

II. Study Location

The study was carried out in Maiduguri, Borno state, Nigeria. It is located at the northern part of the country and lies within latitudes 10N and 14N and longitude 11 30 E and 14 45 E. Borno state which has an area of 61,435sq.km is the largest state in the country in terms of land mass. Located in the North Eastern corner of Nigeria, the state occupies the greatest part of the Chad Basin and shares borders with the Republics of Niger to the North, Chad to the North – East and Cameroon to the East. Based on the 2006 provisional census figures,

Borno State has a population of 4,151,193 and a population density of approximately 60 inhabitants per square kilometer. With a climate that is hot and dry for the greater part of the year although the southern part is milder. The State has two major vegetation zones viz; Sahel in the North with severe desert encroachment covering most of the Chad basin areas and Sudan savannah in the south which consists of scrubby vegetation interspersed with tall woodlands.

III. Methodology

This study made use of case files and records. Records were obtained from cases of Human African Trypanosomiasis diagnosed at the University of Maiduguri Teaching Hospital (UMTH) over a period of (10) years between January 1990 and till 2000 December. There are about 4,151,193 people in Borno state with the market site for cattle close to residential areas.

The diagnosis made were based on history, physical examination, laboratory findings and some post-mortem findings.

IV. Statistical Analysis

95% of confidence interval was used for the data collected at the UMTH.

% Prevalence rate of positive cases was calculated as:

$$\frac{\text{No of cases confirmed and diagnosed}}{\text{Total no. of people suspected and diagnosed}} \times 100$$

Total no. of people suspected and diagnosed

V. Result

The results obtained were few and confirmed at the UMTH. The total number of the cases between years 1990 to 2000 was just (6) six cases. The data are represented in a table below to show the prevalence of the disease and its confidence interval percentage per year based on the cases suspected with those confirmed through various laboratory analyses indicating the protozoan in the blood.

Table 1. Cases of Trypanosomosis in human beings diagnosed in University teaching hospital of Maiduguri for ten years from (1990-2000).

YEARS	NO. OF SUSPECTED CASES	NO. OF POSITIVE	% POSITIVE	CONFIDENCE INTERVAL (%)
1990	6	1	16.6%	13.4 - 47.0%
1991	0	0	0	0
1992	8	2	25	0.05 - 0.55%
1993	4	0	0	0
1994	2	1	50	0.1 – 0.9 %
1995	4	2	50	0.1 – 0.9 %
1996	0	0	0	0
1997	0	0	0	0
1998	2	0	0	0
1999	1	0	0	0
2000	1	0	0	0
TOTAL	28	6	21.4	0.12 – 0.54 %

The cases in the UMTH were all in females living in Maiduguri, Borno state with age range of 45-60 years. They were mostly nursing mothers who had close contact with cattle as a result of the proximity of the cattle markets to the residential areas.

VI. Discussion

The study identified the prevalence of the Trypanosomiasis disease within a decade and how it has impaired the health of humans in Maiduguri, Borno state. The prevalence of Trypanosomosis was shown in different level of occurrence over the ten years of review with the lowest value in 1991, 1996 and 1997 with 0% prevalence at 95% confidence interval of data collected; 1994 and 1996 with 0.1 – 0.9% respectively, 1992 with 0.05 – 0.55% and the highest in 1990 with 13.4 – 47.0 % prevalence at 95% confidence interval. The disease has gradually faded in point with the result in that the disease was more prevalent in the 1990 to 1995 and subsided with the years that went on. It started with an increase in the 1990 to 1995 as shown and went down from the 1995 to 2000 showing that diseases are gradually eradicated or gone. However a recent disease report on Human African Trypanosomiasis was reported in 2012 and 2017 indicating re-emergence of this deadly scourge (Akish *et. al.*, 2017).

VII. Conclusion

From the data and result of this research work, it is concluded that Trypanosomosis is not endemic in the area of study. Also, based on the result, the disease is more in female than in males in the Maiduguri, Borno State, Nigeria. The relative increase prevalence seen between years 1990-1995 may be due to the fact that the most cattle were brought by transhumance within this period. Lack of awareness is an important detrimental cause of the continuous spread of the disease and many other zoonotic epizootics in the contemporary society. This has grave consequences on public health. The subsequent fall in the occurrence from 1996-2000 maybe due to poor disease reporting by the patients due to lack of knowledge as to what the symptoms of the disease are, as well as the recent tse-tse fly control programs that has been established by the government (Leak *et. al.*, 1998).

Conflict Of Interest

We affirm that there is no conflict of interest in our resolutions

Recommendations

Due to the results obtained in this study, the following are recommended in the locale of interest

- ❖ Continuous education of the public through seminars and public awareness programmes.
- ❖ Improvement of abattoir structures to help diagnose the disease early in animals during slaughter.
- ❖ The development of rapid respond units in case of an outbreak.
- ❖ Proper record keeping with more computerized systems.
- ❖ More effective monitoring of the disease on animals brought by transhumance.
- ❖ Development of more effective tsetse fly control programmes.
- ❖ Continuous research on drugs and effective means of eradication.

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