Journal of Occupational Safety and Environmental Health
A Publication of the Society for Occupational Safety and Environmental Health
ISSN 2426-8685

AWARENESS AND KNOWLEDGE OF HUMAN IMMUNODEFICIENCY VIRUS PATIENTS TO HUMAN AFRICAN TRYPANOSOMOSIS IN ANKPA GENERAL HOSPITAL, KOGI STATE, NIGERIA

Wada, Y[1]*. Ajogi, I[2]. Dzikwi, A.A[2]. Lawal, I.A[3]. Abdulazeez, M.T[4].
*Corresponding Author. Wada, Y. Department of Zoology, Faculty of Life Sciences, Ahmadu Bello University, Zaria, Kaduna State, Nigeria
Tel; +2348034280146 E-Mail wadayusuf34@gmail.Com
[2]Department Of Veterinary Public Health and Preventive Medicine, Faculty Of Veterinary Medicine, Ahmadu Bello University, Zaria, P.M.B. 1069 Zaria, Kaduna State, Nigeria.
[3]Department Of Veterinary Parasitology and Entomology, Faculty Of Veterinary Medicine, Ahmadu Bello University, Zaria, P.M.B. 1069 Zaria, Kaduna State, Nigeria.
[4]Biology Department, School of Sciences, Federal College of Education Zaria.

Abstract

Human African Trypanosomosis (HAT) is a serious disease of man and animal. The present study was aimed at investigating the awareness and knowledge of Human Immunodeficiency Virus (HIV) patients to HAT in Ankpa General Hospital, Kogi State. *Trypanosoma brucei gambiense* infection decreases the specificities of antibody detection test for HIV diagnosis. HAT symptoms are nonspecific, variable and inconsistent, and alone are insufficient for diagnosis. Ethical clearance was obtained from Kogi State Ministry of Health. Four hundred and sixty five close ended structured questionnaires were administered and information on the knowledge and awareness of the HIV patients to HAT were obtained after their informed consent. The questionnaires were pre tested and validated before administering. Out of the 465 respondents, 79.35% (369/465) heard about HAT and 20.64% (96/465) never did. The knowledge of the respondents was poor. The medium of awareness were mainly through stories told 67.71% (250/369) and through schools 32.35% (119/369). None of the respondents were however aware through medical personnel, radio or television. There was however no statistical association between sex of the respondents and awareness to Human African Trypanosomosis ($p = 0.1623$). Furthermore, there was a significant association between the level of education ($P = 0.0001$), occupation ($P = 0.0001$) and age ($P = 0.0001$) of the respondents and awareness to HAT. The survey revealed that though majority of the respondents were aware of HAT, the respondents' knowledge on the cause, transmission, prevention and control of HAT was insufficient.

Key words: Human Immunodeficiency Virus, Human African Trypanosomosis, Knowledge, Ankpa General Hospital.

Introduction

Human African trypanosomosis (HAT), also known as sleeping sickness, is a vector-borne parasitic disease. The parasites are transmitted to humans by the tsetse fly (Diptera: Glossinidae), which is found in Sub-Saharan Africa. Sleeping sickness is considered as a re-emerging and neglected disease (Cattand *et al*., 2001).

Lejon *et al*., (2010), in their study showed that *T. b gambiense* infection decreases the specificities of antibody detection test for HIV diagnosis. Unless tests have been validated for interference with HAT, HIV diagnosis using classical algorithms in untreated HAT patients should be avoided (Lejon *et al*., 2010). Specific validation on three HIV test can increase specificity (Lejon *et al*., 2010).

Harms and Feldmeier (2005) showed that HIV and tropical disease including HAT affect each other mutually. They further stated that HIV infection may alter the natural history of tropical

infectious disease, impede rapid diagnosis or reduce the efficacy of anti-parasitic treatment. Also, tropical disease may facilitate the transmission of HIV and accelerate progression from asymptomatic HIV infection to AIDS.

Kagira *et al*., (2011) in their study showed that HAT co- infections with other disease including HIV exist and that multiple co infections may influence the disease pathogenesis and complicate management of HAT.

HAT symptoms are nonspecific, variable and inconsistent, and alone are insufficient for diagnosis. Moreover, HAT symptoms can be confused with those of malaria, enteric fever, tubercular meningitis and HIV (Chappuis *et al.,* 2005).

Compared with immunocompetent people with HAT, HIV-infected people appear to have higher risk for treatment failure and worse outcome of both HAT and HIV infection (Blum *et al*., 2001; Pepin *et al*., 1992).

Wada *et al,* (2014) established a seroprevalence (3.01%) of HAT among HIV patients in Ankpa General Hospital, Kogi State. There is therefore, the need to investigate the awareness and knowledge of HIV patients to HAT in Ankpa General Hospital.

Information on the knowledge and awareness of HIV patients to HAT in Ankpa General Hospital and Kogi State is lacking.

This study seeks to investigate the awareness and knowledge of HIV patients to HAT in Ankpa General Hospital, Kogi State.

Materials and Methods

Study Area

This study was carried out in Ankpa General Hospital in Ankpa L.G.A. of Kogi State. The Ankpa General Hospital is the reference hospital for HIV diagnosis, counseling and treatment in the local government. Ankpa Local Government's headquarter is Ankpa on the A233 highway in the west of the area between latitude 7°22'14? and 7.37056°N and longitude 7°37'31? and ? 7.62528°E.

Sample Size

A pilot study was carried out to calculate the expected prevalence rates from the original study. One hundred samples were collected and 9.0% prevalence was obtained. Sample size was then determined based on the expected prevalence, using the formula in Eqs. (1) and (2) (Thrusfield, 1997).

$$n = \frac{Z^2 pq}{d^2} \quad (1)$$

$$n = \frac{1.96^2 Pexp(1-pexp)}{d^2} \quad (2)$$

Where

q = 1-p

z = appropriate value for the standard normal deviate for desired confidence = 1.96

n= Sample size

P exp = Expected prevalence (9.0% pilot study)

d = Desired absolute precision of 5% (0.05)

$$\text{n for humans} = \frac{1.96^2 \times 0.09\ (1-0.09)}{(0.05)^2}$$

= 125.85 Minimum sample size

A total of 465 questionnaires were therefore administered.

Definition of Terms

We defined awareness as the medium through which the respondents heard about HAT, whether they've heard about HAT or not, if they have heard of tsetse fly or not, if they have ever been bitten by tsetse fly and if they have ever been screened for HAT.

We defined knowledge of the respondents as knowing the cause, transmission, prevention and control and treatment of HAT.

We defined HIV patients as in and out patients that attended the HIV clinic in Ankpa General Hospital in Kogi State within the study period.

Sampling Procedure

The Ankpa General Hospital is the reference hospital for HIV diagnosis, counselling and treatment in the local government. Ethical clearance was obtained from the State Ministry of Health. Four hundred and sixty five close ended structured questionnaires were administered to HIV patients attending clinic using convenient sampling. Questionnaires were administered between August and December, 2011 on Tuesdays and Thursdays as these days represent clinic days of the HIV patients. Information on the knowledge and awareness of the HIV patients to HAT were obtained after their informed consent. The questionnaires were pre tested and validated by some selected HIV patients in Ankpa General Hospital before administering.

Statistical Analysis

Chi square test was used to determine association with the aid of the statistical package for social sciences 17.0 (SPSS Inc. Chicago, Illinois, United State of America) and values of $P<0.05$ was considered significant.

RESULTS

Table 1: Demographic feature of HIV Patients in Ankpa General Hospital, Kogi State

Demographic Features	Total number and (%) sampled	Number and (%) aware	*P value*
SEX			0.1623
Male	132 (28.39)	99 (21.29)	
Female	333 (71.61)	270 (58.06)	
AGE			0.0001
<18	37 (7.96)	10 (2.15)	
18-45	330 (70.97)	290 (62.37)	
>45	98 (21.08)	69 (14.84)	
OCCUPATION			0.0001
Farming	200 (42.01)	180 (38.71)	
Tailoring	48 (10.32)	30 (6.45)	
Civil service	56 (12.04)	40 (8.60)	
Commercial driving	13(2.80)	10 (2.15)	
Teaching	12 (2.58)	10 (2.15)	
Business	36 (7.74)	20 (4.30)	
Artisan	100 (21.51)	79 (16.99)	
EDUCATION			0.0001
Primary	200 (43.01)	150 (32.26)	
Secondary	128 (27.53)	100 (21.51)	
Tertiary	109 (23.44)	105 (22.58)	
None	28 (6.02)	14 (3.01)	

Table 2: Awareness of HIV Patients to Human African Trypanosomosis in Ankpa General Hospital

QUESTION	RESPONSE	NUMBER (%)
Have you ever heard of Human African Trypanosomosis?	Yes	369 (79.35)
	No	96 (20.64)
What is the medium through which you heard about Human African Trypanosomosis?	School	119 (32.25)
	Television	0 (0)
	Radio	0 (0)
	Print media	0 (0)
	Medical personnel	0 (0)
	Myth/Stories	250 (67.75)
Where do you live?	Town	176 (37.85)
	Village	289 (62.15)
What is your source of water	Well/ Borehole	100 (21.51)
	River/ Stream	289 (62.15)
	Water tank	76 (16.34)
Have you ever heard of tsetse fly?	Yes	75 (16.13)
	No	390 (83.87)
Have you ever been bitten by tsetse fly?	Yes	0 (0)
	No	465 (100)
Have you ever been screened for Human African Trypanosomosis?	Yes	0 (0)
	No	465 (100)

Table 3: Knowledge of HIV Patients to Human African Trypanosomosis in Ankpa General Hospital

QUESTIONS	RESPONSE	NUMBER (%)
What do you think is the cause of human African trypanosomosis?	Black fly bites	0 (0)
	Mosquitoes bites	0 (0)
	Tsetse fly bites	50 (13.55)
	Farm work	150 (40.65)
	Heredity	35 (9.49)
	Poor nourishment	60 (16.26)
	Witchcraft	0 (0)
	Others	0 (0)
	Cannot say	74 (20.05)
Do you think it can be transmitted from person to person?	Yes	200 (54.20)
	No	100 (27.10)
	No idea	69 (18.70)
Do you think it can be prevented?	Yes	300 (81.30)
	No	19 (3.52)
	No idea	50 (13.55)
How do you think it can be prevented?	Isolating the sick	0 (0)
	Use of drugs	171 (57.00)
	Killing the tsetse fly	119 (39.67)
	Avoid going to the river/stream	0 (0)
	Wearing protective clothes	0 (0)
	No idea	10 (3.33)
Do you think it can be cured?	Yes	305 (82.66)
	No	60 (16.26)
	No idea	4 (1.08)

Discussion

When asked about sleeping sickness (Oga olu as HAT is locally named in Igala), the respondents were quick to acknowledge that they have heard about it. Interviewing one of the respondents, a 50 year old female trader, she said "when an adult or child sleeps all the time, we ask the individual if he or she has sleeping sickness (Oga olu). Most times, this is said in other to make fun of the individual. "Our ancestors told us such disease exist".

Majority of the respondents from this survey were females. There was however no statistical association between sex of the respondents and awareness to Human African Trypanosomiasis

($^{\square}P>0.05$). Furthermore, there was a significant association between the level of education, occupation and age of the respondents and awareness to the infection ($^{\square}P<0.05$). This indicates that more educational exposure may increase awareness to HAT. More so, awareness to HAT from the survey seems to increase with an increase in age. The occupation of the respondents from the survey showed that farmers were most aware since their activities regularly takes them to tsetse fly habitat were they are likely to get bitten by an infected tsetse fly. The survey also revealed that the respondents' major source of water was from stream. This indicates that the respondents usually have frequent and more contact with the tsetse fly vector as the frequency of human/fly contact decides the disease incidence rate (Gouteux, 1985). The survey also revealed that though majority of the respondents were aware of HAT, the respondents knowledge on the cause, transmission, prevention and control of HAT was however poor. The respondents' level of education, occupation and age could play a major role in improving the level of knowledge of the respondents as this survey showed a significant association between education, occupation, age and awareness to HAT. The level of knowledge and awareness reported in this work is lower than that reported by Karshima (2010). This might probably be due to the fact that the disease has been reported in the state and as such people became aware. It might also be due to the fact that questionnaires were only administered to HIV patients unlike in Karshima (2010) in Taraba states where they were administered to the general populace.

The medium of awareness were mainly through stories told and through schools. None of the respondents were however aware through medical personnel, radio or television. This might be because HAT in Ankpa Local Government is not a prioritise disease and as such, there is no awareness campaign of the disease. Based on the medium of awareness, the respondents in this survey had no knowledge of the risk factors involved in the transmission of HAT and also were never screened for HAT.

Conclusion

The survey revealed that though majority of the respondents were aware of HAT, the respondents' knowledge on the cause, transmission, prevention and control of HAT was poor.

Recommendation

It is recommended that public campaign on HAT should be carried out to increase both the awareness and knowledge of other HIV patients and the entire populace to HAT in order to alert them on its impact.

References

Blum, J., Nkunku, S. and Burri, C. (2001). Clinical description of encephalopathic syndromes and risk factors for their occurrence and outcome during melarsoprol treatment of human African trypanosomiasis. *Tropical Medicine and International Health,* 6: 390-400

Cattand, P., Jannin, J. and Lucas, P. (2001). Sleeping sickness surveillance: an essential step towards elimination. *Tropical Medicine and International Health*. 6: 348-361.

Chappuis, F., Udayraj, N., Stietenroth, K., Meussen, A. and Bovier, P.A. (2005). Eflornithine is safer than melarsoprol for the treatment of second-stage *Trypanosoma brucei gambiense* human African trypanosomiasis. *Clinical Infectious Disease,* 41: 74851

Gouteux, J.P. (1985). Ecologie des Glossines en secteur pré-forestiére de Côte _Ivoire Relation avec la trypanosomiases humaine et possibilités de lutte. *Annales de Parasitoloie Humaine et Comparée*, 60: 329-347.

Harms, G. and Feldmeier, H. (2005). The impact of HIV infection on tropical diseases. *Infectious Disease Clinic North America*, 19(1): 21-35

Kagira, J.M., Maina, N., Njenga, J., Karanga, S.M., Karori, S.M. and Ngotho, J.M. (2011). Prevalence and types of coinfection in sleeping sickness patients in Kenya (2000/2009). *Journal of Tropical Medicine*, 2011: 2011

Karshima, N.S., Ajogi, I., Muhammad, G. and Lawan, G. (2010). Level of awareness of Human African Trypanosomosis (HAT) in Taraba State, Nigeria. *Sokoto Journal of Veterinary Sciences*, 8(1,2): 36-38

Lejon, V., Ngoyi, D.M., Boelaert, M. and Bu¨scher, P. (2010). A CATT negative result after treatment for human African trypanosomiasis is no indication for cure. *PLoS Neglected Tropical Disease,* 4: e590

Pepin, J., Milord, F., Meurice, F., Ethier, L., Loko, L. and Mpia, B. (1992). High-dose nifurtimox for arseno-resistant *Trypanosoma brucei gambiense* sleeping sickness: an open trial in central Zaire. *Transaction of the Royal Society of Tropical Medicine and Hygiene,* 86: 25456

Wada, Y., Ajogi, I., Dzikwi, A. and Lawal, I.A. (2014). Occurrence of Human African trypanosomosis among Human Immunodeficiency Virus patients in Ankpa General Hospital, Kogi State, Nigeria. *International Journal of Infectious Diseases*, 21S1: 156-157 doi:http://dx.doi.org/10.1016/j.ijid.2014.03.748

http://www.sosehnigeria.org