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Prevalence of Tuberculosis and Associated factors among HIV positive and Sero-Negative patients attending Kabwohe HC IV, Sheema-District, Uganda

Musinguzi Nelton

Department of Medicine and Surgery, Kampala International University, Uganda.

ABSTRACT

Tuberculosis poses a serious health threat, especially to people living with HIV (PLHIV), and is the leading cause of death in people living with HIV. A person with latent tuberculosis and HIV infection is more likely to develop tuberculosis during their lifetime than a person without HIV, because the immune system is already weak and without treatment, tuberculosis can progression from illness to death. The study was conducted to determine the incidence of tuberculosis in HIV-infected patients presenting for treatment at the ART clinic at Kabwohe HC IV, Sheema district. A cross-sectional descriptive study on 160 patients aged 18-45 years visiting Kabwohe HC IV HIV/AIDS clinic, randomly sampled and achieving a response rate of 100%. A self-administered questionnaire was used and data were coded, entered, and analyzed using IBM SPSS version 20; presented in the form of frequency tables and percentages. The membership rate stands at 86.3%. And 59.4%; followed timing and other recommendations compared to a minority (18.1%) who did it only occasionally but not always 47 (29.4%), 43 (26.9%), and 22 (13.8%) forgot to take their medication (ART) twice, once, and \geq times in the past two weeks. 46 (28.8%) forgot, while 44 (27.5%) and 40 (25%) did not have transportation to refuel compared to 7 (4.4%) were busy to use drugs. 60 (37.5%) were aged 41-50, 1,520 and 21-25, of which 18 (11.3%).53.1 men, of which men account for 46.9%. In addition, 56.2% were married, 20%, the rest were divorced (11.9%) or widowed (11.9%).50%) are located 1-2 km from the hospital, 19.4% and 14.4% are >10 km and 8-10 km from Kabwohe HC IV, respectively. 55% use taxis and only 18.8% walk from home to the hospital; 67.5% spend between 1000 and 2000 ugx per recharge, which means 56.9% have to recharge due to lack of transportation. With 89.4% saying their friends, spouses and relatives know they are on ARV treatment, most (66.9%) reported encouraging contributions from those around them, compared to 11.3% who said people close to them showed boredom, 21.9%) a lack of concern from their immediate people. 21.9% waited about 4 hours and 41.9% said that waiting too long affected their work (time off duty) while 3. 1% did not complete their shift on time. In short; Incidence of tuberculosis in HIV-infected patients visiting the Kabwohe HC IV ART clinic. Sheema district stood at 56.9% while ART adherence among these patients was 86.3%, which is quite good, especially among women but limited by the long distance to the hospital and the cost. Shipping costs are incurred, but some people are not directly supported and have to wait for a long time and limited consultations associated with poor doctor-patient relationships. Keywords: prevalence, tuberculosis, HIV, AIDS

INTRODUCTION

Tuberculosis (TB) is an infectious disease of humans and animals caused by a species of Mycobacterium, usually Mycobacterium tuberculosis, mainly infecting the lungs where it causes tubercles characterized by the expectoration of mucus and sputum, fever, weight loss, and chest pain, and transmitted through inhalation or ingestion of the bacteria [1-6]. It is the most common cause of infectious disease-related mortality worldwide [7-12]. Mycobacteria such as Mycobacteria tuberculosis are aerobic, non-spore forming, nonmotile facultative, curved intracellular rods measuring 0.2-0.5 micrometer by 2-4 micrometer. Their cell walls contain the mycolic, acid-rich long chain glycolipids and phospholipoglycans (mycolides) that protect mycobacteria from cell lysosomal attack and alsoretain red basic fuchsin dye after acid rinsing- acid fast stain [13-18]. Globally, more than 1 in 3 individuals is infected with TB [19]. According to WHO, there were 8.8 million incident cases of TB worldwide in 2010, with 1.1 million deaths from TB among HIV sero-negative persons and an additional 0.35 million deaths from HIV-associated TB. Similarly, factors such as alcoholism, diabetes mellitus (DM), Human Immunodeficiency Virus (HIV) infection, age below 5 years, immunosuppressive therapy, among other; increase the risk for TB morbidity and severity [20-27]. In Africa, Sub-Saharan immune-compromised

persons; the pulmonary lesion healed in 90% of the cases, but in 10%, patients develop active TB [28-31]. Also, Albajar et al. [32] found out that after contamination, M. tuberculosis multiplies slowly in the lungs and this represents primary infection. This is due to the ability of the Mycobacterium tuberculosis to survive and proliferate within the mononuclear phagocytes, which ingest the bacterium, Mycobacterium tuberculosis is able to invade the local lymph nodes and spread to the extra-pulmonary sites causing TB meningitis, TB adenitis, spinal TB, gonadal TB, gastrointestinal TB, among others [33-40].

METHODOLOGY Study Design

Study Design

A descriptive cross sectional study design using both quantitative and quantitative data collectionmethod was employed in this study.

Study area

The proposed study took place in Kabwohe HC IV in Kabwohe Town Council-Sheema District, in South-western Uganda.

Study population

In 2014, the national population census put the population of Kabwohe at 20,300.. The predominant population is Banyankore. However other tribes include, Baganda, Banyarwnda, Bakiga, Bagishu, Banyaruguru, some Indians and others. The study population shall include the patients receiving health care from the facility, the records of the patients and the health workers irrespective of their tribe

Inclusion criteria

TB Patients attending Kabwohe HC IV and have consented to participate in the study.

Exclusion criteria

All TB patients absent even after they consent, especially the critically ill.TB/HIV positive patient who have not yet been initiated on ART.

Determination of sample size

Kish Leslie formula was used since the catchment population of the TB patients attendingKabwohe HC IV is not known.

 $n = \underline{Z^2 P(1-P)}{d^2}$

Where; n = minimum sample size required.

Z = standard normal deviation set at 95% confidence level corresponding to 1.96P = expected

prevalence (portion) d = acceptable marginal error.

In a study conducted about poor adherence among adolescents in Kabale hospital, , the prevalence of poor adherence was at that facility found to be 21%. And being a related study, p was estimated to be 21% Z is 1.96, d is 5% n = $(1.96)^2(0.21)(1-0.5)/(0.05)^2 = 160$ patients

Sampling technique

Simple random sampling method was used to get respondents to avoid bias. Small coveredpapers with yes and no was given to the members in the study population. Those whose papers bear 'yes' upon opening and have consented actively participated in the study. For health workers to be interviewed, purposive sampling technique was used where workers on duty was selected to take part in the study. All health workers present were have a chance to take part in the study.

Proofing and Data analysis

All data collections are to be reviewed at two levels prior to data entry into the research databaseand upon entry prior to analysis. The data collection and entry process is planned in such a way that all data collection sheets completed in a day are reviewed and entered on the same day. Data was analyzed using statistical package of social scientists (SPSS), Microsoft excel spread sheet and information summarized in the form of graphs and tables to give descriptive statistics as per the theme of the study in one way or another.

Ethical considerations

Patients were included in the study upon giving informed consent for participation. Patients below18 years, had their consent obtained from their parents/ guardians or by proxy.

RESULTS

According to the study findings, majority, 60(37.5%) of the study participants aged between 41 to 50 years, followed by 45(28.1%) who were between the ages of 31 to 40 years with the least being those between the age groups of 15-20 years and 21-25 years each with 18(11.3%). More so, females, 85(53.1%) and males were 75 (46.9%) and majority 90(56.2%) were married, 32(20%) the rest were either divorced (11.9%) widowed (11.9%).Similarly, 85(53.1%) and 111(69.3%) were of secondary education and above by education level, and employed whereas 90(56.2%) and 70(43.8%) were Christians and Moslems respectively.

Variables	Frequency (n=160)	Percentage(%)	_
PATIENT'S AGE			- Page 115
15-90 vrs	18	11.3	
01.05mg	10	11.0	
21-23yrs	18	11.5	
25-30yrs	19	11.9	
31-40yrs	45	28.1	
41-50yrs	60	37.5	
GENDER			
Male	75	46.9	
Female MARITAL STATUS	85	53.1	
Married	90	56.2	
Single	32	20.0	
Widow/widower	19	11.9	
Divorced EDUCATION LEVEL	19	11.9	
≤Primary level	75	46.9	
≥Secondary	85	53.1	
OCCUPATION			
Employed	111	69.3	
Unemployed RELIGION	49	30.7	
Muslim	70	43.8	
Christian	90	56.2	

Table 1: Socio-demographic characteristics of the Study participants at Kabwohe HC IV

According to the study findings, majority 56.9% of the study participants had a positive TB test as reflected on patient documentations (test results) with someone while 43.1% had never.



Figure 1: The prevalence of tuberculosis among HIV sero-positive patients attending ART clinic at Kabwohe HC IV, Sheema District

Majority 138(86.3%) of the respondents report to take their medicine once daily compared to 22(13.8%) who are supposed to take twice a day. Of these, 95(59.4%); the majority reported tofollow the timing and other recommendations like taking the medicine after eating food every time they take them compared to 29(18.1%) who only does it sometimes but not always. Majority 48(30%) reported to have never missed taking their drugs within the last two weeks whereas a considerable number, 47(29.4%), 43(26.9%) and 22(13.8%) have missed taking theirdrugs (ART) twice, once and \geq times within the last two weeks prior to the study. And these gave reason ranging from; majority 46(28.8%) who forgot, whereas 44(27.5%) and 40(25%) who lacked transport to go for refill and missing drugs respectively compared to 7(4.4%) who were busy enough to take drugs. However, majority 107(66.9%) realized it was wrong to misstaking their drugs.

Variables	Frequency(n=160)	Percentage (%)	-	
How often are you supposed to take your drugs?		86.3	—	
Once a c	lay 138			
Twice a	day 22	13.8	Page 117	
Do you follow the timing and other recon	nmendations like take after o	eating food?		
YES	Every time 95	59.4		
Most times 36		22.5		
	Sometimes 29	18.1		
For the past two weeks how many times h	nave you missed taking you	r drugs?		
	Non 48	30.0		
	Once 43	26.9		
	Twice 47	29.4		
	Four Times 7	4.4		
	Six Times 7	4.4		
S	Seven Times 8	5.0		
What was the reason for missing your do	ses?			
No refill due to lack of transport.	44	27.5		
I was busy	7	4.4		
I forgot.	46	28.8		
Other reasons	23	14.4		
Missing Is it wrong to miss taking your drugs?	40	25.0		
Yes	107	66.9		
No	53	34.2		

Table 2: The level ART adherence among HIV sero-positive patients attending ART clinicat Kabwohe HC IV, Sheema District

According to the analysis, Majority 80(50%) of the study participants, considerable number 31(19.4%) and 23(14.4%); stay >10km and 8-10 km from Kabwohe HC IV respectively and the minority 8(5.0%) come from 4-6km from the hospital. Therefore, majority 88(55%) use a taxi, and only 14(8.8%) walk from home to the hospital; and majority 108(67.5%) spending between 1000 to 2000 ugx compared to 0nly 13(8.1%) who spend more than 10,000 to access the hospital.

Furthermore, 91(56.9%) failed to get refill due to lack of transport but majority 143(89.4%) reported that friends, spouse and relatives are all aware that they are on and take ART and most of them 107(66.9%) reported encouraging contribution from these people around them compared to 18(11.3%) discouragement from their immediate persons towards taking ART/medicine. And a considerable number 35(21.9%) report lack of care from their immediate persons.

Table 3: The social demographic factors affecting ART adherence among HIV seropositive patients attending ART clinic at Kabwohe HC IV, Sheema District

Variables		Frequency (n=160)	Percentage (%)
Distance between when	e you stay and Kabw	ohe HC IV	
	1-2km	80	50.0
	2-4Km	18	11.3
	4-6km	8	5.0
	8-10km	23	14.4
	>10 km	31	19.4
Means of transport do y	you use from home to	o Kabwohe HC IV	
Walkable		14	8.8
Bodaboda		58	36.3
Taxi		88	55.0
Expenditure on transpo	rt from home to Kab	wohe HC IV	
1,000-2,0	00	108	67.5
2,000-5,0	00	11	6.9
5000-10,0	00	28	17.5
more than 10,000		13	8.1
Failed to get refill beca	use of lack of transpo	ort	
Yes		91	56.9
No		69	43.1
Friends, spouse, &relat	ives aware you take	ART	
	Yes	143	89.4
	No	17	10.6
Their contribution towa	ard taking ART		
ENCOURAGE	107		66.9
DISCOURAGE	18		11.3
DON'T CARE	35		21.9

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DISCUSSION

According to the study findings, majority 56.9% of the study participants had a positive TB testas reflected on patient documentations (test results). This is a bit lower but complements previous studies in some parts of sub- Saharan Africa, up to 70% of TB patients are coinfected with HIV [41-45]. Similarly, it adds to the reports that estimated that up to 33% of all AIDS deaths worldwide can be directly attributed to TB. In sub-Saharan Africa this increases to 50% [46-50]. Nonetheless, a few studies conducted in limited settings in Uganda, showed that the prevalence of TB among people living with HIV ranged between 5.5%-7.2% [51-52]. Likewise, this increased proportion of co-infection diagnosed could be due to improved campaigns and Page | 119 testing services availability and affordability by the patients at the facility [53-54]. Similarly, as reported by Adegoke and Zerish $\lceil 55 \rceil$ that adherence < 95% in ARThas been associated with treatment failure ad a risk of developing resistance is also as high as 80 to 90%. And 59.4%; the majority reported to follow the timing and other recommendationslike taking the medicine after eating food every time they take them compared to a few (18.1%)who only does it sometimes but not always. On contrary, 30% reported to have nevermissed taking their drugs within the last two weeks a considerable number, 47(29.4%),43(26.9%) and 22(13.8%) have missed taking their drugs (ART) twice, once and \geq times within the last two weeks prior to the study. And these gave reason ranging from; majority 46(28.8%) having forgotten, whereas 44(27.5%) and 40(25%)who lacked transport to go for refill and missing drugs respectively compared to 7(4.4%) who were busy enough to take drugs [56-60]. According to the study findings, majority (37.5%) of the study participants are aged between 41-50 years, with the least being those between the age groups of 15-20 years and 21-25 yearseach with at least 11.3%. More so, 53.1% females, and males were 46.9%. also, 56.2% were married, 20%, the rest were either divorced (11.9%) or widowed (11.9%). It was found out that womenhad better health care seeking behavior than males including attending voluntary testing and counseling thus a better adherence [60-63].

CONCLUSION

The prevalence of tuberculosis HIV sero-positive patients attending ART clinic at Kabwohe HC IV, Sheema District stands at 56.9%. The level of adherence to ART among patients attending to Kabwohe HC IV stands at 86.3% which is fairly good especially among the females but limited by long distances from the hospital and the transport costs incurred yet with some unsupportive immediate persons, long waiting hours, limited counseling coupled with a poor doctor-patient relationship.

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