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EC PULMONOLOGY AND RESPIRATORY MEDICINE

Research Article

Assessment of Provider-Initiated HIV Testing and Counseling (PITC) for TB Patients at an Urban Sudanese Setting

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Received: May 07, 2019; **Publiahed:** May 23, 2019

Abstract

Background: Tuberculosis is the most common opportunistic disease of human Immunodeficiency Virus infection. Offering HIV test for all TB patients was introduced as a public policy in Tuberculosis Management Units (TBMUs) in Sudan. The study aimed to assess the Provider-Initiated HIV Testing and Counseling for TB patients at Kassala state of Sudan, to determine the acceptance rate of HIV testing/counselling and its relationship with the sociodemographic and clinical characteristics of TB patients.

Methods: This study was cross-sectional, conducted at Kassala state in the Eastern Sudan. Stratified random sampling was considered to select Tuberculosis Management Units (TBMUs) based on the notification rate. At the level of patients, a total of 389 patients were selected by simple random sampling. The data was analyzed by SPSS- Version 21. Chi-square test was employed to compare qualitative data and p-value less than 0.05 was considered significant. Ethics approval and informed consent were obtained.

Results: The acceptance rate for HIV testing and counselling based on PITC was 84.0%. Two hundred and five males (97.6%) accepted to be tested for HIV compared to 122 (96.8%) of females. One hundred and thirty patients (97.0%) from urban areas accepted to be tested for HIV compared to 197 (97.5%) from rural areas. The educated patients accepted being tested for HIV were more than the illiterate patients (98.8% v 96.0%, p = 0.213). Two hundred and twenty-three (97.8%) of pulmonary TB patients agreed to be tested for HIV compared to 104 (96.3%) of extra-pulmonary TB patients. Thirty-nine (97.5%) of the patients with history of TB accepted to be tested for HIV compared to 288 (97.3%) of the new TB cases.

Conclusions: The study concluded that, the rate of HIV testing and counselling for TB patients based on PITC was high. HIV testing and counselling acceptance is not related to sociodemographic and clinical characteristics of TB patients.

Keywords: *TB; PITC; HIV Counseling and Testing*

Introduction

Tuberculosis (TB) is the most common opportunistic infection of the Human Immunodeficiency Virus (HIV) infection in the form of Acquired Immunodeficiency Syndrome [1]. The disease is the ninth leading cause of death worldwide and the leading cause from a single infectious agent more than HIV/AIDS. In 2016, there were an estimated 1.3 million TB deaths among HIV negative people and an additional 374 000 deaths among HIV-positive patients. TB/HIV co-infection is the leading cause of death for AIDS patients [2]. In 2015, the estimated deaths from TB/HIV co-infection was 400 000 out of 1.4 million TB deaths [3], while TB was the cause of death in one-third of the estimated deaths due to HIV/AIDS [4].

HIV infection can accelerate the progression of TB within short period through worsening the immune system leading to diagnosis of TB in its two most common types: Smear Negative Pulmonary Tuberculosis (SNPTB) and Extra-Pulmonary Tuberculosis (EPTB). The effect of HIV on treatment outcome of TB patients is shown as low cure rate, increase mortality rate, defaults from adverse reaction to the combination therapy, recurrence of TB infection and development of drug resistant tuberculosis [5].

Tuberculosis Management Units (TBMUs) are important in detecting HIV positive infection cases as an entry points for HIV services through HIV testing for TB patients [1]. The documented HIV testing for TB patients globally in 2016 was 55% out of 90% target of HIV testing for TB patients [3].

The main health system barriers for PITC were the defected in planning and coordination with poor implementation of policies, guidelines, shortage of logistics and HIV kits supply along with provider's attitude and practice (stigmatization) against co-infection, high load of work and low motivation of staff members [6-8].

In Sudan, the prevalence of TB/HIV co-infection was 7.7% [9]. The HIV prevalence among age groups 15 - 49 years, Female Sex Workers (FSW) and Males who have Sex with Males (MSM) was 0.4%, 1.6% and 2.6% respectively [10]. Many TB/HIV co-infection patients miss diagnosis and hence ARV treatment. The strategy of Provider-Initiated HIV Testing and Counseling (PITC) can detect TB/HIV co-infection patients [11]. TB patients are diagnosed and treated in MOH, uniformed facilities and private sector in Public-Private Mixed approach (PPM) [12]. HIV Testing Services (HTS) can be delivered either in facility or community settings. Facility- based HTS includes, but not limited to, VCT centers, HIV testing in ANC, TBMUs and STI clinics and in-patient's wards. Community based HTS includes home based testing, outreach HIV testing and workplace campaigns [13]. Although the implementation policy of PITC service through the TBMUs is provided free, still the uptake of this service under the PITC target formed (39%) only out of the (90%) national target [14]. The TBMUs of Kassala State used a different consent approach of HIV testing (opt-in) in the state, despite the National recommended approach (opt-out) for PITC [11].

Aim of the Study

The study aimed to assess the Provider-Initiated HIV Testing and Counseling for TB patients at Kassala state of Sudan, to determine the acceptance rate of HIV testing/counselling and its relationship with the sociodemographic and clinical characteristics of TB patients.

Methods

This was a facility-based and cross-sectional study conducted in Kassala General hospital in the Western part of Sudan. Stratified random sampling was considered to select TBMUs, eleven out of the fifteen TBMUs were selected. Stratification was based on the notification rate, TBMUs with notification rate of more than 15 TB patients/year were selected. At the level of patients, a total of 389 patients were selected by simple random sampling. The data was analyzed by SPSS- Version 21. Chi-square test was employed to compare qualitative data and p-value less than 0.05 was considered significant. Ethics approval and informed consent were obtained.

Results

Table 1 shows the rate of HIV test acceptance by TB patients. Three hundred and twenty-seven TB patients (84.1%) accepted to be tested for HIV. The prevalence rate of HIV among TB patients was 7.3%.

HIV test	No.	%
Acceptance	327	84.1
Refused	62	15.9
Total requests	389	100.0

Table 1: *Rate of HIV counselling and testing acceptance.*
Prevalence rate of HIV among TB patients = 7.3%.

Table 2 shows the relation between HIV test acceptance and sociodemographic characteristics. Two hundred and five males (97.6%) accepted to be tested for HIV compared to 122 (96.8%) of females (p = 0.663). One hundred and thirty patients (97.0%) from urban areas accepted to be tested for HIV compared to 197 (97.5%) from rural areas (p = 0.663). The educated patients accepted being tested for HIV more than the illiterate patients (98.8% v 96.0%, p = 0.213). The Non-employed patients accepted being tested for HIV more than the employed patients (97.7% v 96.9%, p = 0.73). The single, married and divorce/widowed patients accepted HIV testing as 92 (98.9%), 217 (96.9%) and 14 (93.3%) respectively. Table 3 shows the relationship between acceptance of HIV testing and clinical factors of TB patients. Two hundred and twenty-three (97.8%) of pulmonary TB patients agreed to be tested for HIV compared to 104 (96.3%) of extra-pulmonary TB patients. Thirty-nine (97.5%) of patients with history of TB accepted to be tested for HIV compared to 288 (97.3%) of the new TB cases.

Social characteristic	Agree		Disagree		p
	No.	%	No.	%	
Gender					
Male	205	97.6	5	2.4	0.663
Female	122	96.8	4	3.2	
Residence					
Urban	130	97.0	4	3.0	0.777
Rural	197	97.5	5	2.5	
Education					
Illiterate	166	96.0	7	4.0	0.213
Educated	161	98.8	2	1.2	
Occupation					
Employed	154	96.9	5	3.1	0.73
Non-employed	173	97.7	4	23	
Marital status					
Single	92	98.9	1	1.1	
Married	217	96.9	7	3.1	0.1
Divorce/widow	14	93.3	1	6.7	

Table 2: *Relation between HIV test acceptance and sociodemographic characteristics (n = 336).*

Clinical factors	Agree		Disagree		p
	No.	%	No.	%	
Type of TB					
Pulmonary	223	97.8	5	2.2	0.53
Extra-pulmonary	104	96.3	4	3.7	
History of TB					
Previous TB	39	97.5	1	2.5	0.93
New case	288	97.3	8	2.7	

Table 3: *Relationship between acceptance of the HIV test and clinical factors of TB patients.*

Discussion

The acceptance rate of TB patients to be tested for HIV was 84.1%. The acceptance rate in this study was higher than the findings of a study by Sendagire I., et al. in Uganda in which 82% of the respondents accepted to be tested for HIV [15]. This finding is also higher than

the rate of 17.7% reported in Kassala of Eastern Sudan [16]. Our finding is less than a study done in Kinshasa where 92.4% acceptance rate for HIV testing was reported [17]. The acceptance rate was also less than rates in Oromia region of Ethiopia, North East Ethiopia, West Ethiopia, and Cambodia which reflected PITC rate as 92.5%, 95.5%,100% and 92.6% respectively [15,18-20]. The rate of TB/HIV co-infection among patients tested was 7.3% which was less than the findings from Ethiopia were 36.2% of the sample had TB/HIV coinfection [18].

The reasons of low acceptance of HIV counselling and testing may be due to the overload of work, poor patients' knowledge, insufficient staff, supply mismanagement, inadequate Knowledge of Providers and poor supportive supervision [6-8]. Absent of local budget doesn't affect patient's accessibility of PITC service, since cost is sponsored by the Global Fund [21,22].

The providers of TBMUs with low coverage of PITC mentioned that they had Lack of conviction about the importance of PITC and TB patients were not satisfied about the service. Some providers don't offer PITC service despite the National Policy and the availability of HIV testing kits. Stigma, which was observed more in rural areas, of patients may play a role. The current study reported 7.3% of TB/HIV co-infection among the patients tested. This finding is less than the rate of 18.3% reported in the same area. And higher than the rate of 6.8% HIV-TB co-infection among TB patients in Southern Ethiopia [23].

Male accepted to be tested slightly more than females but the relation, according to this result, were not significant (97.6% v 96.8%, p = 0.663). A study conducted by Pamela Win., et al. reported higher rate of acceptance of HIV testing by male TB patients compared to females: However, the difference is not significant [24]. On the other hand, a study conducted in Eastern Sudan reveled that females were accepting more compared to males (OR = 17.0, 95% CI = 8.7-33.1; P < 0.001) [16].

Educated (98.8%, p = 0.213), rural residency (97.5%, P = 0.0.777), non-employed (97.7%; P = 0.73) and being single (98.8%, p = 0.10) are each associated with a slightly higher rate of PITC. This finding contradicts other studies conducted in Eastern Sudan and Ethiopia [16,25].

Our results showed no relation between type of TB and acceptance for HIV test (p = 0.53). The acceptance of patients with PTB and extra-pulmonary TB were 97.8% and 96.3% respectively. A study showed that patients with smear-negative disease were significantly less likely to accept HIV testing [26].

Conclusion

The study concluded that, the rate of HIV testing and counselling acceptance for TB patients based on PITC was high. However: the rate of HIV among TB patients counselled was low. HIV testing and counselling acceptance is not related to sociodemographic and clinical characteristics of TB patients.

Bibliography

1. World Health Organization. "Guidance on provider-initiated HIV testing and counselling in health facilities" (2007).

2. Fujiwara PI., *et al*. "Implementing Collaborative TB-HIV Activities: A program guide". International Union Against Tuberculosis and Lung, UNION (2012).

3. WHO. "Global Tuberculosis Report 2017" (2016).

4. UNAIDS. "Get on the Fast-Track: The life-cycle approach to HIV" (2016).

5. Harries Anthony D., *et al*. "TB/HIV: a clinical manual for South East Asia". Anthony D Harries and Dermot Maher with contributions from Mario C. Raviglione., *et al*. and a foreword by John Crofton. World Health Organization (1997).

6. Okot-Chono R., *et al*. "Health system barriers affecting the implementation of collaborative TB-HIV services in Uganda". *International Journal of Tuberculosis and Lung Disease* 13.8 (2009): 955-961.

7. Nabbuye-Sekandi J., *et al*. "Factors associated with human immunodeficiency virus testing among tuberculosis patients receiving treatment at health facilities in Uganda". *International Journal of Tuberculosis and Lung Disease* 14.7 (2010): 896-902.

8. Bishnu B., *et al*. "What Are the Reasons for Poor Uptake of HIV Testing among Patients with TB in an Eastern India District?" *PLoS ONE* 8.3 (2013): e55229.

9. Hassanain SA., *et al*. "Conflict and tuberculosis in Sudan: a 10-year review of the National Tuberculosis Programme, 2004-2014". *Conflict and Health* 12 (2018): 18.

10. Sudan National AIDS and STI Control Program (SNAP). Federal Ministry of Health 2014. Sudan National AIDS Program Response Progress Reporting (2014).

11. Awadalla H., *et al*. "Risk Factors Associated with the Development of Tuberculosis Among HIV-Infected Patients in Khartoum in 2010". *AIMS Public Health* 2.4 (2015): 784-792.

12. Maalaoui N. "Strengthening TB Drug Management in the Sudanese National TB Control Program: In-Depth Review of TB Drug Management, Khartoum" (2008).

13. Ministry of Health Sudan. Sudan HIV Testing Services Guidelines (2016).

14. UNICEF Sudan. World AIDS Day: "Show your love for us take the test".

15. Sendagire I., *et al*. "Low HIV testing rates among tuberculosis patients in Kampala, Uganda". *BMC Public Health* 10.1 (2010): 177.

16. Abdallah TM., *et al*. "Provider-initiated HIV testing and counseling among tuberculosis patients in Kassala, Eastern Sudan". *Journal of Infection and Public Health* 5.1 (2012): 63-66.

17. Yotebieng M., *et al*. "Provider-Initiated HIV testing and counseling among patients with presumptive tuberculosis in Democratic Republic of Congo". *Pan African Medical Journal* 25 (2016): 161.

18. Ayenew A., *et al*. "Predictors of HIV Testing among Patients with Tuberculosis in North West Ethiopia: A Case-Control Study". *Plos One* 5.3 (2010): e9702.

19. Kebede W., *et al*. "Acceptance of Provider Initiated HIV Testing and Counseling among Tuberculosis Patients in East Wollega Administrative Zone, Oromia Regional State, Western Ethiopia". *Tuberculosis Research and Treatment* (2014): 935713.

20. Tsurugi Yb., *et al*. "Evaluation of collaborative tuberculosis and human immunodeficiency virus activities in Phnom Penh, Cambodia". *International Journal of Tuberculosis and Lung Disease* 15.11 (2011): 1535-1539.

21. Kanpirom K., *et al*. "How Should Global Fund Use Value-for-Money Information to Sustain its Investments in Graduating Countries?" *International Journal of Health Policy and Management* 6.9 (2017): 529-533.

22. Fan VY., *et al*. "Dedicated health systems strengthening of the Global Fund to Fight AIDS, Tuberculosis, and Malaria: an analysis of grants". *International Health* 9.1 (2017): 50-57.

23. Zeleke Z., *et al*. "Tuberculosis-HIV Co-infection Rate among Smear Positive Pulmonary Tuberculosis Patients and Associated Risk Factors in Southern Ethiopia". *Science, Technology and Arts Research Journal* 3.3 (2014): 87.

24. Klein PW., *et al*. "HIV Testing of Tuberculosis Patients by Public and Private Providers in New York City". *Journal of Community Health* 39.3 (2014): 494-502.

25. Jerene D., *et al*. "Acceptability of HIV counselling and testing among tuberculosis patients in south Ethiopia". *BMC International Health and Human Rights* 7 (2007): 4.

26. Rodger AJ., *et al*. "HIV prevalence and testing practices among tuberculosis cases in London: a missed opportunity for HIV diagnosis". *Thorax* 65.1 (2010): 63-69.

Volume 8 Issue 6 June 2019