An Audit of Tuberculosis Clinic Register In A Tertiary Health Care Centre In South West Nigeria

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Introduction: Tuberculosis remains the commonest infectious disease world wide.It accounts for over 1million deaths globally; most of this in the sub-Saharan Africa.The DOTS program is an iniative of the WHO towards reducing the burden of this disease.We present an audit of our TB register in other to compare with the WHO goal.

Method: Data were extracted from the TB register of the hospital from January 2007-December2010 and these were entered into SPSS 17 for analysis. Continuous variables were summarized using mean and standard deviation (for normally distributed variables) and median and quartiles (for non-normally distributed variables). Group differences for categorical variables were evaluated using the chi-square at 5% level of significance.

Results: 302 cases were seen during the period in question 173 males (57.3%) and 129 females (42.7%) with a mean age of 36.97 ± 16.4. Majority, 287 (95%) had pulmonary TB while only 15(5%) had EPTB. Smear positivity for acid-fast bacilli was present in 76(25%) of cases. 121(40.1%) had co-infectivity with HIV. Treatment outcome showed 244(80.8%) were pronounced cured while 14(4.6%) had a relapse. 44 of the patient died of various complications accounting for a mortality of 14.9% while 12(4%) defaulted.

Conclusion: TB remains an important disease in Nigeria. Mortality from this disease is still high despite the fact that it is a treatable condition. There is need for more advocacies towards prevention and adherence to standard treatment.

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INTRODUCTION

Tuberculosis remains the commonest infectious disease worldwide. It accounts for over 1 million deaths globally; most of this in the sub-Saharan Africa which appears to be one of the areas worst hit by this pandemic.[1] Tuberculosis (TB) is contagious and airborne[2]. It is a disease of poverty affecting mostly young adults in their most productive years[2, 3]. Ninety five percent of TB deaths are in the developing world1. Nigeria is now ranked the country with tenth highest burden of disease globally and government's efforts at reducing the burden of this disease is often plagued with lack of adequate funding and political will.[4]

The number of people who fell ill with TB dropped to 8.8 million in 2010, including 1.1 million cases among people with HIV1,4. The number has been falling since 20051. The estimated global incidence rate fell to 128 cases per 100,000 populations in 2010, after peaking in 2002 at 141 cases per 100,000. The rate is falling but very slowly.[3,5]

TB is the leading cause of death among people living with HIV. Almost one in four deaths among people with HIV is due to TB6. In 2010 350,000 people died of HIV-associated TB.[4,6] It is also the most common presenting illness among people living with HIV, including those who are taking antiretroviral treatment.[6] There were an estimated 1.1 million HIV positive new TB cases globally in 20106. Around 82% of patients live in sub-Saharan Africa.[3]

At least one-third of the 34 million people living with HIV worldwide are infected with TB6. Persons co-infected with TB and HIV are 21-34 times more likely to develop active TB disease than persons without HIV.[3] People living with HIV are facing emerging threats of drug-resistant TB4. Multidrug-resistant TB or MDR-TB is resistance to first-line anti-TB drugs; extensively drug-resistant TB or XDR-TB is resistance to second-line anti-TB drugs.[3,5] Worldwide, there were an estimated 650,000 MDR-TB cases in 2010.[5]

The Directly Observed Therapy Short-Course (DOTS) program is an initiative of the WHO towards reducing the burden of this disease and to strengthen treatment strategies.[10] As part of the Millennium Development Goals, the target was to detect at least 70% of cases and to treat 85%7. Audit of TB register and patient records is important in monitoring success towards the achievement of this goal and develop insight into the performance of the TB Clinic of the health facility. We hereby present an audit of the TB Clinic register of the Federal Medical Centre, (FMC) Owo, in South West Nigeria over a three-year period.

Materials And Methods

This study was conducted at the TB Clinic of the Federal Medical Centre, Owo. Data of patients treated for TB from January 2007- December 2010 were extracted from the TB Clinic register of. Data was copied into a spread sheet and entered into SPSS [17] for analysis.

Variables available in the TB Clinic register were age group in years, sex, marital status, type of lesion, treatment categories, outcome of treatment and investigations done. The investigations were sputum Acid Fast bacilli, Chest X-ray and HIV sero- status. Age was summarized using mean and standard deviation.

Descriptive statistics was presented in frequency tables. Association between categorical variables were evaluated using the chi-square at 5% level of significance. Ethical approval was obtained from the Federal Medical Centre Owo Health Research Ethics Committee.

Results

Table I:
Socio-Demographic characteristics of the patients seen at the TB Clinic of FMC, Owo, 2007-2010

Characteristics	Frequency	%
Age Groups in years		
<25	48	15.9
25 – 39	130	43.0
40 – 59	93	30.8
60 and above	31	10.3
Sex	**Frequency**	**%**
Male	173	57.3
Female	129	42.7
Marital status		
Married	255	84.4
Single	47	15.6

Table II:
Type of lesion, Treatment Categories and Treatment Outcome of the patients seen at the TB Clinic of FMC, Owo, 2007-2010

Variables	Frequency	%
Type of lesion	287	95%
Pulmonary	15	5%
Extra-pulmonary		
Treatment Categories	285	94.4
Category 1	17	5.6
Category 2		
Treatment Outcome	244	80.8
Cured	44	14.6
Died	2	0.6
Relapsed	12	4.0
Defaulted		

Table III:
Outcome of investigations performed on patients seen at the TB Clinic of FMC, Owo, 2007-2010

Investigations	Frequency	%
Sputum Acid Fast Bacilli		
Positive	76	25.2
Negative	226	74.8
Chest X-Ray		
Suggestive	275	91.1
Non-Suggestive	27	8.9
HIV Status		
Positive	121	40.1
Negative	181	59.9

Table IV:
Association between Sputum Acid fast Bacilli and HIV status of patients seen at the TB Clinic of FMC, Owo, 2007-2010

	HIV Status		Chi Square	P-value
	Positive n(%)	Negative n(%)		
Sputum Acid Fast Bacilli				
Positive	10 (13.2)	66 (86.8)	29.14	<0.001
Negative	111(49.1)	115 (50.9)		

Three hundred and two (302) cases were seen from January 2007 to December 2010. Males were 173 (57.3%). The mean age was 36.97+16.4. The age distribution showed that age range 25 – 39 constituted the highest percentage of 43% followed by 30.8% in the age range of 40 – 59. Married patients were 255(84.4%) as shown in table I.

As shown in table II majority 287 (95%) had pulmonary tuberculosis while only 15 (5%) had extra-pulmonary tuberculosis. Most of the patient 285(94.4%) were treated with category 1(CAT 1) anti TB drugs. Treatment outcome showed that 244 (80.8%) were pronounced cured while 12 (4.0%) defaulted. Forty-four (14.6%) of the patients died of various complications. Table III showed the outcome of various investigations done. Smear positivity was only seen in 76(25.2%). Chest X-ray was suggestive of TB in 275(91.1%) of the patients. HIV sero-status of 121(40.1%) of the patients was positive.

Among patients with Sputum positive for Acid Fast Bacilli 10(13.2%) were HIV sero-positive while 66(86.8%) were sero-negative ($p<0.001$) as shown in table IV.

Discussion

This audit of the TB Clinic register of the Federal Medical Centre, (FMC) Owo, in South West Nigeria over a three-year period was done to have an understanding of the performance of the clinic. As shown in this study, Pulmonary TB accounted for most of the cases seen during the period in question. HIV/PTB co-infection was quite high and the smear positivity was low, while mortality was estimated at 5%.

Subjects in the age range (25-39) years were more affected by TB. They are the most energetic and the workforce of the community and this may translates to great socioeconomic loss to the patients and their community. The audit indicates a male preponderance of about 58%, this is probably associated with high risk behaviors such as smoking, excessive alcohol etc use usually found among men; although data as regards these history were not usually included in the TB register. Another study that was carried out in a rural tuberculosis referral clinic in northern Nigeria showed that the prevalence of TB/HIV co-infection was higher among the female (44.82%) than the male (38.30%) patients and this co-infection was found to be statistically highly associated with gender and age ($p<0.05$).[8]

Pulmonary TB was noted to be the most common form of Tuberculosis in this audit. However, there are few cases of extra-pulmonary tuberculosis and this was seen almost exclusively in patients with TB/HIV co-infection with very low CD4 count. In a clinical correlate of tuberculosis in HIV co-infected children at the University of Abuja Teaching Hospital, Gwagwalada, Nigeria, it was shown that pulmonary TB accounted for 59% of all TB cases seen.[9]

Most of the patients in this audit were new cases of TB with no previous treatment for TB and were on CAT 1 regimen with favourable clinical and laboratory outcome, while CAT 2 regimen was reserved for TB relapse or return after default. The outcome of treatment in this audit showed that about 80.8% of the patients were cured with improvement in clinical symptoms, radiological abnormality and smear negativity in smear positive subjects as evidence of cure. The cure rate is lower than the recommended 85% target by the WHO.[4]

The result noted above was similar to what was seen at some other facilities. In Sagamu, it was 80.0% for non-HIV infected TB patients but 60.3% and 63.8% cure for patients with HIV/TB co-infection at Sagamu and UCH, Ibadan respectively.[10,13]

Of the 302 patients in this audit, 121 (40.1%) of them are sero-positive to HIV, this is quite high when compared to figures in other studies. In a study on sero-prevalence of HIV antibodies in tuberculosis patients in Ile-Ife, Nigeria, of the 79 subjects with confirmed active tuberculosis, 12.7% tested positive for HIV antibodies11, however the sample size was small compared to this audit and this may account for the low sero-prevalence level. The high sero-prevalence rate among the patients may also be a pointer to the unsafe sexual behavior of the people in the catchment area of our hospital at FMC, Owo and is thus a call for greater action towards more public enlightenment on safer sexual practices and reduction of other risk factors for HIV infection. This review showed that 10(13.2%) of the patient with sputum AFB positive were HIV positive compared to 66(86.8%) who were negative. It is possible that these are patients at the early

stages of the disease with near normal Cd4+. In another study carried out in Lagos looking at the prevalence of human immunodeficiency virus (HIV) antibodies in tuberculosis patients in Lagos, Nigeria, of the 536 cases with bronchopulmonary symptoms studied, 188 (35%) were positive for AFB while 13 (2.4%) were seropositive for HIV.[3] Correlation between the AFB and HIV results revealed that 10 (5.3%) of the 188 AFB positives were also seropositive for HIV as compared to 3 (0.9%) in the 348 AFB negative cases[12]. These data underscores the urgent need to monitor tuberculosis patients as the increase in the rate of new cases may indicate the spread of HIV infection.[11]

It is also noted that only 25.2% of the cases seen are smear positive, although higher than 12.7% and 5.2% observed in Ile-Ife and Lagos respectively.[11,12] This may not be a true reflection of the AFB result because many factors account for smear negativity in a patient with tuberculosis and part of it in this study may be the high sero-positivity of HIV infection in which the patients are unable to mount adequate immune reaction against the tubercle bacilli and the presence of more extra-pulmonary TB among HIV patients. In addition, the quality assurance in the laboratory is an important factor. Usually three samples are collected from each patient, which include one early morning and two spots samples. As at the period covered in the audit, the samples are not concentrated before the smear is carried out in the laboratory. This may have resulted in lower yield.

It was shown that more than 90% of patients have chest x-ray results that were suggestive of tuberculosis. The radiographs were read by the radiologists in the hospital using features such as reticulo-nodular opacities, fibrosis, cavitation, miliary spread and pleural effusion. As it is known, chest x-ray is only a supportive investigation modality and not diagnostic of TB, some of these chest x-ray findings may actually represent other disease entities that may mimic TB most especially in the face of smear negativity. However most of the patients in our audit showed considerable improvement in clinical symptoms and resolution of CXR abnormality after weeks of anti-TB therapy corroborating the importance of this sensitive but non-specific investigation most especially in resource poor setting where. culture may not be feasible.

In a study carried out at the National Institute for Medical Research (NIMER), Yaba, to establish the prevalence of HIV antibodies in 536 patients with bronchopulmonary symptoms, the sputum samples from patients were examined for acid-fast bacilli (AFB) by both microscopy and culture and Mycobacterium tuberculosis (70%), M. avium (20%) and M. kansasii (10%) were the mycobacteria strains isolated from the HIV/TB infected patients[12] This finding is possible because NIMER is a central medical research centre in the country with sophisticated research facilities that may not be found in other hospitals. This finding stresses the fact that addition of culture to microscopy increases the diagnostic yield in TB.
The number of defaulted cases was minimal but significant in terms of further spread of a possible resistant strain of the bacteria. Most of the defaulters were those with TB/HIV co-infection and many reasons were adduced to this default. Notably in this audit was perceived cure after resolution of symptoms following few weeks of anti TB therapy. Poverty and poor contact tracing were also prominent reasons attributed to default.

CONCLUSIONS:

We concluded that Tuberculosis remains a significant contributor to morbidity and mortality in our environment. Although there is significant improvement in terms of treatment outcomes, case detection is still below WHO standards. HIV continues to be the main risk factor for PTB.

RECOMMENDATIONS

Advocacy and political will still remain the keys to tackle the scourge of TB & HIV. It is strongly advocated to screen for HIV among all TB patients. More sensitive diagnostic modalities like culture method (Bactec method) and Xpert MTB/RIF Test are needed in more tertiary centers like ours where a large number of this category of patients are being cared for.

The figures on mortality are calling for concerted effort of healthcare providers at various levels in improving care given to these patients so as to attain the WHO set standard. In this wise, the

option of a community based TB program using volunteers or family members to supervise administration of anti-TB drugs so as to ensure adherence to TB treatment may be considered.

This effort will reduce the emergence of multi-drug resistant (MDR-TB) tuberculosis. Health workers also need to strengthen contact tracing which limits default cases.

There is need to increase diagnostic capacity which may translate to early commencement of treatment and better outcome.

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