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ABSUMSAJ

Research Article

A STUDY ON TUBERCULOSIS TREATMENT OUTCOME IN HIV PATIENT IN ABIA STATE UNIVERSITY TEACHING HOSPITAL TUBERCULOSIS CENTER FROM 2012-2017

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ABSTRACT

Background of study: Tuberculosis is a chronic infectious disease of the body caused by various strains of Mycobacterium, and HIV has led to its resurgence, particularly in Africa. Tuberculosis and HIV constitute the main burden of infectious disease in resource limited countries and one of the leading causes of death globally. Adherence to treatment is an important factor in treatment of patients with TB/TB- HIV co-infection and thus a valuable indicator in measuring treatment outcomes.

Objectives: The study was done to know the outcome of tuberculosis treatment outcome in HIV patients at Abia state university teaching Hospital Aba (ABSUTH).

Methods: It is a 5 years' comparative study analyzing the data of tuberculosis patients from 2012 - 2017, using past medical records.

Results: Overall, a total number of 538 patients were analysed. 445 (82.7%) completed treatment,438 were successfully treated. and those that died during the course of treatment were 70, Patients who were co infected with HIV were 232, those who had multi drug resistance were15 and the defaulters were

Conclusion: In conclusion, the multi- drug resistance rate in Abia State University teaching hospital is low and treatment outcome rate for patients both tuberculosis and TB-HIV co – infection is high. Nevertheless, there is need to ensure that efficient measures are taken to maintain a high treatment and reduce spread of infection.

Keywords: Tuberculosis, HIV, Treatment, Co-infection, ABSUTH.

INTRODUCTION

Tuberculosis is defined as a chronic infectious diseases of the body caused by various strains of mycobacterium. The main cause of TB is *Mycobacterium tuberculosis*, a small, aerobic, non-

motile bacillus. [1] The *Mycobacterium tuberculosis* complex (MTBC) includes four other TB-causing bacteria: *Mycobacterium bovis, Mycobacterium africanum, Mycobacterium canetti,* and *Mycobacterium nicroti* [2.] Other known pathogenic mycobacterium includes *Mycobacterium leprae, Mycobacterium avium,* and *Mycobacterium kansasii.* The latter two species are classified as "non-tuberculous *Mycobacterium*" which causes neither TB nor leprosy, but they do cause pulmonary diseases that resemble TB.[3]The severe form of TB disease, most common in young children and those with HIV, is called Miliary tuberculosis. People with this disseminated TB have a high fatality rate even with treatment 30%).[4,5]

Pulmonary tuberculosis is the major and most virulent type of tuberculosis seen in the clinical settings, other types include; abdominal, skin, central nervous system etc. Persons affected with tuberculosis present with the followings symptoms; chronic cough; which may be dry or bloody, Chest pain, Weight loss, Night sweats, Anorexia, Anemia, Pleura effusion, Finger clubbing, Erythema nodosum, Phlyctenular conjunctivitis and joints pain.

TUBERCULOSIS AND HIV CO-INFECTION

Tuberculosis(TB) is the most common opportunistic infection and the leading cause of death in persons infected with Human Immunodeficiency Virus(HIV) worldwide. HIV is spreading in regions with the highest rate of Mycobacterium tuberculosis infection, It is also responsible for an increasing proportion of the world's cases of TB[6].

Worldwide the number of people infected with both Tuberculosis and HIV is rising, this is due to failure of compliance to treatment therapy, ignorance to the knowledge of TB and HIV by the society, poverty, overcrowding, late presentation to the hospital, problem of drug resistance etc. Globally, Tuberculosis remains a major health problem with One third of the world's population being infected with TB. There were 1.8 million TB- related deaths worldwide in 2015 and an estimated 10.4 million new cases of TB disease and this included 1.2 million among HIV positive people.

34% of people living with HIV in the African Region in 2016 were infected with TB bacteria. 42% of HIV positive people (newly enrolled in care) are on preventive treatment

against TB in the region. HIV and TB form a lethal combination, each speeding the other's progress. In 2016, 320,000 people died of HIV-associated TB in the African region. About 35% of deaths among HIV-positive people were due to TB in 2015. In 2015 there were an estimated 1.2 million new cases of TB amongst people who were HIV-positive, 71% of whom were living in Africa. WHO recommends a 12-component approach of collaborative TB-HIV activities, including actions for prevention and treatment of infection and disease, to reduce deaths.[7]

TB is a leading killer of people who are HIV infected. Tuberculosis is already the opportunistic infection that frequently kills HIV positive people. The recurrent epidemic of HIV in some African countries has increased the burden of Tuberculosis many folds leading to epidemics of Tuberculosis in these countries. Similarly, in some developed countries were there had been some regular decline in the prevalence of Tuberculosis, the situation has reversed due to pandemic of HIV/AIDS.

Tuberculosis kills more women in reproductive age group than all causes of maternal mortality combined and, it may create more orphans than any other infectious disease. More young women are affected with TB and HIV than men due to gender inequalities, differential access in services, unsafe and sexual violence.

HIV has led to the resurgence of tuberculosis(TB), particularly in Africa, and TB is a leading cause of death for people living with HIV worldwide.

BASIC CURRRENT PROCEDURES OF TREATMENT

Tuberculosis (TB) chemotherapy remains the most effective strategy for preventing the spread of the disease. Patient default from TB treatment is an important reason for not completing treatment and remains a major contributor to both treatment failure and multidrug-resistant TB[8.] In Nigeria, the Directly Observed Treatment Short Course (DOTS) strategy was started in 1993, and by 2008, its geographic coverage had reached 99%[9]. Until 2009, the treatment success rate in Nigeria remained below the 85% target despite the government's policy of free TB treatment in health facilities (83% per the 2011 WHO Global TB report) [10]. Default from treatment was among the major barriers to achieving this target.

Tuberculosis treatment is based on the DOTS strategy in accordance with the guidelines of the Nigerian National Tuberculosis Control Program and WHO recommendations [9,10]. Briefly, new cases start with daily rifampicin, isoniazid, pyrazinamide and ethambutol for two months of intensive treatment followed by ethambutol and isoniazid for 6 months. Patients undergoing re-treatment receive a 3-month intensive phase with the addition of streptomycin to the above four drugs for two months.

However, there has been an increase in rates of drug resistant tuberculosis, including multi-drug (MDR-TB) and extensively drug resistant TB (XDRTB), which are difficult to treat and contribute to increased mortality. Because of the poor performance of sputum smear microscopy in HIV-infected patients, newer diagnostic tests are urgently required that are not only sensitive and specific but easy to use in remote and resource-constrained settings.

In studies done for multi-resistance drug TB, where fluoroquinolones were used and treatment regimens were prolonged, relapse rates were low (2.1% or less).
In results of patients receiving short course chemotherapy assessed by Espinal et al treatment success was reported in 52% of new multi drug resistant TB using a 6 or 8 months' regimen involving four drugs including Isonazid and rifampicin. Thus the inclusion of second line drugs in treatment of multi drug resistant TB was recommended in settings with high rates of MDR-TB and good TB control programmes[11].

Many studies have shown excellent virological and clinical outcomes with the use of efavirenz 600 mg along with ART. In India, efavirenz is the preferred NNRTI for use in HIV-TB co-infected individuals at the standard dose of 600 mg once-daily. However, in patients who cannot tolerate or have contraindications to efavirenz (*e.g*. psychiatric disturbances, pregnancy), a triple NRTI regimen or a combination of two NRTIs and nevirapine can be used.

In 1990, peru revised its National Tuberculosis control program to follow the world Health Organization's DOTS approach. The main components of peru's program were a case detection and diagnosis and directly observed treatment. The program had strong results between 1976 and 1990, reported cases of TB were relatively flat, and with the revised method they rise sharply between 1990 and 1993[12].

In 1990, TB was a major health problem in china. In 1991, china implemented the DOTS strategy to control TB 1n 13 of its 31 provinces, china's program included a case detection for patients seeking health services and standard treatment regimen for smear-positive patients and also a consistent monitoring of the project to ensure quality[13].

It is currently recommended that HIV-infected individuals with TB receive prompt treatment for both diseases, irrespective of CD4+ T cell count, using directly observed treatment.

METHODS

This is a comparative retrospective study analyzing treatment outcome in HIV and non-HIV patient with Tuberculosis that were treated in Abia State University Teaching Hospital from 2012-2017.

A proforma was used to collect the data. The proforma included information on the age, HIV status, drug treatment and treatment status.

RESULT

There was strong evidence of an association between Tuberculosis and HIV co-infection rate among the various age categories. HIV positive cases had a lower success rate. A total of 538 patient's data was collected. Out of the 538 patients, 232 patients were co-infected with Tuberculosis while 306 patients had Tuberculosis alone. Majority of the patients i.e. about 445 patients completed their treatment while 93 patients did not. Only 5 of the patients receiving the treatment were tracked the remaining 533 were not tracked. 468 patients were alive during the course of the treatment while 70 patients died. Finally, 438 patients were cured at the end of the treatment.

TABLE 1: SOCIODEMOGRAPHIC TABLES

S/N	VARIABLES		FREQUENCY(%)
1	AGE GROUP	<20-24	89(16.5)
		25-29	66(12.3)
		30-34	78(14.5)
		35-39	99(18.4)
		40-44	80(14.9)
		45->50	126(23.4)
2	SEX	Male	297(55.2)
		Female	241(44.8)
3	RESIDENTIAL AREA	Urban	473(87.9)
		Rural	65(12.1)

Table 1 shows that majority of the patients were above 45 years of age 126 (23.4%), more males than females 297 (55.2) and 241(44.8). respectively. Most of them resides in the urban area 473 (87.9%).

TABLE 2: TB TREATMENT OUTCOME.

VARIABLES	**FREQUENCY OF TREATMENT OUTCOME.**
Defaulter	59(9.3%)
Non-defaulters	479(90.7%)
Cured	438(81.4%)
Not cured	438(81.4%)
Multi drug resistance	15(2.8%)
Non multi drug resistance	523(97.2%)
Transferred	42(7.8%)
Non transferred	496(92.2%)
Tracked	5(0.9%)
Not tracked	533(99.1%)
Alive	468(87%)
Dead	70(13%)
Treatment Completed	445(82.7%)
Treatment non completed	93(17.3%)

DISCUSSION

This study analyzed five hundred and thirty-eight (538) tuberculosis patients. 297 were males while 241 were females. Most of the patients were between the ages of 45-50, 126(23.4%). Majority of them completed their treatment 445 (82.7%) while 93 (17.3%) did not complete their treatment. The finding in this study corroborates with a study, done in western Nigeria where only 127(14.4%) of the patients defaulted in their treatment. In another study done in Abakaliki defaulters were 57 (30.2%) in contrast to our study were defaulters in treatment rate were 59 (9.3%). TB Patients who were co-infected with HIV were 232 (43.1%), which was almost similar to the study done at Abakaliki, were co-infected patients were 189(28.2%). Studies done in some Western Europe countries, 14 out of 72 participating countries reported multi drug resistance. Also in the study done in Azerbaijan there was a multi-drug resistance of 22%. The finding in these studies differs slightly from the finding in our center where only 15(2.6%) of the patient had multi drug resistance.

In a study done by Sharma et al, 273 patients were found to have had TB medication related hepatotoxicity, 4 of which died before re-challenge and one due to progressive tuberculosis.[10]. A study carried out in a general hospital in South western Nigeria had a treatment success rate of 76.3% and a treatment failure rate of 3.8%. Another study done in Abakaliki Nigeria among 571 TB patients observed an overall treatment success rate of 99(52,44%). While in a study done in Kaduna the treatment rate was high among the patients managed in the private health facilities.

The finding in these studies agrees with the result obtained in present study where the success treatment rate was 438(81%). The number of death recorded in this study was high 70 (13.3%) similar to that observed in a study conducted in Abakaliki where death rate was 11.1%.

CONCLUSION

This study revealed that Tuberculosis in HIV patients were high, but the treatment outcome of Tuberculosis was good and the multi-drug resistance rate in Abia State University Teaching Hospital is low, even among the co-infected. Although there is still need to ensure that efficient

measures are taken to maintain a high treatment rate and reduce the spread of infection and also for complete patient's data to be kept.

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