

Response to Treatment in Sputum Smear Positive Pulmonary Tuberculosis Patients In relation to Human Immunodeficiency Virus in Kano, Nigeria.

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Introduction

There is an association between tuberculosis(TB) and Human immunodeficiency virus(HIV) infection.

Therefore HIV infection has a great impact on the response to tuberculosis treatment.

Introduction

Tuberculosis although curable is the most common cause of HIV related illness and death. It was estimated that about 12 million People Living with HIV/AIDS (PLWHA) are co-infected with TB (70% in sub-Saharan African and 22% in South East Asia). Since mid-1980, annual TB case notification rates have risen up to four fold in many African countries, including those with well organized programmes (Maher 2005).

Introduction

- HIV fuels the TB epidemic in several ways (Barnes *et al.* 2002):
- In people with recently acquired or latent *Mycobacterium tuberculosis* infections, HIV promotes progression to active TB;
- HIV is the most powerful known risk factor for reactivation of latent TB Infections to active diseases;

Introduction

- In PLWHA co-infected with *Mycobacterium tuberculosis*, the annual risk of developing TB ranges from 5% to 15%;
- HIV increases the rate of recurrent TB, which may be due to either endogenous reactivation (true relapse) or exogenous Infection; and
- The increasing number of TB cases in PLHA poses an escalating risk of TB transmission to the community HIV infected or not.

Introduction

- HIV also complicates the clinical cause of tuberculosis in various ways (Jazan 2002):
- HIV immunosuppression changes the clinical pattern of TB – there is an increase in sputum smear negative and extra pulmonary TB cases;
- Immunosuppression causes dissemination of TB, rendering the diagnosis more difficult;

Introduction

- Patients co-infected with HIV and TB have increased morbidity and mortality as a result of HIV related diseases; and
- The impact of dual stigma-suspected TB cases often fails to present for diagnosis because of a fear of being labeled as having AIDS.

Study Area

The study was carried out between January 2005 – December , 2007 at the Infectious Diseases hospital (IDH), Kano State, Nigeria. The hospital is the only infectious disease hospital in the whole of Northern Nigeria, and serves as referral center for Tuberculosis and HIV/AIDS control activities not only for Kano and other neighboring states but also for Niger and Cameroon republics.

Study Population

The subjects were male and female patients that presented to the chest clinic with symptoms of Pulmonary Tuberculosis based on the history and clinical examination and whose initial sputum smears demonstrated acid fast bacilli (AFB) by direct smear sputum microscopy using Ziel-Nelson (ZN) stain at least two specimens in line with WHO recommendation(WHO, 2003).

Subject Selection Criteria

The subject for the study were selected based on certain criteria, this is because of the need to have a patients who can be relied upon to complete full duration of the treatment and the finding of the study will be applicable to a large population.

The criteria used were as follows:

Eligibility criteria

- ◇ Age 15 years and above
- ◇ The patient must be sputum positive for TB
- ◇ No previous TB treatment
- ◇ Living within defined area
- ◇ Willing for ambulatory treatment
- ◇ Available for follow-up for the period of study

Exclusion Criteria

- ◇ Patients in a moribund state
- ◇ Patients on Anti-retroviral treatment
- ◇ Patient with concomitant medical conditions like Diabetes mellitus
- ◇ Patient with serious form or extra-pulmonary Tuberculosis.

HIV Counseling and Testing Procedure

Each patient provided informed consent to participate in the study for ethical reason and was offered confidential HIV testing accompanied by pre and post-test counseling according to National AIDS Programme guidelines. Those that agreed to be tested had blood sample taken for HIV test and performed according to the standard hospital practice and followed guidelines developed by the National HIV Rapid Test Algorithm using ELISA Test of Capillus, Genie 11 and Determine

Treatment and Follow-up of Patients

Intensive phase of treatment: - All the subjects were admitted to the chest ward of the hospital for 2 months. Treatment by Direct Observed Treatment (DOT) using ***RHZE***. Subjects were discharged after the 2 months intensive phase.

Treatment and Follow-up of Patients

Continuation phase of treatment: - This is 6 months of monthly collection of the TB drugs by the patient at the DOT clinic. Self administration of the TB drugs and checked by the return of empty blister of packs. Drugs combination of Ethambutol and Isoniazide (***EH***) were used.

Monitoring of Patients

The sputum of all the patients were re-examined microscopically using Ziehl-Neelsen stain at 2, 5, and 7 months intervals, and 2 smears were taken (one over night and one on spot) according to the WHO guideline.

Treatment Outcome

The expected treatment outcomes were those recommended by WHO and the IUATLD, and included in Nigerian National Tuberculosis and Leprosy Control Programme manual (NTBLCP Manual 2004).

They were categorized as cured, treatment completed, treatment failure, died, defaulted or transferred out.

Treatment Outcome

A patient was considered as “Cure” if a negative sputum smear was obtained in the last month of treatment and at least one previous occasion.

A patient was considered as having “Completed treatment” if treatment had been completed but in whom smear examination results were not available at the end of the treatment.

Treatment Outcome

“Treatment failure” was defined as a smear-positive patient who remained or became smear-positive again at least 5 months after start of treatment.

A “Defaulter” was a patient who did not return to collect the anti-tuberculosis drugs for 8 weeks or more after the date of the last attendance during the course of treatment

Treatment outcome

A “Transferred out” was defined as a patient who was transferred to another reporting unit and for whom the treatment result was unknown.

Death was reported for patients who died during treatment, regardless of cause.

Treatment outcomes were evaluated by including the total of all studied patients as the denominator

Result

For the 2 years period of study, a total of 1,844 patients with sputum smear positive tuberculosis were enrolled. Of these, 42 patients were not counseled for HIV testing during the 2 months period of admission, 98 refused HIV testing after counseling and in 12 patients, the result were indeterminate, 19 refused admission in the ward. All these 152 patients were excluded from the study.

Result

A total of 1,046 were cured with 62% cure rate and in HIV negative the cure rate was 75%(785) with statistical significant difference ($p < 0.05$) of cure rate of 40%(216) in HIV positive. For treatment completion rate there was a statistical difference ($p < 0.05$) when the rate of 26%(172) in HIV seropositive is compared with only 9%(89) in seronegative.

Result

A total of 188 deaths were recorded with death rate of 11%. 16%(103) death rate in HIV seropositive which was significantly higher($p < 0.05$) than in seronegative with death rate of 8%(85). A failure rate of 4%(62) with 6%(39) in seropositive and 2%(23) in seronegative and the difference is statistically significant($p < 0.05$).

Conclusion

The tuberculosis treatment outcome routinely monitored can be grouped as favorable (Cure and treatment completion) and unfavorable (Death and failure) those associated with risk of ongoing TB transmission.

Tuberculosis coinfecting with Human immunodeficiency virus is associated with unfavorable and poor treatment outcome.

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