

DIAGNOSING TUBERCULOSIS IN RESOURCE LIMITED SETTINGS: EXPERIENCE FROM A REFERRAL TB CLINIC IN NORTH CENTRAL NIGERIA.

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Abstract

Background: Multidrug resistant tuberculosis (MDR-TB) which is TB that is resistant to at least isoniazid and rifampicin. Making a diagnosis of MDR-TB is a challenge in our environment as the access to facilities for diagnosis is difficult. This study tries to look at the pattern and possible determinants of MDR-TB and the challenges in making a diagnosis

Method: This was a prospective study to identify pattern and possible determinants of MDR TB among MDR TB suspects managed in the Tuberculosis clinic of Jos University Teaching Hospital (JUTH) between January 2008 and October 2010. Sputum samples for patients that met the criteria were taken for culture and Drug susceptibility testing. All tests were confirmed using MGIT BACTEC.

Results: Nine patients met study criteria. 77.7% were male. The mean age (SD) of the subjects was 42.55 (14.51); there was no significant difference between the mean age of the males and females. Two (22.2%) of study participants were HIV Seropositive. Four of the nine suspects (44%) of suspects had MDR TB confirmed.

Conclusion: The study has highlighted some challenges with MDR TB diagnosis in Nigeria. Sputum microscopy remains a relevant screening tool for MDR TB among suspects who are HIV Seronegative. The low level of MDR TB diagnosis and lack of treatment portends huge public health risks and the addition of flouroquinolones to a failing regimen should be discouraged

Key words: Multidrug resistant tuberculosis, sputum microscopy, flouroquinolones

Introduction

Multi-drug-resistant tuberculosis(MDR-TB) is defined as TB that is resistant at least to isoniazid (INH) and rifampicin (RMP), the two most powerful first-line anti-TB drugs¹. Isolates that are resistant to any other combination of anti-TB drugs but not to INH and RMP are not classed as MDR-TB.

MDR-TB could arise from initial infection with multidrug resistant bacilli (Primary MDR-TB) or develop during treatment of fully-sensitive TB (secondary MDR TB) when the course of antibiotics is interrupted and the levels of drug in the body are insufficient to kill 100% of bacteria. This can happen for a number of reasons: Patients may feel better and halt their antibiotic course, drug supplies may run out or become scarce, or patients may forget to take their medication from time to time. MDR-TB is spread from person to person as readily as drug-sensitive TB and in the same manner.²

In Nigeria and other developing countries, there are sparse diagnostic facilities for MDR TB and the costs of bacteriological diagnosis in most cases are very expensive. We document our experience with the diagnosis of MDR TB in Jos, North Central Nigeria.

Methods

This was a prospective study to identify pattern and possible determinants of MDR TB among MDR TB suspects managed in the Tuberculosis clinic of Jos University Teaching Hospital (JUTH) between January 2008 and October 2010. Participants were included in the study if they were suspected of having MDR TB and had sputum culture and drug susceptibility testing (DST) results.

Data collected for the study were part of the routine evaluation of the patients. Consecutive patients who met study criteria were recruited.

Ethical clearance for the study was obtained from the Ethics committee of the Jos University Teaching Hospital, and written informed consent was obtained from all participants.

Results

Nine patients met study criteria. 77.7% were male. The mean age (SD) of the subjects was 42.55 (14.51); there was no significant difference between the mean age of the males and females. Two (22.2%) of study participants were HIV Seropositive. Four of the nine suspects (44%) of suspects had MDR TB confirmed. All tests were confirmed using MGIT BACTEC. All MDR TB

isolated were also resistant to Streptomycin and Ethambutol (resistance to pyrazinamide was not done).

All subjects had prior Tuberculosis treatment which ranged from 1-6 courses (Mean 2.8 courses). Fluoroquinolones had been used as part of Tuberculosis treatment in 55.6% of subjects and 75.5% in subjects with confirmed MDR TB.

A positive sputum smear had a sensitivity of 0.75 and a specificity of 0.8. All subjects had abnormal chest radiograms.

Discussion

The small number of study subjects underscores one of the major challenges with MDR TB diagnosis in Nigeria- high cost of diagnosis. While the Federal Government is working towards universal access to free MDR TB diagnosis and treatment in Nigeria, the current reality is that few have been able to benefit from this. MDR TB diagnosis is currently beyond the reach of most people who will require these facilities. From our experience, all our subjects had diagnosis done at a private laboratory (about 300km from Jos) at a cost of about \$120.

While it is difficult to draw conclusions from this study due to the small sample size, some very important issues are highlighted. The first is the high level of Fluoroquinolone use among persons suspected of having MDR TB. While Fluoroquinolones have been shown to have sensitivity against M. Tuberculosis³, their use in patients with MDR TB bacilli will amount to monotherapy and lead to rapid development of resistance to the drug, thereby increasing the risk of extreme drug resistant (XDR TB). Current recommendations stipulate that in the setting of Tuberculosis, quinolones should only be used in addition to other second line drugs in the treatment of MDR TB⁴.

Another interesting finding is the importance of sputum microscopy in the initial evaluation of MDR TB. The study clearly shows that in persons without HIV infection, a negative smear makes TB

and hence MDR TB very unlikely. The numbers were too few to evaluate this in HIV infected persons, but from previous studies, we expect sputum microscopy to be less useful⁵.

With a predicted prevalence of MDR TB as 1.9% among new cases and 9.3% among retreatment (Category 2) cases in Nigeria (WHO 2008 global TB report)⁶; the estimated number of MDR cases in our clinic over the 2 year study period was 51 cases (1040 patients seen over the 2 year period- 60% new cases). Meaning only 7.8% of cases of MDR cases were diagnosed.

Conclusion

This study has highlighted some challenges with MDR TB diagnosis in Nigeria. Treatment is, unfortunately, currently available in only one centre in the whole country. The addition of a quinolone to a failing regimen is discouraged.

Sputum microscopy remains a relevant screening tool for MDR TB among suspects who are HIV Seronegative.

The low level of MDR TB diagnosis and lack of treatment portends huge public health risks.

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