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Successful Management of Multi-Drug Resistant TB in Pregnancy: A Case Report

E. C. Iwuoha[1*] and E. O. Ezirim[2]

[1]Department of Community Medicine Abia State University Teaching Hospital, Aba, Nigeria.
[2]Department of Obstetrics and Gynaecology Abia State University Teaching Hospital Aba, Nigeria.

Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Multi-drug resistant Tuberculosis (MDRTB) affects persons of all ages including women of child bearing age. The management of Multidrug resistant TB in pregnancy is controversial. However current guidelines for programmatic management of MDRTB include commencing pregnant women on treatment after the first trimester. Possible side effects of the drugs especially teratogenicity has been the major concern on whether or not to commence pregnant mothers.

We present a case of a 35 years old multi-gravida Nigerian woman who was managed for MDRTB during pregnancy. The patient was a previously drug sensitive TB patient who was treated for TB but lost to follow-up. At presentation pregnancy which was singleton was estimated at 19 weeks by Abdominal Ultra sound scan. Patient was treated with second line anti-Tb drugs and delivered at 38 weeks gestation; a healthy female baby with a birth weight of 2.5 kg.

Conclusions: Pregnant MDRTB patients can have successful outcomes if commenced on treatment after first trimester.

Keywords: Pregnancy; multi-drug resistant TB; second line drugs.

**Corresponding author: Email: driwuoha@gmail.com, iwuohacarol@gmail.com;*

1. INTRODUCTION

Tuberculosis (TB) is a disease caused by bacteria that are spread from person to person through the air. TB usually affects the lungs, but it can also affect other parts of the body, such as the brain, the kidneys, or the spine. In most cases, TB is treatable and curable; however, persons with TB can die if they do not get proper treatment. Multidrug-resistant TB (MDRTB) is caused by an organism that is resistant to at least isoniazid and rifampicin, the two most potent TB drugs [1].

TB remains one of the top 10 causes of death worldwide. Millions of people including pregnant women continue to fall sick from TB each year. About 10 million people fell ill with TB in 2018 while 1.5 million deaths occurred from TB [2].

Latent TB infection can progress to active tuberculosis as a result of the biological changes and relative immune-compromised status of pregnancy [3]. Pregnant women may thus be also predisposed to MDRTB. In Nigeria, the National Tuberculosis, Buruli and Leprosy Control Program (NTBLCP) which ensures that MDRTB cases are promptly and appropriately treated uses a mixed model (in 2017) of facility based and communitybased care in a 20 months treatment regimen of second line anti Tb drugs [4].

Gaps exist in human data of the adverse events of drugs in pregnancy as pregnant/breastfeeding women are routinely excluded from clinical trials [5]. Adverse events following MDRTB treatment in pregnancy include preterm deliveries (< 37 weeks gestation) miscarriages and intra-uterine growth retardation and in some cases death of the baby or mother. A South African study reported pregnancy outcome of 20 women with available records in a multi centre study carried out in 2020. Findings included 15 live births (11 occurred prior to 37 weeks), 1 neonatal death, 1 miscarriage and 3 pregnancy terminations. Overall, 13/20 (65.0%) women with known pregnancy outcomes had an adverse pregnancy outcome [6]. However the study did not report the trimester in which MDRTB treatment was initiated in these women.

2. CASE PRESENTATION

Our patient was a 35 years old multi-gravid Nigerian woman who was managed for MRDTB during pregnancy. The patient was a previously diagnosed case of drug sensitive TB who was treated for TB but lost to follow-up as she did not complete the six months treatment. Duration for the period of default could not be ascertained due to change of facility and access to previous records. She presented at a DOTS clinic in Abia state, Nigeria with 5 months history of haemoptysis, weight loss, night sweats and unknown last menstrual period. On examination patient was not pale and had no fever. Diagnosis of MDRTB was made via Genexpert test that detected mycobacterium tuberculosis with rifampicin resistance. This was further confirmed using line probe assay as well as initial sputum solid culture using Lowenstein Jensen media. Pregnancy was estimated at 18 weeks by fundal height.

A joint management between the MDRTB clinician and obstetrician was instituted. Abdominal ultrasound revealed a singleton viable foetus estimated at 19 weeks gestation. Preliminary ancillary tests were done as per National guidelines. Results of patient's ancillary tests including Serum electrolytes urea and creatinine, thyroid stimulating hormone and audiometry were all normal. Chest radiograph showed cavitatory lesions typical of tuberculosis cavitations. Patient was commenced on drugs for MDRTB according to national guidelines (Pyrazinamide, capreomycin, levofloxacin, protionamide, cycloserine) at 20 weeks gestation under community treatment. Patient had clinical review monthly while MDRTB medications were given daily by a treatment supporter.

3. RESULTS

Only mild adverse events such as nausea were experienced by patient during the pregnancy. Pregnancy was uneventful however patient was unable to access transport to the health facility following a precipitated labour at 38weeks. Delivery took place at home with the assistance of older women. Patient subsequently presented at the clinic, was examined and found to be stable. She had completed four months of intensive phase of the MDRTB medicines and sputum culture was negative as at the time of delivery. Patient subsequently experienced moderate progressive weight gain following delivery as documented in monthly review records.

3.1 Baby

A healthy female, birth weight 2.5 kg, baby cried at birth but apgar score was not determined as

delivery was taken by unskilled birth attendants. The baby showed no signs of any clinical deformities. Placenta was not available for histology as it was disposed at home prior to presentation. Baby had already been commenced on breast-feeding and this was encouraged since mother had undergone sputum conversion. Isoniazid prophylaxis was not given due to the fact that mother had Isoniazid resistance as detected from line probe assay as well as initial sputum solid culture using Lowenstein Jensen media. BCG was given as part of the National immunization schedule. Infant's evaluations continued until mother was discharged from treatment. No signs of malformation developed neither did baby develop tuberculosis (childhood TB**).**

4. DISCUSSION

Loss to follow up (LFTU) of patients on drug sensitive TB medications has been documented as one of the causes of drug-resistant TB [7,8,9]. Such patients only present subsequently with symptoms of TB and they are classified as presumptive DRTB patients [4]. The controversy over commencing pregnant women on DRTB medicine has continued for sometime due to the fear of teratogenicity with the resultant effect of no treatment or under treatment of the woman. Several case studies of pregnancy and DRTB have been published from several countries with high cure rates of pregnant TB patients. Some have shown no adverse perinatal outcomes; however some have documented growth restriction and congenital defects.

A study in Ukraine compared outcome of pregnant and non pregnant DRTB patients. Pregnant and non-pregnant women with MDR-TB had the same rate for cure and death. In this study, MDR-TB treatment was associated with higher rate of complications of pregnancy (3/10 and 1/15 respectively, p=0.1263) [10]. A retrospective study in Peru assessed 38 pregnant women treated for MDR tuberculosis; 61% of them were cured, 13% died, and 5% experienced treatment failure. Eight (21%) women experienced pregnancy complications, such as spontaneous abortion and vaginal bleeding. No infants displayed teratogenic effects [11]. In our study the patient experienced precipitated labour; however baby was already 38 weeks and therefore did not have any complications at birth.

A case report by Alaga et al of a 32 year old pregnant woman documented that patient didn't experience any adverse effects of MDR TB treatment. The baby delivered showed no evidence of teratogenicity though baby had cleft lip which the authors attributed to long standing diabetes mellitus in the mother [12].

Our patient was commenced on the DRTB medications in the 2nd trimester. Though there have been advocacies for commencing pregnant patient on the second line medications as soon as they are diagnosed, our patients' outcome supports the fact that it can be delayed till second trimester if the patient is stable with minimal disease. However, female patients of childbearing age who are diagnosed with MDR TB should be tested for pregnancy and contraceptive advice should be given to sexually active patients. In our case, the regimen was for 20 months duration (8 months of intensive phase and 12 months of maintenance phase) as at the time of her delivery she was still in the intensive phase. She was followed up and was treated successfully with no adverse drug effects noted on the baby. The child received Bacillus Calmette–Guerin (BCG) vaccination at birth as per WHO policy [13]. The role of INH prophylaxis in neonates born to mothers with MDR-TB is not clear; in our case, we did not give INH prophylaxis to the baby.

5. CONCLUSION

Pregnant MDRTB patients can have successful outcomes if commenced on treatment after first trimester. Multidisciplinary approach is relevant.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

CONSENT AND ETHICAL APPROVAL

As per international standard or university standard guideline Patient's consent and ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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