

Smear-positive pulmonary tuberculosis in pregnancy in Nsanje district, Malawi.

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The relationship between pregnancy and development of tuberculosis (TB) is controversial, with some studies showing an increased risk of TB in pregnancy and others showing no association.¹ The relationship between pregnancy and TB in Malawi has not been studied. We conducted a prospective study in one district in Malawi to determine (i) the case notification rate of smear-positive pulmonary TB (PTB) in pregnant women compared with non-pregnant women and (ii) the treatment outcome of PTB in pregnant women.

All pregnant women attending the antenatal clinic at Nsanje District Hospital between November 1997 and October 1998 were asked whether or not they had a cough. Those who were coughing for more than 3 weeks were asked to submit sputum specimens for smear microscopy for acid-fast bacilli (AFB). Those who were found to be sputum smear-positive were registered for smear-positive PTB. These patients were treated according to Malawi TB control guidelines with rifampicin, isoniazid, pyrazinamide and ethambutol for 2 months followed by isoniazid and ethambutol for 6 months². Treatment outcomes were determined according to standardised definitions². During the same time period the number of women aged 15 years or greater who were not identified in the antenatal clinic (classified as non-pregnant) and who were registered with smear-positive PTB in Nsanje District Hospital were documented. In order to determine the case notification rate in non-pregnant women, the number of women aged 15 years or above estimated to live in Nsanje district in 1998 was obtained from the district statistics office, and the number of pregnant women attending the antenatal clinic was subtracted from this figure. 5731 women attended the antenatal clinic of whom 120 had a cough for greater than 3 weeks. Of these, 22 were registered with smear-positive PTB, giving an annual case notification rate of 384 per 100,000. Eighteen (82%) completed treatment and 4 defaulted. 156 women aged 15 years or above who were not pregnant were registered with smear-positive PTB. There was a total of 100,525 women estimated to live in Nsanje in 1998, giving an estimated number of non-pregnant women of 94,794. The annual case notification rate in non-pregnant women was 165 per 100,000.

The smear-positive PTB case notification rate was over twice as high in pregnant compared with non-pregnant women. There may be three explanations. First, case detection in pregnant women was "active" in the sense that women were attending the hospital, were asked about cough and were investigated if a cough was present for longer than 3 weeks. Case detection in non-pregnant women was through passive

case finding which might have resulted in fewer patients with chronic cough submitting sputum specimens for AFB examination and therefore less chance of being diagnosed with

smear-positive PTB. Second, the estimates of the Nsanje adult female population, based on the 1987 Malawi census, may be incorrect which would lead to miscalculation of the case notification rate for non-pregnant women. Third, pregnancy may add to the risk of developing active TB. In Nsanje district, the HIV-seroprevalence rate in pregnant women attending the hospital in 1999 was 26%³. Persons co-infected with human immunodeficiency virus (HIV) and *Mycobacterium tuberculosis* have an annual risk of developing active tuberculosis (TB) of about 5 - 10%⁴, although the effect of pregnancy on this risk is at present controversial⁵.

The two-fold observed difference in TB case notification between pregnant and non-pregnant women suggests that further properly conducted epidemiological studies should be carried out in this area to determine the risk of TB, particularly in relation to HIV serostatus. If voluntary counselling and HIV testing services are started for pregnant women with the aim of using interventions to reduce mother to child transmission of HIV, isoniazid preventive therapy may be a valuable option for the mothers to prevent the development of active TB.

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