Effect of diabetes mellitus on non-conversion sputum smear and the treatment outcome among working-age group pulmonary tuberculosis patients in Selangor, Malaysia

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ABSTRACT

Introduction: Malaysia is a nation with intermediate Tuberculosis (TB) burden. However, diabetes mellitus (DM) is exceedingly prevalent in Malaysia and is considered to be rising, particularly in the mid-'30s. **Objective:** The primary purpose is to evaluate the effect of DM on TB treatment outcome and sputum conversion among working-age group patients in Selangor, Malaysia. **Materials and methods**: A retrospective cohort study used data from the Tuberculosis Information System (TBIS) from January 2019 to December 2019. Descriptive analyses and comparisons were made using the chi-square test and binary logistic regression analysis to determine the predictors of smear non-conversion and treatment outcomes. **Results and conclusion:** There were 2445 patients from the working-age group with newly diagnosed Pulmonary Tuberculosis (PTB), of whom 612 (25%) had DM. Among those with DM, a significantly higher proportion of men, patients aged 45 years and older, smokers, and persons were living in rural (p<0.001). In addition, in patients with DM, there was a higher proportion who had positive sputum smears at 2 months (17.9% vs 4.9%, RR 3.50, 95% CI 2.37–3.99), unsuccessful outcome (30.2% vs 21.9, p<0.001), and who were died (11.3% vs 3.3%, p<0.001) compared with patients who had no DM. Furthermore, the multivariable analysis demonstrated DM to be independently associated with the non-conversion sputum smear (p<0.001, RR = 3.01, 95% CI 2.09–4.32) after 2 months of intensive therapy. DM was related to failure to convert sputum smear at two months and adverse treatment outcomes of loss-to-follow-up and mortality in smear-positive patients with PTB. More study is needed to understand these findings and evaluate if the present treatment duration is sufficient.