

# Faktor-faktor yang mempengaruhi konversi sputum Basil Tahan Asam mikroskopik pada akhir bulan kedua pengobatan tuberkulosis pada pasien tuberkulosis paru kasus baru dengan diabetes melitus di RSUP Persahabatan. = Factors associated with sputum smear conversion at the end of two months of tuberculosis treatment in new cases tuberculosis with diabetes mellitus patients in Persahabatan Hospital.

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## Abstrak

**ABSTRAK**  
Latar belakang : Prevalens diabetes melitus (DM) terus meningkat di negara berkembang yang merupakan negara endemis tuberkulosis (TB). Diabetes melitus meningkatkan risiko infeksi, hambatan konversi sputum dan kegagalan pengobatan TB. Penelitian ini bertujuan menganalisis faktor-faktor yang mempengaruhi konversi sputum Basil Tahan Asam (BTA) mikroskopik pada akhir bulan kedua pengobatan TB pada pasien TB paru kasus baru dengan DM. Metode : Penelitian kohort retrospektif ini dilaksanakan di RSUP Perahabatan terhadap pasien-pasien TB paru BTA positif kasus baru dengan DM yang berobat pada periode Juli 2012 sampai Juni 2015. Hubungan faktor risiko dengan konversi sputum BTA mikroskopik dianalisis dengan analisis bivariat dan multivariat. Hasil penelitian: Proporsi kegagalan konversi sputum BTA mikroskopik pada pasien TB paru kasus baru dengan DM adalah 43,04%, sedangkan pada pasien tanpa DM 22,75% ( $p < 0,001$ , KI95% 0,11-0,30) dan risiko relatif (RR) kegagalan konversi 1,89 kali lebih tinggi pada kelompok DM. Faktor risiko yang meningkat bermakna pada pasien gagal konversi adalah kadar kepositifan sputum BTA sebelum terapi ( $p = 0,021$ ), HbA1c ( $p = 0,014$ ), GDP ( $p = 0,047$ ), GD 2jam PP ( $p = 0,030$ ) dan kavitas pada foto toraks ( $p = 0,033$ ) sedangkan albumin serum lebih rendah bermakna ( $p = 0,013$ ). Analisis multivariat mendapatkan faktor risiko terkuat untuk kegagalan konversi sputum adalah kadar albumin serum yang rendah ( $p = 0,046$ , aOR 0,464, KI95% 0,218-0,986), tingkat kepositifan sputum BTA mikroskopik sebelum terapi yang tinggi ( $p = 0,009$ , aOR 2,313, KI95% 1,230-4,349) dan kadar HbA1c yang tinggi ( $p = 0,018$ , aOR 1,298, KI 95% 1,047-1,610).

Kesimpulan: Tingkat kepositifan sputum BTA sebelum terapi yang tinggi, status kontrol DM yang tidak baik, kavitas pada foto toraks dan kadar albumin serum yang rendah meningkatkan risiko kegagalan konversi sputum BTA pada pasien TB dengan DM.

**ABSTRACT**  
Background: The link of DM and TB is more prominent in developing countries

where TB is endemic and the burden of DM is increasing. Diabetes mellitus increases the risk of TB infection, delayed sputum smear conversion and TB treatment failure. This study would like to evaluate factors associated with

delayed sputum smear conversion in the end of two months of TB treatment in new cases TB with DM patients in Persahabatan Hospital.

Methods: This retrospective cohort study was conducted in Persahabatan Hospital, included all new cases TB with DM patients in the period from July 2012 - June 2015. All the risk factors performed bivariate and multivariate analysis in association with sputum smear conversion in the end of two months of TB treatment.

Results: The proportion of sputum smear conversion failure is higher in TB-DM than non-DM patients (43,04 vs 22,75%) ( $p < 0,001$ , CI95% 0,11-0,30) with the relative risk (RR) for sputum conversion failure 1,89 higher in TB-DM patients.

Bivariate analysis resulted in significant higher of initial sputum smear level ( $p=0,021$ ), HbA1c ( $p=0,014$ ), FBG ( $p=0,047$ ), post prandial Blood Glucose ( $p=0,030$ ) and cavity at chest x-ray ( $p=0,033$ ) and significant lower of serum albumin ( $p=0,013$ ) in non-conversion patients. Multivariate analysis resulted in risk factors strongly associated with sputum conversion failure are low albumin level ( $p=0,046$ , CI95% 0,218-0,986), high initial sputum smear level ( $p=0,009$ , CI95% 1,230-4,349) and high HbA1c level ( $p=0,018$ , CI 95% 1,047-1,610).

Conclusions: Higher initial sputum smear level, uncontrolled diabetic status, cavity at chest x-ray and lower albumin level associated with sputum smear conversion failure in TB-DM patients.;Background: The link of DM and TB is more prominent in developing countries

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