

## ABSTRAK

# KORELASI KADAR MAGNESIUM DARAH DENGAN DERAJAT KERUSAKAN PARU PADA PASIEN TUBERKULOSIS TANPA KOMORBID DI YOGYAKARTA

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### Latar Belakang:

Tuberkulosis (TB) paru tetap menjadi masalah kesehatan global dengan berbagai faktor yang memengaruhi progresivitas penyakit. Magnesium berperan penting dalam fungsi sistem imun dan metabolisme vitamin D, namun korelasi antara kadar magnesium dengan derajat kerusakan paru pada pasien TB tanpa komorbid belum banyak diteliti di Indonesia.

### Tujuan:

Penelitian ini bertujuan untuk menganalisis korelasi antara kadar magnesium serum dengan derajat kerusakan paru pada pasien tuberkulosis tanpa komorbiditas di Yogyakarta.

### Metode:

Penelitian *cross-sectional* dilakukan pada 41 pasien TB paru terkonfirmasi bakteriologis tanpa komorbid di 18 Puskesmas Kota Yogyakarta periode Agustus-Oktober 2025. Derajat kerusakan paru dinilai berdasarkan klasifikasi *American Thoracic Society (minimal, moderate, advanced)* oleh dua spesialis radiologi. Kadar magnesium serum diukur secara spektrofotometri. Analisis korelasi menggunakan uji Spearman *rank correlation*.

### Hasil:

Rerata kadar magnesium serum adalah  $2,01 \pm 0,19$  mg/dL dengan 95,2% subjek memiliki kadar normal. Distribusi derajat kerusakan paru menunjukkan 17,1% *minimal*, 39% *moderate*, dan 43,9% *advanced*. Analisis korelasi Spearman menunjukkan tidak terdapat hubungan bermakna antara kadar magnesium dengan derajat kerusakan paru ( $\rho = -0,045$ ;  $p = 0,390$ ).

### Kesimpulan:

Tidak terdapat korelasi antara kadar magnesium serum dengan derajat kerusakan paru pada pasien tuberkulosis tanpa komorbid.

**Kata kunci:** tuberkulosis paru, magnesium serum, kerusakan paru, korelasi

## ABSTRACT

### **CORRELATION BETWEEN SERUM MAGNESIUM LEVELS AND SEVERITY OF PULMONARY DAMAGE IN TUBERCULOSIS PATIENTS WITHOUT COMORBIDITIES IN YOGYAKARTA**

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#### **Background:**

Pulmonary tuberculosis (TB) remains a global health concern with various factors influencing disease progression. Magnesium plays a crucial role in immune function and vitamin D metabolism; however, the correlation between magnesium levels and the severity of pulmonary damage in TB patients without comorbidities has been insufficiently studied in Indonesia.

#### **Objective:**

This study aimed to analyze the correlation between serum magnesium levels and the degree of pulmonary damage in tuberculosis patients without comorbidities in Yogyakarta.

#### **Methods:**

A cross-sectional study was conducted on 41 bacteriologically confirmed pulmonary TB patients without comorbidities at 18 primary health centers in Yogyakarta from August to October 2025. The degree of pulmonary damage was assessed according to the American Thoracic Society classification (*minimal, moderate, advanced*) by two radiologists. Serum magnesium levels were measured spectrophotometrically. Correlation analysis was performed using Spearman rank correlation test.

#### **Results:**

Mean serum magnesium level was  $2.01 \pm 0.19$  mg/dL, with 95.2% of subjects having normal levels. Distribution of pulmonary damage showed 17.1% minimal, 39% moderate, and 43.9% advanced disease. Spearman correlation analysis revealed no significant relationship between magnesium levels and degree of pulmonary damage ( $\rho = -0.045$ ;  $p = 0.390$ ).

#### **Conclusions:**

No correlation was found between serum magnesium levels and the degree of pulmonary damage in tuberculosis patients without comorbidities.

**Keywords:** pulmonary tuberculosis, serum magnesium, pulmonary damage, correlation