

## ABSTRAK

Judul : Hubungan Derajat Lesi Radiografi Toraks Pada Pasien Tuberkulosis Paru Dewasa Disertai Diabetes Melitus Tipe 2 Tidak Terkontrol Dengan Nilai Rasio Neutrofil Limfosit Di Rumah Sakit Umum Royal Prima Medan Periode 2024

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Tuberkulosis paru (TB paru) merupakan masalah kesehatan utama di Indonesia dan menjadi lebih berat bila disertai Diabetes Melitus Tipe 2 (DM tipe 2) tidak terkontrol, karena hiperglikemia kronis melemahkan sistem imun dan memperparah kerusakan jaringan paru. Kondisi ini tampak melalui derajat lesi radiografi toraks dan peningkatan rasio Neutrofil-Limfosit (NLR) sebagai penanda inflamasi sistemik. Penelitian ini bertujuan mengetahui hubungan antara derajat lesi radiografi toraks dan nilai NLR pada pasien TB paru dewasa dengan DM tipe 2 tidak terkontrol di RSUD Royal Prima Medan. Metode penelitian observasional analitik dengan desain *cross sectional* dilakukan pada 36 pasien TB paru dewasa dengan DM tipe 2 tidak terkontrol tahun 2024. Data diperoleh dari pemeriksaan radiografi toraks dan laboratorium, dianalisis menggunakan uji Chi-Square ( $p < 0,05$ ). Hasil menunjukkan mayoritas pasien berjenis kelamin laki-laki (80,6%), usia  $>65$  tahun (33,3%), dan memiliki derajat lesi *Moderately Advanced* (50%), diikuti *Far Advanced* (38,9%) dan Minimal (11,1%). Gambaran radiologis tersering adalah infiltrat dan kombinasi konsolidasi-infiltrat (masing-masing 11,1%). Sebanyak 72,2% pasien mengalami neutrofilia dan 47,2% memiliki NLR kategori intermediate. Terdapat hubungan bermakna antara derajat lesi radiografi toraks dan nilai NLR ( $p = 0,003$ ), menunjukkan semakin berat lesi paru, semakin tinggi tingkat inflamasi sistemik. Kesimpulannya, terdapat hubungan signifikan antara derajat lesi radiografi toraks dan NLR pada pasien TB paru dengan DM tipe 2 tidak terkontrol. Disarankan pasien menjaga kontrol gula darah dan kepatuhan terapi, tenaga kesehatan melakukan skrining ganda TB-DM, serta memanfaatkan NLR sebagai indikator inflamasi.

**Kata Kunci:** Tuberkulosis paru, Diabetes Melitus Tipe 2, Radiografi toraks, Derajat lesi, Rasio Neutrofil-Limfosit (NLR)

## **ABSTRACT**

*Title* : *The Relationship Between the Degree of Thoracic Radiographic Lesions in Adult Pulmonary Tuberculosis Patients with Uncontrolled Type 2 Diabetes Mellitus and the Neutrophil-Lymphocyte Ratio at Royal Prima General Hospital Medan, 2024 Period*

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*Pulmonary tuberculosis (TB) remains a major health problem in Indonesia and becomes more severe when accompanied by uncontrolled Type 2 Diabetes Mellitus (T2DM), as chronic hyperglycemia weakens the immune system and exacerbates lung tissue damage. This condition can be observed through the degree of thoracic radiographic lesions and an increased Neutrophil-Lymphocyte Ratio (NLR) as a marker of systemic inflammation. This study aimed to determine the relationship between the degree of thoracic radiographic lesions and NLR values in adult pulmonary TB patients with uncontrolled T2DM at Royal Prima General Hospital Medan. An analytical observational study with a cross-sectional design was conducted on 36 adult TB patients with uncontrolled T2DM in 2024. Data were obtained from thoracic radiography and laboratory examinations and analyzed using the Chi-Square test ( $p < 0.05$ ). The results showed that most patients were male (80.6%), aged over 65 years (33.3%), and had Moderately Advanced lesions (50%), followed by Far Advanced (38.9%) and Minimal (11.1%). The most common radiological findings were infiltrates and combined consolidation-infiltrates (each 11.1%). A total of 72.2% of patients had neutrophilia, and 47.2% had intermediate NLR levels. There was a significant relationship between the degree of thoracic radiographic lesions and NLR values ( $p = 0.003$ ), indicating that the more severe the lung lesions, the higher the level of systemic inflammation. In conclusion, there is a significant association between the degree of thoracic radiographic lesions and NLR in pulmonary TB patients with uncontrolled T2DM. It is recommended that patients maintain good glycemic control and treatment adherence, while healthcare providers perform dual TB-DM screening and utilize NLR as a simple inflammatory indicator.*

**Keywords:** *Pulmonary tuberculosis, Type 2 Diabetes Mellitus, Chest radiography, Lesion degree, Neutrophil-to-Lymphocyte Ratio (NLR)*