# HUBUNGAN RASIO NEUTROFIL-LIMFOSIT, RASIO TROMBOSIT-LIMFOSIT, DAN LAJU ENDAP DARAH SEBELUM PENGOBATAN TERHADAP KESEMBUHAN PASIEN TUBERKULOSIS PARU DEWASA KASUS BARU PEROKOK DI RSUD DEPOK

**Faiz Adnan Makarim**

**Abstrak**

Tuberkulosis merupakan penyakit infeksius dengan jumlah kasus yang banyak di Indonesia dan dunia. Kesembuhan dari tuberkulosis dipengaruhi berbagai faktor seperti kepatuhan pengobatan dan merokok. Rokok akan mengganggu proses imunitas dalam melawan bakteri tuberkulosis dan akan mempengaruhi kadar hematologi, sebagai contoh yaitu pada tiga parameter inflamasi kronik yaitu rasio neutrofil-limfosit, rasio trombosit-limfosit, dan laju endap darah, diketahui dapat menjadi prediktor untuk beberapa penyakit inflamasi kronik. Tujuan penelitian ini untuk mengetahui hubungan rasio neutrofil-limfosit, rasio trombosit-limfosit, dan laju endap darah sebelum pengobatan terhadap kesembuhan pasien tuberkulosis paru dewasa kasus baru perokok. Rasio neutrofil-limfosit, rasio trombosit-limfosit, laju endap darah, dan kesembuhan didapatkan dari data rekam medis. Desain penelitian ini adalah potong lintang dengan jumlah sampel 117 pasien yang memenuhi kriteria inklusi. Hasil menunjukan terdapat hubungan yang signifikan antara rasio neutrofil-limfosit (p=0,000), rasio trombosit-limfosit (p=0,005), dan laju endap darah (p=0,044) terhadap kesembuhan pasien tuberkulosis paru dewasa kasus baru perokok. Peningkatan rasio neutrofil-limfosit merupakan faktor yang paling berpengaruh (6,632 kali) terhadap kegagalan pengobatan pasien tuberkulosis paru dewasa kasus baru perokok. Pada tuberkulosis, terjadi peningkatan neutrofil dan trombosit akibat respon mediator inflamasi dan penghambatan apoptosis, penurunan limfosit akibat peningkatan apoptosis, dan peningkatan laju endap darah akibat protein fase akut yang dapat membuat ikatan dan meningkatkan pengendapan.

**Kata Kunci:** Rasio neutrofil-limfosit, rasio trombosit-limfosit, laju endap darah, kesembuhan pasien tuberkulosis

# THE RELATION OF PRETREATMENT NEUTROPHIL-LYMPHOCTE RATIO, PLATELET-LYMPHOCYTE RATIO, AND ERYTHROCYTE SEDIMENTATION RATE TO RECOVERY OF ADULT SMOKERS PATIENTS WITH NEW CASES OF PULMONARY TUBERCULOSIS AT RSUD DEPOK

**Faiz Adnan Makarim**

## Abstract

Tuberculosis is an infectious disease with a large number of cases in Indonesia and the World. Recoveries of tuberculosis are affected by multiple factors, such as medication adherence and smoking. Smoking will interfere with the immunity process to fight tuberculosis bacteria and affect hematologic level, for example in three chronic inflammatory parameters, neutrophil-lymphocyte ratio, platelet-lymphocyte ratio, and erythrocyte sedimentation rate, and known to be the predictor for several chronic inflammatory diseases. The purpose of this study was to determine the relationship of pretreatment neutrophil-lymphocyte ratio, platelet-lymphocyte ratio, and erythrocyte sedimentation rate that recovery the new cases pulmonary tuberculosis patients in adult smokers. Neutrophil-lymphocyte ratio, platelet-lymphocyte ratio, and erythrocyte sedimentation rate, and recoveries data are found in medical records. This research design study is cross-sectional with a sample size of 117 patients who meet the inclusion criteria. The results showed that there was a significant correlation between neutrophil-lymphocyte ratio (p=0,000), platelet-lymphocyte ratio (p=0,005), and erythrocyte sedimentation rate (p=0,044) with the recovery of new cases pulmonary tuberculosis patients in adult smokers. Increasing neutrophil-lymphocyte ratio is the most influential factor (6,632 times) that increase recovery failure for adult smokers patients with new case of pulmonary tuberculosis. In tuberculosis, there is an increase in neutrophil and platelet because of inflammatory mediator response and inhibition of apoptosis, decrease of lymphocyte because of promotion of apoptosis, and increase in erythrocyte sedimentation rate because of acute phase protein that can make bonds and increase in sedimentation.

**Keywords:** Neutrophil-lymphocte ratio, platelet-lymphocte ratio, erythrocyte sedimentation rate, recovery of tuberculosis patients