

## Perbedaan Parameter Hematologi pada Penderita Tuberkulosis Paru Terinfeksi *Mycobacterium Tuberculosis* Galur Beijing dengan Galur Non-Beijing

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### Abstrak

Tuberkulosis (TB) merupakan penyakit inflamasi kronik, tingginya kasus TB dapat disebabkan oleh perbedaan virulensi antargalur *Mycobacterium tuberculosis* (MTB). Penelitian ini bertujuan untuk menganalisis berbagai manifestasi hematologi yang terjadi pada penderita TB paru yang terinfeksi galur Beijing dan non-Beijing MTB. Sampling penelitian dilakukan di Rumah Sakit Dr. H.A. Rotinsulu Bandung, RSU Cibabat Cimahi, Balai Besar Kesehatan Paru Masyarakat (BBKPM) Bandung, Puskesmas Batujajar, Puskesmas Padalarang, dan Puskesmas Cimareme pada Juni 2014–Januari 2015. Penelitian diikuti oleh 74 penderita TB paru BTA (+) terdiri atas 61% pria dan 39% wanita yang berusia 18–63 tahun. Berdasar atas *spoligotyping* diperoleh 24 (32%) terinfeksi galur Beijing dan 50 (68%) galur non-Beijing. Pemeriksaan laju endap darah (LED) menggunakan metode Westergreen, parameter hematologi lain menggunakan *haematology analyzer*. Kadar hemoglobin galur Beijing 8,6–14,8 g/dL dan galur non-Beijing 8,1–16,5 g/dL, anemia ini lebih banyak ditemukan pada penderita yang terinfeksi galur Beijing (17 dari 24) dibanding dengan galur non-Beijing 31 dari 50. Nilai absolut eritrosit tidak ada perbedaan, kecuali *red blood cell distribution width* (RDW). Hasil antara Beijing dan non-Beijing didapatkan hasil LED 94,0 (35,03) vs 89,9 (29,96) mm; leukositosis tidak berbeda namun 67% neutrofilia dan 17% limfopenia pada galur Beijing, 0% dan 30% pada galur non-Beijing; jumlah trombosit 46% (416,3±161,7)×1.000 sel/mm<sup>3</sup> vs 122-834 (407,0±154,8)×1.000 sel/mm<sup>3</sup> dengan trombositosis 63% vs 46%. Penderita terinfeksi galur Beijing menunjukkan anemia, LED, dan trombositosis lebih tinggi dibanding dengan non-Beijing; hal ini berarti penderita terinfeksi galur Beijing mengalami inflamasi yang lebih berat. [MKB. 2017;49(1):35–42]

**Kata kunci:** Beijing, non-Beijing, profil hematologi

## The Differences of Haematology Profile in Patients with Lung Tuberculosis Infected by *Mycobacterium tuberculosis* Beijing Strain and non-Beijing Strain

### Abstract

Tuberculosis (TB) is a chronic inflammation disease; a high numbers of tuberculosis cases can be caused by virulence potential of each *Mycobacterium tuberculosis* (MTB) strain. The event of inflammation process influences the hematopoietic system which gives various hematology examination results. This study was conducted in order to analyze various forms of hematological manifestation occur in patients with lung TB caused by MTB Beijing strain and non-Beijing strain infections. This study was performed on 74 lung TB-infected patients with positive acid-fast bacilli, consisting of 61% males and 39% females whose age ranged from 18 to 63 (32.6±12.2) years old. Spoligotyping was performed, resulting in 24 (32%) Beijing strain and 50 (68%) non-Beijing strain infections. Hematological examination was performed using hematology analyzer and erythrocyte sedimentation rate (ESR) with Westergreen method. Hemoglobin level ranged from 8.6 to 14.8 (11.8) g/dL and 8.1–16.5 (12.0) g/dL from Beijing strain and non-Beijing strain, respectively, with more anemia was found in Beijing strain patients (71%) compared to non-Beijing strain (62%). There was no differences in absolute erythrocyte count, except in red blood cell distribution width (RDW). The comparison of ESR result between Beijing and non-Beijing in ESR resulting in 94.0 (35.03) vs 89.9 (29.96) mm with no difference in leukocytosis, yet 66.7% neutrophilia and 16.7% lymphopoiesis in Beijing strain patients, 0% and 30% consecutively in non-Beijing strain. The number of thrombocyte is 68-882 (416.3±161.7)×1000 cells/mm<sup>3</sup> vs 122-834 (407.0±154.8)×1000 cells/mm<sup>3</sup> with thrombocytosis in 63% vs 46%. Beijing strain patients shows anemia, and higher ESR and thrombocytosis. These show that patients infected by Beijing strains experience more severe inflammation. [MKB. 2017;49(1):35–42]

**Key words:** Beijing strain, non-Beijing strain, haematology profile

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