

ORIGINAL ARTICLE

The Difference In Blast Number Between Manual Count And ADVIA 2120i Automatic Hematology Analyzer

Perbedaan Jumlah *Blast* Pada Hitung Manual Dengan Alat Advia 2120i

¹Mario^M, ²Notopuro PB

¹Departement of Clinical Pathology, Faculty of Medicine, Universitas Trisakti, Jakarta, Indonesia

²Departement of Clinical Pathology, School of Medicine, Airlangga University Dr. Soetomo Hospital, Surabaya, Indonesia

[✉ mario@trisakti.ac.id](mailto:mario@trisakti.ac.id)

[doi https://doi.org/10.56186/jbk.xxx](https://doi.org/10.56186/jbk.xxx)

ABSTRACT

Background

The development of sophisticated automated blood-cell analyzers caused the proportion of blood-count samples that require a manual different count has steadily diminished. Blood smear remains a crucial diagnostic aid in determining type of leukemia by the appearance and blast numbers in blood smear. ADVIA 2120i has a parameter of blast cells percentage. This study was undertaken to determine the difference in blast number between manual count and ADVIA 2120i automatic hematology analyzer.

Methods

This was an analytical observational study with cross-sectional design. Thirty samples (22 peripheral blood and 8 bone marrow) which were detected blast numbers from ADVIA 2120i were examined. Samples were collected from November 2015 to August 2016. Manual count was performed in each sample by using blood smear and bone marrow evaluation.

Results

Twenty three cases of AML and 7 cases of ALL were found. Blast percentage from manual count was between 0 to 95% (Mean 28.5%); from Advia 2120i was between 0.1 to 99% (Mean 16.2%). There was significant difference in conformity results from blast number between manual count and ADVIA 2120i with $p < 0.05$.

Conclusions

There were significant differences in blast numbers between manual count and ADVIA 2120i.

Keywords: Blood smear evaluation; Blast numbers; Leukemia; ADVIA 2120i

ABSTRAK

Latar Belakang

Kemajuan teknologi alat hematologi otomatis menyebabkan permintaan pemeriksaan hitung jenis manual menurun. Hapusan Darah Tepi (HDT) tetap memiliki peran dalam membantu menentukan jenis leukemia, dengan melihat tipe dari jenis dan jumlah/hitung blast pada hapusan darah yang semestinya tidak ditemukan pada HDT normal. Pada alat hematologi ADVIA 2120i terdapat parameter persentase jumlah sel *blast*. Penelitian ini menilai perbedaan jumlah sel *blast* yang didapat dari hitung manual dengan alat ADVIA 2120i.

Metode

Penelitian bersifat analisis observasional dengan rancangan *cross sectional*. Sampel penelitian berjumlah 30 (22 sampel darah tepi, 8 sampel sumsum tulang) yang terdeteksi adanya sel *blast* pada alat Advia 2120i, Sampel dikumpulkan dari bulan November 2015 s/d Agustus 2016. Masing-masing sampel dilakukan perhitungan manual jumlah sel *blast* dengan pemeriksaan hapusan.

Hasil

Dari 30 sampel didapatkan 23 kasus AML dan 7 kasus ALL. Rentang jumlah sel blast pada hitung manual 0 sampai 95% dengan mean 28.5%, rentang jumlah sel blast pada alat ADVIA 2120i 0.1 sampai 99% dengan mean 16.2%. Kesesuaian hasil perhitungan jumlah blast antara hitung manual dan alat ADVIA 2120i terdapat perbedaan bermakna dengan nilai $p < 0.05$.

Kesimpulan

Terdapat perbedaan bermakna jumlah *blast* antara hitung manual dengan alat hematologi ADVIA 2120i.

Kata Kunci: Hapusan darah; Jumlah blast; Leukemia; ADVIA 2120i