

DIFFERENCES IN 3% GIEMSA STAINING AT 25 MINUTES OF TEMPERATURE 36-37,5°C AND 45 MINUTES OF TEMPERATURE 20-25°C ON MALARIA MICROSCOPIC RESULTS

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ABSTRACT

Background : Malaria can be eradicated by implementing strategies, one of which is disease diagnosis. Giemsa staining is the “gold standard” for malaria diagnosis. The Ministry of Health of the Republic of Indonesia recommends Giemsa staining with a concentration of 3% for 45-60 minutes. This method has a lower cost than the fast method, but takes longer. This research carried out staining with Giemsa which was heated at body temperature (36-37,5°C) making the erythrocytes stretch, thus increasing the permeability of the erythrocytes so that the dye could enter the parasite more quickly so that the staining time was faster.

Objective : To determine the differences in results, quality and level of effectiveness of staining malaria thin blood smears using Giemsa 3% for 25 minutes at a temperature of 36-37,5°C with staining malaria thin blood smears with a concentration of 3% for 45 minutes at a temperature of 20-25°C.

Method : The type of research is quasi-experimental with a Posttest-only design with nonequivalent groups. The research uses descriptive analysis and Mann Whitney U test statistical analysis.

Results : The average score of the microscopic assessment of staining preparations for 25 minutes at 36-37,5°C was lower than 45 minutes at 20-25°C based on the criteria of background, cytoplasm and nuclei, thus showing a difference in quality. The quality of the staining results from this score obtained at 36-37,5°C for 25 minutes was no better because the resulting color was paler than staining at 20-25°C for 45 minutes. The effectiveness of coloring at a temperature of 36-37,5°C for 25 minutes is less effective with an overall value of 65,11%.

Conclusion : The microscopic results of staining malaria thin blood smears with a concentration of 3% for 25 minutes at a temperature of 36-37,5°C are no better than staining malaria thin blood smears with a concentration of 3% for 45 minutes at a temperature of 20-25°C with a less effective level of effectiveness. This is caused by several factors, including the staining time being too short and the staining distance after fixation being too long.

Keywords: Time, Temperature of Giemsa Malaria Staining

PERBEDAAN PEWARNAAN GIEMSA 3% PADA 25 MENIT SUHU 36-37,5°C DAN 45 MENIT SUHU 20-25°C TERHADAP HASIL SEDIAAN MALARIA

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ABSTRAK

Latar Belakang : Malaria dapat diberantas dengan melaksanakan strategi, salah satunya diagnosis penyakit. Pewarnaan giemsa merupakan “*gold standard*” untuk diagnosis malaria. Kementerian Kesehatan Republik Indonesia merekomendasikan pewarnaan giemsa konsentrasi 3% selama 45-60 menit. Metode ini memiliki biaya yang lebih rendah dibandingkan metode cepat, tetapi membutuhkan waktu yang lebih lama. Penelitian ini melakukan pewarnaan dengan giemsa yang dipanaskan pada suhu tubuh (36-37,5°C) membuat eritrosit merenggang sehingga meningkatkan permeabilitas eritrosit agar pewarna semakin cepat masuk ke dalam parasit sehingga waktu pewarnaan menjadi lebih cepat.

Tujuan : Mengatahui perbedaan hasil, kualitas dan tingkat efektivitas pewarnaan sediaan darah tipis malaria menggunakan giemsa 3% selama 25 menit pada suhu 36-37,5°C dengan pewarnaan sediaan darah tipis malaria konsentrasi 3% selama 45 menit pada suhu 20-25°C.

Metode : Jenis penelitian yaitu quasi eksperimen dengan desain *Posttest-only design with nonequivalent groups*. Penelitian menggunakan analisis deskriptif dan analisis statistik Uji *Mann Whitney U*.

Hasil : Skor rata-rata penilaian mikroskopis sediaan pewarnaan 25 menit suhu 36-37,5°C lebih rendah dibandingkan 45 menit suhu 20-25°C berdasarkan kriteria latar belakang, sitoplasma serta inti sehingga menunjukkan perbedaan kualitas. Kualitas hasil pewarnaan dari skor tersebut didapatkan pada 36-37,5°C selama 25 menit tidak lebih baik karena warna yang dihasilkan lebih pucat dibandingkan pewarnaan suhu 20-25°C selama 45 menit. Efektivitas pewarnaan suhu 36-37,5°C selama 25 menit yaitu kurang efektif dengan nilai sebesar 65,11% secara keseluruhan.

Kesimpulan : Hasil mikroskopis pewarnaan sediaan darah tipis malaria dengan konsentrasi 3% selama 25 menit suhu 36-37,5°C tidak lebih baik daripada pewarnaan sediaan darah tipis malaria konsentrasi 3% selama 45 menit suhu 20-25°C dengan tingkat efektivitas kurang efektif. Hal ini disebabkan beberapa faktor diantaranya waktu pewarnaan terlalu singkat dan jarak pewarnaan setelah fiksasi terlalu lama.

Kata Kunci : Waktu, Suhu Pewarnaan Giemsa Malaria