

## ABSTRACT

Dengue hemorrhagic fever is a disease caused by the dengue virus transmitted by the *Aedes aegypti* mosquito. DHF secondary infection has a high risk of increasing vascular permeability, resulting in plasma leakage. The neutrophil lymphocyte count ratio taken from a blood test is considered to be a predictor of plasma leakage. This study aims to observe the neutrophil lymphocyte count ratio in DHF patients with positive IgG/IgM results. This research is a retrospective descriptive, with a cross-sectional design and a total sample of 32 people. Samples were obtained from patients diagnosed with DHF with positive IgG/IgM results using the immunochromatography method who were hospitalized at RSUD Haji Provinsi Jawa Timur for the period January 2022–March 2023 and get examined for the neutrophil lymphocyte count ratio using the flow cytometry method on the 2nd, 3rd, and 4th days. The results showed that the average neutrophil counts on day 2, 3, and 4 were 1.82  $\mu\text{L}$ , 2.10  $\mu\text{L}$ , and 2.49  $\mu\text{L}$ . The patient's lymphocyte count on day 2, 3, 4 was 2.13  $\mu\text{L}$ , 2.81  $\mu\text{L}$ , and 3.35  $\mu\text{L}$ . The NLCR of patients on day 2, 3, 4 were 1.34, 0.88 and 0.86. The results of the overall data were then analyzed, and the results obtained showed an increase in the number of neutrophil and lymphocyte on day 3 and 4. While the patient's NLCR was found to be decreasing on day 3 and 4. So it was concluded that DHF patients with secondary infections were at high risk of experiencing plasma leakage. This is reflected in the NLCR value. The lower the ratio, the more severe the form of infection.

Keywords: neutrophil lymphocyte count ratio, IgG/IgM, dengue hemorrhagic fever, secondary infection

## ABSTRAK

Demam berdarah dengue merupakan penyakit yang disebabkan oleh virus dengue dan ditularkan melalui nyamuk *Aedes aegypti*. DBD infeksi sekunder memiliki risiko tinggi terjadinya peningkatan permeabilitas vaskular sehingga mengakibatkan kebocoran plasma. Nilai rasio neutrofil limfosit yang diambil dari pemeriksaan darah lengkap dinilai mampu menjadi prediktor masa kebocoran plasma. Penelitian ini bertujuan untuk mengetahui gambaran rasio neutrofil limfosit pada pasien DBD dengan IgG/IgM positif. Penelitian ini merupakan deskriptif retrospektif dengan pendekatan *cross sectional* berjumlah sampel 32 orang. Sampel diperoleh dari pasien terdiagnosis DBD dengan hasil IgG/IgM positif metode imunokromatografi yang menjalani rawat inap di RSUD Haji Provinsi Jawa Timur periode Januari 2022–Maret 2023 dan kemudian diperiksa rasio neutrofil limfosit dengan metode *flow cytometry* di hari ke-2, 3, dan 4. Hasil penelitian menunjukkan bahwa rata-rata jumlah neutrofil pasien hari ke-2, 3, 4 sebesar 1.82  $\mu\text{L}$ , 2.10  $\mu\text{L}$ , dan 2.49  $\mu\text{L}$ . Jumlah limfosit pasien hari ke-2, 3, 4 sebesar 2.13  $\mu\text{L}$ , 2.81  $\mu\text{L}$ , dan 3.35  $\mu\text{L}$ . Nilai RNL pasien hari ke-2, 3, 4 sebesar 1.34, 0.88, dan 0.86. Hasil data keseluruhan selanjutnya dianalisa dan didapatkan hasil adanya kenaikan pada jumlah neutrofil dan limfosit di hari ke-3 dan 4. Sedangkan RNL pasien didapatkan makin menurun di hari ke-3 dan 4. Sehingga disimpulkan bahwa pasien DBD dengan infeksi sekunder berisiko tinggi mengalami kebocoran plasma, hal ini direfleksikan dari nilai RNL yang semakin rendah mengartikan bahwa semakin parah bentuk infeksi yang diderita.

Kata kunci : rasio neutrofil limfosit, IgG/IgM, demam berdarah dengue, infeksi sekunder