

## ABSTRAK

Pneumonia merupakan faktor resiko kematian utama balita dan anak paling banyak dibandingkan infeksi oportunistik lainnya. Pneumonia anak sering terjadi akibat gangguan imunitas yang masih dalam tahap perkembangan dan mudah terinfeksi. Anak usia 1-5 tahun cenderung lebih aktif dan sering berinteraksi dengan lingkungan yang berpotensi kontak dengan penderita pneumonia. Limfosit T CD4 berperan dalam proses inflamasi dalam sistem imunitas spesifik dan bagian dari respon imun adaptif untuk melindungi tubuh. Penelitian dilakukan bertujuan mengetahui banyaknya limfosit T CD4 serta faktor-faktor yang mempengaruhi tingkat keparahan pneumonia anak rendah satu dan rendah dua. Jenis penelitian deskriptif kuantitatif observasi analitik pendekatan *cross-sectional*. Selesai dilakukan pada Juni 2024. Pemeriksaan sel limfosit T CD4 dilakukan dengan alat Alere Pima Analyzer metode *Flowcytometry* di Laboratorium RSUD Dr. Soedono Madiun Prov. Jawa Timur dan skor PSI untuk menentukan kategori rendah satu dan dua. Sampel penelitian ini sebanyak 5 sampel dengan teknik pengumpulan data *Total Sampling*. Analisis data dengan *Microsoft Excel 2010*. Berdasarkan penelitian yang telah dilakukan didapatkan 2 responden dalam status pneumonia rendah dua dengan jumlah CD4 350 sel/mm<sup>3</sup> (nilai normal >500sel/mm<sup>3</sup>) dengan skor 100 (skor <70) dan 822 sel/mm<sup>3</sup> dengan skor 75 (skor <70). dan 3 responden kategori rendah satu dengan jumlah CD4 >500 sel.mm<sup>3</sup> dan skor <50. Faktor penyebab, makanan dan alergi, asupan gizi, lingkungan rumah, dan tinjauan rekam medis juga berpengaruh terhadap infeksi pneumonia anak. Dari penelitian ini faktor utama penyebab infeksi yaitu paparan mikroba, faktor makanandan alergi, serta kondisi rumah yang lembab, paparan polusi udara dan asap rokok secara berlebih.

**Kata Kunci:** Tingkat Keparahan Pneumonia Anak, Limfosit T CD4, Leukosit.

## ABSTRACT

*Pneumonia is an important cause of death among toddlers or children, compared to other opportunistic infections. Childhood pneumonia often occurs because the immune system is still developing and is more easily contact respiratory infections. Children aged <5 years tend to be more active and often interact with environments that have the potential to come into contact with pneumonia sufferers. CD4 T lymphocytes are responsible for the inflammatory stage in the specific immune system and are part of the adaptive immune response to protect the body from microorganisms. This study aims to determine the number of CD4 T lymphocyte cells and the factors that influence the severity of pneumonia in children with low one and low two. The type of research used is descriptive quantitative observational analytic with a cross-sectional approach. The research was completed in June 2024. CD4 T lymphocyte cell examination was carried out using the Alere Pima Analyzer using the Flowcytometry method in the Laboratory of RSUD Dr. Soedono Madiun Prov. East Java and PSI scores to determine low categories one and two. The sample for this research was 5 samples using Total Sampling data collection techniques. Data analysis using Microsoft Excel 2010. Based on research that has been carried out, it was found that 2 respondents had low pneumonia status, two with a CD4 count of 350 cells/mm<sup>3</sup> (normal value >500 cells/mm<sup>3</sup>) with a score of 100 (score <70) and 822 cells/mm<sup>3</sup> with score 75 (score <70). and 3 respondents in the low category, one with a CD4 count >500 cells/mm<sup>3</sup> and a score <50. Causative factors, food and allergies, nutritional intake, home environment, and review of medical records also influence children's pneumonia infections. From this research, the main factors causing infection are exposure to microbes, food factors and allergies, as well as damp home conditions, excessive exposure to air pollution and cigarette smoke.*

**Keywords:** *Severity Level of Childhood Pneumonia, CD4 T Lymphocytes, Leukocytes.*