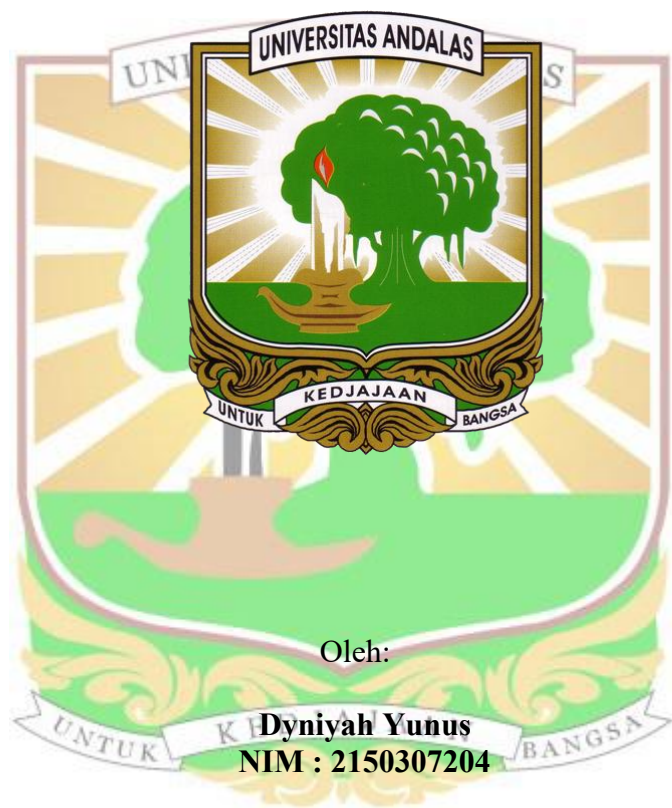


Tesis

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TOTAL DAN LAKTAT DEHIDROGENASE CAIRAN
TRANSUDAT DAN EKSUDAT
PADA EFUSI PLEURA**



**PROGRAM STUDI PATOLOGI KLINIS PROGRAM SPESIALIS
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PERBEDAAN RERATA KOLESTEROL TOTAL, PROTEIN TOTAL DAN LAKTAT DEHIDROGENASE CAIRAN TRANSUDAT DAN EKSUDAT PADA EFUSI PLEURA

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ABSTRAK

Latar Belakang : Efusi pleura adalah penumpukan cairan di dalam ruang pleura. Menentukan EP transudat dan eksudat penting untuk mengetahui mekanisme dasar EP dan keputusan tatalaksana. Kriteria *Light* merupakan kriteria yang umum digunakan. Pemeriksaan kolesterol total cairan pleura diusulkan sebagai parameter alternatif yang lebih sederhana dan berpotensi meningkatkan akurasi terutama pada kondisi dengan perancu seperti penggunaan diuretik. Penelitian ini bertujuan untuk mengetahui perbedaan rerata kadar kolesterol total, protein total dan laktat dehidrogenase (LDH) cairan transudat dan eksudat pada EP.

Metode : Penelitian analitik dengan rancangan potong lintang dilakukan pada cairan pleura 122 pasien EP yang dirawat di ruang penyakit dalam, geriatri, paru, obstetri dan ginekologi RS Dr. M. Djamil Padang sejak bulan Februari hingga April 2025 di laboratorium 24 jam. Parameter yang dianalisis adalah kadar kolesterol total, protein total, dan LDH cairan pleura menggunakan alat kimia klinik otomatis dengan metode kolorimetri dan *ultraviolet assay*. Klasifikasi transudat dan eksudat ditentukan menggunakan kriteria *Light*. Analisis statistik dilakukan menggunakan uji *Mann-Whitney*. Uji *receiver operating characteristics* (ROC) untuk menentukan *cut-off point*.

Hasil : Sebanyak 47 (38,52%) sampel adalah transudat dan 75 (61,48%) eksudat. Rerata kadar kolesterol total transudat 29,41 (22,55) mg/dL dan eksudat 61,41 (31,34) mg/dL, rerata kadar protein total transudat 1,69 (0,73) g/dL dan eksudat 3,60 (1,40) g/dL, dan rerata kadar LDH cairan pleura transudat 91,96 (39,27) U/L dan eksudat 523,26 (961,02) U/L. Kadar masing-masing parameter pada cairan EP eksudat secara signifikan lebih tinggi dibandingkan EP transudat ($p < 0,001$). Analisis ROC menunjukkan AUC kolesterol total 0,837 (*cut-off* $\geq 36,55$ mg/dL), protein total 0,902 (*cut-off* $\geq 2,15$ mg/dL), dan LDH 0,938 (*cut-off* $\geq 128,5$ U/L).

Simpulan : Terdapat perbedaan rerata kadar kolesterol total, protein total, dan LDH cairan transudat dan eksudat pada EP.

Kata Kunci : Efusi pleura, kolesterol total, protein total, LDH, cairan pleura, eksudat, transudat, kriteria *Light*

DIFFERENCES IN THE MEAN OF PLEURAL FLUID'S TOTAL CHOLESTEROL, TOTAL PROTEIN AND LACTATE DEHYDROGENASE LEVELS IN TRANSUDATIVE AND EXUDATIVE PLEURAL EFFUSIONS

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ABSTRACT

Background : Pleural effusion is the abnormal accumulation of fluid within the pleural space. Determining transudate and exudate PE is crucial to identify the basic mechanisms of PE and further management decisions. Light's criteria are generally used. Total cholesterol measurement in pleural fluid is proposed as a simpler alternative parameter that may enhance accuracy, particularly in conditions with confounding factors such as diuretic use. This study aimed to determine the differences in the mean levels of total cholesterol, total protein, and lactate dehydrogenase (LDH) in transudate and exudate fluids in PE.

Methods : An analytical cross-sectional study was conducted on pleural fluid from 122 patients admitted with EP to the internal medicine, geriatrics, pulmonology, obstetrics and gynaecology wards of Dr. M. Djamil Hospital in Padang from February to April 2025 in the 24-hour laboratory. Total cholesterol, total protein, and lactate dehydrogenase (LDH) levels in pleural fluid were examined using an automated clinical chemistry analyser with colorimetric method and ultraviolet assay. Transudate and exudate classification was determined using Light's criteria. Statistical analysis was performed using the Mann-Whitney test. Receiver operating characteristics (ROC) testing was used to determine the cut-off point.

Result : A total of 47 (38.52%) samples were transudates and 75 (61.48%) were exudates. The mean total cholesterol levels of transudate is (29.41 (22.55) mg/dL and exudate is 61.41 (31.34) mg/dL, total protein levels of transudate is (1.69 (0.73) g/dL and exudate is 3.60 (1.40) g/dL, and LDH levels in transudate is 91.96 (39.27) U/L and exudate is 523.26 (961.02) U/L. The levels of each parameter in exudate EP fluid were significantly higher than in transudate EP ($p < 0.001$). ROC analysis showed an AUC of 0.837 for total cholesterol (cut-off ≥ 36.55 mg/dL), 0.902 for total protein (cut-off ≥ 2.15 mg/dL), and 0.938 for LDH (cut-off ≥ 128.5 U/L).

Conclusion : There are differences in the mean levels of total cholesterol, total protein, and LDH in transudate and exudate fluids in EP.

Keywords : Pleural effusion, total cholesterol, total protein, LDH, pleural fluid, exudate, transudate, Light's criteria