

Tesis

**NILAI PREDIKTIF *PANCREATIC STONE PROTEIN* SEBAGAI
PENANDA SEPSIS**



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NILAI PREDIKTIF *PANCREATIC STONE PROTEIN* SEBAGAI PENANDA SEPSIS

Kurniawan¹, Rikarni^{2,3}, Elfira Yusri^{2,4}, Zelly Dia Rofinda^{2,3}, Dwi Yulia^{2,3}, Husni^{2,4}

¹Program Studi Patologi Klinis Program Spesialis, Fakultas Kedokteran Universitas Andalas, Padang;

²Departemen Patologi Klinik dan Kedokteran Laboratorium, Fakultas Kedokteran Universitas Andalas, Padang;

³Divisi Patologi Klinis, RS M. Djamil Padang;

⁴KSM Patologi Klinis, RS Unand, Padang

ABSTRAK

Latar Belakang: Sepsis merupakan salah satu penyebab kematian di seluruh dunia. Diagnosis cepat penting dilakukan agar tatalaksana segera dapat dilakukan dan menurunkan risiko kematian. Penilaian *SOFA score* umum digunakan sebagai panduan diagnosis sepsis, namun kriteria tersebut lebih menggambarkan disfungsi organ yang telah terjadi. *Pancreatic stone protein* merupakan penanda sepsis terbaru dengan kelebihan mendeteksi sepsis lebih awal. Penelitian ini bertujuan untuk mengetahui nilai prediktif *pancreatic stone protein* sebagai penanda sepsis.

Metode: Penelitian ini merupakan penelitian analitik dengan rancangan potong lintan terhadap pasien suspek sepsis di ICU dan HCU RS M. Djamil Padang dari bulan September 2025 sampai Januari 2026. Diagnosis sepsis berdasarkan kriteria *SOFA score* ≥ 2 . Pemeriksaan parameter *pancreatic stone protein* menggunakan *nanofluid fluorescence immunoassay*. Data univariat disajikan dalam bentuk median (min-maks) dan distribusi frekuensi. Data bivariat dianalisis menggunakan uji Mann-Whitney. Nilai prediktif dianalisis dengan menentukan *cut-off point* berdasarkan Indeks Youden. Sensitivitas dan spesifisitas diperoleh dari nilai *area under curve* (AUC).

Hasil: Penilaian *SOFA score* terhadap 72 subjek penelitian adalah 42 sepsis dan 30 tidak sepsis. Median usia subjek penelitian 47(19-65) tahun. Sebanyak 45,8% subjek penelitian adalah laki-laki dan 54,2% perempuan. Jumlah subjek penelitian dirawat di ICU (50%) dan di HCU (50%). Sumber infeksi berasal dari sistem respirasi (69,4%), kulit (11,1%) gastrointestinal (8,3%), traktus urinarius (8,3%), dan luka operasi (2,8%). Sebagian besar subjek penelitian (63,9%) memiliki komorbid. Komorbid terbanyak adalah keganasan (30,5%) penyakit kardiovaskular (12,5%), hipertensi (11,1%) dan penyakit serebrovaskular (9,7%). Hasil kultur darah positif ditemukan pada 16% subjek penelitian sepsis. Median kadar *pancreatic stone protein* subjek penelitian sepsis adalah 239,5(39-600) ng/mL, dan lebih tinggi dari pada subjek penelitian tidak sepsis 63,5(26-190) ng/mL, $p < 0,001$. *Cut-off point* kadar *pancreatic stone protein* sebagai penanda sepsis adalah ≥ 145 ng/mL dengan AUC 0,949 (IK95%:0,901-0,997), sensitivitas 78% dan spesifisitas 93%.

Simpulan: Kadar *pancreatic stone protein* dengan *cut-off point* ≥ 145 ng/mL menunjukkan kemampuan prediktif yang sangat baik sebagai penanda sepsis

Kata Kunci: *pancreatic stone protein*, sepsis, *SOFA score*, diagnosis

PANCREATIC STONE PROTEIN'S PREDICTIVE VALUE AS SEPSIS BIOMARKER

Kurniawan¹, Rikarni^{2,3}, Elfira Yusri^{2,4}, Zelly Dia Rofinda^{2,3}, Dwi Yulia^{2,3}, Husni^{2,4}

¹Clinical Pathology Specialist Medical Education Program, Faculty of Medicine, Andalas University, Padang;

²Departement of Clinical Pathology and Medical Laboratory, Faculty of Medicine, Andalas University, Padang;

³Division of Clinical Pathology, M. Djamil Hospital, Padang;

⁴KSM of Clinical Pathology, UNAND Hospital, Padang

ABSTRACT

Background: Sepsis is a mayor health problem in worldwide with high mortality rate. Early diagnosis of sepsis is needed for prompt treatment and to reduce risk of death. SOFA score is used as sepsis diagnosis guideline, but it mostly shown organ dysfunction that already had happened. Pancreatic stone protein is a novelty sepsis biomarker that has advantage of sepsis early detection. The purpose of this study is to evaluate pancreatic stone protein's predictive value as sepsis biomarker.

Methods: This is a cross-sectional analytical study of suspected sepsis patients from ICU and HCU M. Djamil Hospital, Padang from September 2025 untill January 2026. SOFA score ≥ 2 was categorized as sepsis. Pancreatic stone protein were measured with nanofluid flourescence immunoassay. Univariate data were presented as median (min-max) and frequency distribution. Bivariat data analyzed with Mann Whitney test. Pancreatic stone protein's predictive value was analyzed to determine cut-off point based on Youden Index. Sensitivity and specificity were obtained from area under curve (AUC).

Result: Seventy two suspected sepsis patients were categorized as sepsis (42 patients) and non-sepsis (30 patients) based on SOFA score. Median of patient's age is 47(19-65) years old. Patients were admitted in ICU (50%) and HCU (50%). The source of infection are respiration system (69,4%), skin (11,1%), GIT (8,3%), urinary tract (8,3%) and surgical wound (2,8%). Most of sepsis patients (63,9%) have comorbid. The most common comorbids are malignancy (30,5%), cardiovascular disease (12,5%), hypertension (11,1%) and cerebrovaskular disease (9,7%). Positive blood culture shown in 16% patients. Pancreatic stone protein's median in sepsis patients group is 239,5 (39-600) ng/mL, while non-sepsis patients group have median 63,5(26-190) ng/mL, $p < 0,001$. Pancreatic stone protein's accuracy is 0,949 (95%CI:0,901-0,997), with cut-off point ≥ 145 ng/mL, sensitivity 78% and specificity 93%.

Conclusion: Pancreatic stone protein cut-off point ≥ 145 ng/mL shown excellent predictive value as sepsis biomarker.

Keywords: pancreatic stone protein, sepsis, SOFA score, diagnosis