

ABSTRAK

Hubungan Kadar Interleukin-1 β pada Ascites serta C-Reactive Protein pada Serum Sebagai Prediktor Progression-Free Survival (PFS) Karsinoma Ovarium

Latar Belakang: Kanker ovarium berkembang melalui interaksi antara komponen seluler dan molekuler dalam cairan asites dengan sel kanker. Sitokin seperti IL-1 β memainkan peran penting dalam menciptakan lingkungan pro-tumorigenik yang mendukung perkembangan kanker, sementara kadar C-Reactive Protein (CRP) yang tinggi berhubungan dengan prognosis buruk dan perkembangan penyakit yang lebih lanjut. Progression-Free Survival (PFS) digunakan sebagai indikator untuk mengukur respons pasien terhadap terapi, karena lebih cepat memberikan informasi dibandingkan Overall Survival (OS).

Tujuan: Untuk membuktikan peran IL-1 β dalam asites dan C-Reactive Protein dalam serum sebagai biomarker prognosis pasien karsinoma ovarium.

Metode: Penelitian ini menggunakan desain penelitian kohort retrospektif. Subjek penelitian ini adalah pasien yang menderita karsinoma ovarium. Sampel diambil dari cairan ascites dan serum dari pasien karsinoma ovarium stadium I-IV yang telah menjalani operasi primer di RSUP dr Sardjito periode 2018-2021. Luaran PFS dicatat jika muncul progresi atau kematian. Pemeriksaan kadar sitokin dari cairan peritoneum atau asites dilakukan dengan *Human cytokine magnetic 10-plex panel for luminex (commercial kit Invitrogen)*. Pemeriksaan kadar CRP menggunakan *Human HS-CRP Elisa Kit 96 Tests*. Data yang didapatkan dianalisis multivariat menggunakan uji statistik multivariat Cox Regression.

Hasil: Terdapat 33 pasien berpartisipasi dalam penelitian ini, dengan rerata usia 46,21 tahun. Mayoritas pasien berada pada stadium lanjut (57,58%) dan memiliki tipe histopatologi serous high-grade (48,48%). Rerata kadar IL-1 β dalam cairan asites adalah 1,66 $\pm$ 1,58 pg/mL, dan kadar CRP serum sebesar 23,02 $\pm$ 8,81 mg/L. Selama periode follow-up median 35 bulan, 45,5% pasien tidak mengalami

progresi. Pasien dengan kadar IL-1 β $\geq 3,25$ pg/mL memiliki risiko progresi lebih tinggi (HR=1,511) dan PFS yang lebih pendek (11,55 bulan) dibandingkan dengan pasien yang kadar IL-1 β $< 3,25$ pg/mL (30,13 bulan). Kadar CRP $\geq 22,71$ mg/L juga berhubungan dengan PFS yang lebih pendek (20,16 bulan) dan risiko progresi yang lebih tinggi (HR=1,011). Analisis multivariat menunjukkan CRP $\geq 22,71$ mg/L dan tipe histopatologi 2 sebagai prediktor terhadap PFS, sementara IL-1 β , stadium, dan residual tumor tidak menunjukkan hubungan signifikan.

Kesimpulan: Pasien dengan kadar *IL-1 β* dan *C-Reactive Protein (CRP)* yang tinggi dalam cairan *ascites* dikaitkan dengan PFS yang lebih pendek.

Kata kunci: *IL-1 β* , *C-Reactive Protein (CRP)*, *Karsinoma Ovarium*, *Progression Free Survival*

ABSTRACT

THE ROLE OF INTERLEUKIN-1 β IN ASCITES AND C-REACTIVE PROTEIN IN SERUM LEVEL AS A PROGNOSTIC BIOMARKER IN OVARIAN CARCINOMA

Background: Ovarian cancer develops through interactions between cellular and molecular components in ascitic fluid with cancer cells. Cytokines like IL-1 β play a significant role in creating a pro-tumorigenic microenvironment that supports cancer progression, while elevated C-Reactive Protein (CRP) levels are associated with poor prognosis and advanced disease progression. Progression-Free Survival (PFS) is a key indicator used to measure patient response to therapy, providing fast information compared to Overall Survival (OS).

Objective: To establish the role of IL-1 β in ascites and C-Reactive Protein in serum as prognostic biomarkers in ovarian carcinoma patients.

Methods: This study employed a retrospective cohort design. The study subjects were ovarian carcinoma patients. Samples were collected from ascites and blood serum of stage I-IV ovarian carcinoma patients who underwent primary surgery at Dr. Sardjito General Hospital between 2018 and 2021. PFS outcomes were recorded upon disease progression or at the study's conclusion. Cytokine levels in ascites were measured using the Human cytokine magnetic 10-plex panel for Luminex (commercial kit Invitrogen). CRP levels were measured using the Human HS-CRP Elisa Kit 96 Tests. Data were analyzed using multivariate analysis and Cox regression statistical tests.

Results: A total of 33 patients participated in this study, with a mean age of 46.21 years. The majority of patients presented with advanced-stage disease (57.58%) and high-grade serous histopathology (48.48%). The mean concentration of IL-1 β in ascitic fluid was 1.66 ± 1.58 pg/mL, while the mean serum C-reactive protein (CRP) level was 23.02 ± 8.81 mg/L. During a median follow-up period of 35 months, 45.5% of patients did not experience disease progression. Patients with IL-1 β levels

≥ 3.25 pg/mL demonstrated a higher risk of progression ($HR=1.511$) and a shorter progression-free survival (PFS) of 11.55 months compared to those with IL-1 β levels <3.25 pg/mL, who had a median PFS of 30.13 months. Similarly, CRP levels ≥ 22.71 mg/L were associated with a shorter PFS (20.16 months) and a higher risk of progression ($HR=1.011$). Multivariate analysis identified CRP levels ≥ 22.71 mg/L and histopathological type 2 as independent predictors of PFS, while IL-1 β levels, disease stage, and residual tumor status were not significantly associated with PFS.

Conclusion: *Patients with elevated IL-1 β and C-Reactive Protein (CRP) levels in ascitic fluid are associated with shorter PFS.*

Keywords: *IL-1 β , C-Reactive Protein (CRP), Ovarian Carcinoma, Progression-Free Survival*