

INTISARI

Pendahuluan: *Renal cell carcinoma (RCC)* atau Karsinoma Sel Ginjal (KSG) merupakan keganasan ginjal yang paling umum, dengan sekitar 30% pasien stadium lanjut mengalami kekambuhan setelah nefrektomi radikal. PD-1 telah diidentifikasi sebagai biomarker prognostik potensial untuk KSG. Penelitian ini bertujuan untuk mengevaluasi hubungan antara ekspresi PD-1 dan *staging* KSG.

Metode: Sampel jaringan *formalin-fixed paraffin-embedded* (FFPE) dari 40 pasien KSG yang didiagnosis antara tahun 2018-2020 diperoleh dari Departemen Patologi Anatomi RSUP Dr. Sardjito Yogyakarta. Ekspresi PD-1 diukur menggunakan *quantitative Reverse-Transcription Polymerase Chain Reaction* (qRT-PCR) dan dibandingkan antar *staging* KSG.

Hasil: Pada 40 pasien yang dilakukan penelitian, ekspresi PD-1 tertinggi ditemukan pada stadium IV ($32,80 \pm 15,14$), namun perbedaan ekspresi PD-1 antar *staging* tidak signifikan secara statistik ($p > 0,05$).

Kesimpulan: Meskipun terdapat kecenderungan peningkatan ekspresi PD-1 pada stadium lanjut, penelitian ini tidak menemukan hubungan yang signifikan antara ekspresi PD-1 dan *staging* KSG.

Kata kunci: Karsinoma sel ginjal, *renal cell carcinoma*, PD-1, ekspresi, *staging*, stadium, *biomarker*, Indonesia

ABSTRACT

Introduction: Around 30% of late-stage clear cell *Renal cell carcinoma* (RCC) patients with radical nephrectomy are found to have relapse with metastasis. This cause physicians have to use CT scan with contrast frequently to detect RCC relapse while declining of renal function can not be hindered due to tumor invasiveness and radical nephrectomy which might cause contrast-induced nephropathy. PD-1, a well-known RCC prognostic biomarker, might be used as an alternative to CT scan with contrast. This study aims to observe whether PD-1 can be used to detect RCC relapse

Methods: Formalin-fixed paraffin-embedded (FFPE) tissue samples from RCC patients spanning the years 2018-2020 were obtained from the Department of Anatomical Pathology at Sardjito Hospital in Yogyakarta. The expression of PD-1 was quantified using quantitative Reverse-Transcription Polymerase Chain Reaction (qRT-PCR) and subsequently compared across various RCC subtypes and stages.

Results: Among the 40 patients analyzed, the expression of PD-1 was observed to be highest in stage IV (32.80 ± 15.14) but difference expression of PD-1 was found not statistically significant among other stages ($p > 0.05$).

Conclusion: Although there is a tendency for increased PD-1 expression in advanced stages, this study concludes that there is no significant result between PD-1 expression and renal cell carcinoma (RCC) staging.

Keywords: Renal cell carcinoma, PD-1, expression, staging, biomarker, Indonesia