

INTISARI

Latar Belakang: Karsinoma hepatoseluler (*Hepatocellular carcinoma/HCC*) merupakan keganasan hepar primer tersering dan dapat ditegakkan secara noninvasif menggunakan sistem *Liver Imaging Reporting and Data System* (LI-RADS) berbasis CT abdomen multifase. LI-RADS 5 menunjukkan HCC pasti, sedangkan LI-RADS *Tumor in Vein* (TIV) merepresentasikan invasi vaskular makroskopik yang berkaitan dengan agresivitas penyakit dan prognosis yang lebih buruk. Alfafetoprotein (AFP) merupakan biomarker yang banyak digunakan pada HCC, namun hubungan antara kadar AFP dan kategori LI-RADS, khususnya perbedaan antara LI-RADS 5 dan LI-RADS TIV, masih belum sepenuhnya jelas.

Tujuan: Membandingkan kadar AFP serum pada penderita HCC kategori LI-RADS 5 dan LI-RADS TIV berdasarkan CT abdomen multifase.

Metode: Penelitian analitik observasional dengan desain potong lintang retrospektif dilakukan pada pasien HCC di RSUP Dr. Sardjito. Sebanyak 82 pasien diklasifikasikan menjadi kelompok LI-RADS 5 dan LI-RADS TIV dengan proporsi seimbang berdasarkan CT abdomen multifase. Kadar AFP diperoleh dari pemeriksaan laboratorium dalam rentang waktu <30 hari dari pemeriksaan CT. Analisis perbandingan kadar AFP antar kelompok dilakukan, kemudian dilanjutkan dengan regresi linear multivariat menggunakan data transformasi logaritmik (log-AFP) untuk mengendalikan faktor perancu klinis dan radiologis.

Hasil: Pasien dengan kategori LI-RADS TIV menunjukkan kadar AFP yang secara bermakna lebih tinggi dibandingkan LI-RADS 5 (median 1706 vs. 93,4 ng/mL; $p = 0,036$). Analisis multivariat menunjukkan bahwa selain kategori LI-RADS TIV, infeksi hepatitis B ($B = 3,625$; 95% CI 1,97–5,27; $p < 0,001$) dan *arteriovenous* fistula ($B = 1,746$; 95% CI 0,13–3,35; $p = 0,034$) berhubungan signifikan dengan peningkatan log-AFP.

Kesimpulan: Kategori LI-RADS TIV pada pasien HCC menunjukkan kadar AFP yang lebih tinggi dibandingkan LI-RADS 5. Klasifikasi LI-RADS bersama temuan *arteriovenous* fistula pada CT abdomen multifase mencerminkan agresivitas HCC, yang menjadi lebih bermakna ketika diinterpretasikan secara terpadu dengan kadar AFP dan status infeksi hepatitis.

Kata kunci: Karsinoma hepatoseluler, LI-RADS, alfafetoprotein, CT abdomen multifase, invasi vaskular

ABSTRACT

Introduction: Hepatocellular carcinoma (HCC) is the most common primary liver malignancy and can be diagnosed non-invasively using the Liver Imaging Reporting and Data System (LI-RADS) on multiphase computed tomography (CT). LI-RADS 5 indicates definite HCC, whereas LI-RADS Tumor in Vein (TIV) represents macrovascular invasion and is associated with more aggressive disease and poorer prognosis. Alpha-fetoprotein (AFP) is widely used as a biomarker in HCC; however, its relationship with LI-RADS 5 and LI-RADS TIV has not been fully elucidated.

Objective: This study aimed to compare serum AFP levels between LI-RADS 5 and LI-RADS TIV categories on multiphase abdominal computed tomography in patients with HCC.

Methods: This retrospective cross-sectional observational study included 82 patients with HCC treated at a tertiary referral hospital. Patients were classified into LI-RADS 5 and LI-RADS TIV with equal proportions based on multiphase abdominal CT. Serum AFP levels obtained within <30 days of CT examination were analyzed. Group comparisons were performed, followed by multivariate linear regression using log-transformed AFP (log-AFP) as the dependent variable to adjust for clinical and radiological confounders.

Results: Patients with LI-RADS TIV had significantly higher AFP levels than those with LI-RADS 5 (median 1706 vs 93.4 ng/mL; $p = 0.036$). Multivariate analysis demonstrated that, in addition to the LI-RADS TIV category, hepatitis B infection ($B = 3.625$; 95% CI 1.97–5.27; $p < 0.001$) and the presence of an arteriovenous fistula ($B = 1.746$; 95% CI 0.13–3.35; $p = 0.034$) were independently associated with increased log-AFP levels.

Conclusion: In patients with HCC, LI-RADS TIV is associated with higher AFP levels compared with LI-RADS 5. LI-RADS classification together with the presence of an arteriovenous fistula on multiphase CT reflects HCC aggressiveness, which becomes more meaningful when interpreted in an integrated manner with serum AFP levels and hepatitis infection status.

Keywords: Hepatocellular carcinoma, LI-RADS, Multiphase CT, Alpha-fetoprotein, Vascular invasion