

INTISARI

Latar Belakang: Alpha fetoprotein (AFP) adalah penanda paling umum yang digunakan untuk diagnosis karsinoma hepatoseluler (KHS). Kadar AFP dapat meningkat pada kondisi benigna atau maligna selain KHS dan sepertiga pasien KHS tidak menunjukkan peningkatan kadar AFP. *Cut-off* AFP pada nilai 20 ng/mL paling umum digunakan untuk diagnosis KHS pada praktik klinis, namun akurasi dan *cut-off* optimal AFP masih kontroversial.

Tujuan: Mengevaluasi akurasi kadar AFP ≥ 20 ng/mL serta *cut-off* AFP optimal untuk mendiagnosis KHS di RSUP Dr. Sardjito Yogyakarta.

Metode: Studi ini merupakan uji diagnostik dengan pengambilan data rekam medis secara retrospektif. *Index test* pada studi ini adalah kadar AFP serum dengan baku emas berupa hasil histopatologi/biopsi hepar atau pencitraan berupa CT-scan/MRI abdomen yang mengarah pada KHS. Penelitian ini melibatkan pasien yang dicurigai menderita KHS di RSUP Dr. Sardjito Yogyakarta pada Januari 2017 hingga Desember 2021. Uji akurasi diagnostik dilakukan dengan klasifikasi dalam tabel kontingensi 2x2 antara pasien dengan kadar AFP serum ≥ 20 ng/mL dan AFP < 20 ng/mL serta diagnosis KHS atau bukan KHS berdasarkan baku emas. *Cut-off* optimal AFP untuk mendiagnosis KHS diperoleh melalui kurva ROC (*receiver operating characteristic*) dan perhitungan indeks Youden.

Hasil: Sebanyak 541 subjek dilibatkan dalam penelitian. Subjek penelitian terdiri dari 359 (66,4%) laki-laki dan 182 (33,6%) perempuan dengan median usia 57 tahun. Sebanyak 346 (64,0%) subjek memiliki diagnosis akhir KHS, sementara 195 (36,0%) subjek tidak menderita KHS. Dengan *cut-off* AFP 20 ng/mL, akurasi untuk diagnosis KHS adalah 75,42% dengan sensitivitas, spesifisitas, nilai ramal positif dan negatif masing-masing sebesar 63,58%, 96,41%, 96,92%, dan 59,87%. *Cut-off* AFP optimal untuk mendiagnosis KHS adalah 12,8 ng/mL dengan akurasi sebesar 76,16% dan sensitivitas, spesifisitas, nilai ramal positif dan negatif masing-masing sebesar 65,03%, 95,90%, 96,57%, dan 60,71%.

Simpulan: Kadar AFP serum pada *cut-off* 20 ng/mL memiliki akurasi 75,42% untuk mendiagnosis KHS. *Cut-off* AFP optimal untuk diagnosis KHS adalah pada 12,8 ng/mL dengan akurasi sebesar 76,16%. Parameter AFP serum memiliki akurasi yang cukup baik untuk digunakan sebagai sarana penegakan diagnosis pada populasi pasien yang dicurigai menderita KHS di RSUP Dr. Sardjito.

Kata kunci: karsinoma hepatoseluler, alpha fetoprotein, diagnosis, akurasi

ABSTRACT

Background: Alpha-fetoprotein (AFP) is the most common marker used for the diagnosis of hepatocellular carcinoma (HCC). It can increase in the benign or malignant conditions other than HCC and one-third of HCC patients also exhibit normal AFP levels. Currently, cut-off AFP of 20 ng/mL is the most frequently used value for diagnosing HCC in clinical practice, however the accuracy and optimal AFP threshold is still controversial.

Objective: To evaluate the accuracy of AFP \geq 20 ng/mL and its optimal threshold for diagnosing HCC at Dr. Sardjito General Hospital Yogyakarta.

Methods: This research was a diagnostic study based on retrospectively obtained medical record data. The index test in this study was the serum AFP level and the reference standard was histopathology/liver biopsy results or abdominal CT-scan/MRI suggested of HCC. This research involved patients who were suspected of having HCC at RSUP Dr. Sardjito Yogyakarta from January 2017 to December 2021 period. The diagnostic accuracy test was performed by classification in a 2x2 contingency table between patients with serum AFP levels \geq 20 ng/mL and AFP < 20 ng/mL and a final diagnosis of HCC or not HCC based on the reference standard. The optimal AFP cut-off for diagnosing KHS was obtained through the ROC (receiver operating characteristic) curve and Youden index calculation.

Results: A total of 541 subjects were included in the study. Of those, 359 (66.4%) were men and 182 (33.6%) were women with median age of 57 years. A total of 346 (64.0%) subjects had a final diagnosis of HCC, while 195 (36.0%) subjects did not. With an AFP cut-off of 20 ng/mL, the accuracy for diagnosing HCC was 75.42% with sensitivity, specificity, positive and negative predictive values of 63.58%, 96.41%, 96.92% and 59.87%, respectively. The optimal AFP cut-off for diagnosing HCC was 12.8 ng/mL with an accuracy of 76.16% and sensitivity, specificity, positive and negative predictive values of 65.03%, 95.90%, 96.57% and 60.71%, respectively.

Conclusion: The accuracy of serum AFP at 20 ng/mL cut-off for diagnosing HCC was 75.42%. The optimal AFP cut-off for diagnosing HCC was 12.8 ng/mL with an accuracy of 76.16%. The accuracy of serum AFP for establishing diagnosis in the patient population suspected of HCC at Dr. Sardjito General Hospital was good.

Keywords: hepatocellular carcinoma, alpha fetoprotein, diagnosis, accuracy