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SHORT COMMUNICATION

Correlation between preoperative serum alpha-fetoprotein levels and survival with respect to the surgical treatment of hepatocellular carcinoma at a tertiary care hospital in Veracruz, Mexico☆

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KEYWORDS
Hepatocellular carcinoma;
Liver resection;
Alpha-fetoprotein;
Survival

Abstract
Introduction: Preoperative serum alpha-fetoprotein levels can have predictive value for hepatocellular carcinoma survival.
Aim: Our aim was to analyze the correlation between preoperative serum alpha-fetoprotein levels and survival, following the surgical treatment of hepatocellular carcinoma.
Methods: Nineteen patients were prospectively followed (07/2005-01/2016). An ROC curve was created to determine the sensitivity and specificity of alpha-fetoprotein in relation to survival (Kaplan-Meier).
Results: Of the 19 patients evaluated, 57.9% were men. The mean patient age was 68.1 ± 8.5 years and survival at 1, 3, and 5 years was 89.4, 55.9, and 55.9%. The alpha-fetoprotein cut-off point was 15.1 ng/ml (sensitivity 100%, specificity 99.23%). Preoperative alpha-fetoprotein levels below 15.1, 200, 400, and 463 ng/ml correlated with better 1 and 5-year survival rates than levels above 15.1, 200, 400, and 463 ng/ml (P<.05).

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Conclusions: Elevated preoperative serum alpha-fetoprotein levels have predictive value for hepatocellular carcinoma survival.
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PALABRAS CLAVE
Hepatocarcinoma;
Resección hepática;
Alfafetoproteína;
Sobrevida

Correlación de los niveles de alfafetoproteína sérica preoperatoria y sobrevida en el tratamiento quirúrgico del hepatocarcinoma en una unidad médica de alta especialidad en Veracruz, México

Resumen
Introducción: Los niveles séricos de alfafetoproteína (AFP) preoperatoria pueden tener valor predictivo para la sobrevida del hepatocarcinoma (HCC).
Objetivo: Analizar la correlación entre los niveles séricos de AFP preoperatoria y la sobrevida posterior al tratamiento quirúrgico del HCC.
Métodos: Diecinueve pacientes fueron seguidos prospectivamente (julio del 2005-enero del 2016). Se realizó una curva ROC para determinar la sensibilidad y la especificidad de la AFP con relación con la sobrevida (Kaplan-Meier).
Resultados: Se evaluó a 19 pacientes, 57.9% hombres, edad media 68.1 ± 8.5 años con sobrevida a 1, 3 y 5 años del 89.4, el 55.9 y el 55.9%. El punto de corte de AFP fue 15.1 ng/ml (sensibilidad 100%, especificidad 99.23%). Los niveles preoperatorios de AFP menores de 15.1, 200, 400 y 463 ng/ml correlacionaron con mejor sobrevida a 1 y 5 años que niveles mayores de AFP ($p < 0.05$).
Conclusiones: Los niveles séricos preoperatorios elevados de AFP tienen valor predictivo en relación con la sobrevida de HCC.
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Introduction

Hepatocellular carcinoma (HCC) represents 4% of cancers diagnosed worldwide and it is the fifth most common cancer in the world.[1] In Mexico, its incidence has increased over the past decades.[2]

Serum alfa-fetoprotein (AFP) is the most important marker for HCC diagnosis. Some experts regard AFP levels > 200 ng/ml as diagnostic for HCC, whereas others consider the figure to be AFP levels > 400 ng/ml.[3] Elevated AFP levels have been linked to large bi-lobular lesions and portal vein thrombosis,[4,5] and AFP levels have been reported to have predictive value for HCC survival and recurrence.[4–6] However, there is no consensus on the value of preoperative AFP for predicting survival and recurrence after liver resection in HCC.

Five-year survival in HCC after a resection is 50-80%.[4] In Mexico, the information on preoperative AFP values and survival in HCC patients after a liver resection is insufficient.[2,7–10] Our aim was to analyze the correlation between preoperative serum AFP levels and 5-year survival after liver resection in HCC patients.

Materials and methods

A cohort of patients with HCC at our hospital that underwent resection as surgical treatment were prospectively followed within the time frame of July 2005 and January 2016, after prior authorization from the local ethics and research committee. Patients were excluded that underwent other surgical treatments (local ablation, chemoembolization, transplant, chemotherapy, and no treatment). Age, sex, body mass index, cirrhosis, viral hepatitis, Child-Pugh classification,[10] and the model for end-stage liver disease (MELD) score were registered.[10] The number of lesions, tumor size and location, and preoperative AFP level were determined. The patients were classified according to the Okuda and the Barcelona Clinic Liver Cancer (BCLC) staging systems.[10]

Intensive care unit stay, hospital stay, postoperative liver failure, and perioperative mortality were documented. Follow-up was conducted through outpatient consultations. Tumor recurrence was defined as the appearance of new radiologic lesions, and survival was calculated from the beginning of the patient's evaluation up to his or her death or follow-up loss.

Statistical analysis

The continuous variables were described through mean, standard deviation, and range and the categorical variables were described through frequency and percentage. A receiver operating characteristic (ROC) curve was plotted to determine the area under the curve, cut-off point, and sensitivity and specificity of preoperative AFP levels for survival in all the patients, calculated using the Kaplan-Meier estimator. In addition, the positive predictive value and negative predictive value of the ROC curve cut-off point were determined for all the patients. Survival in the patients with different preoperative AFP values (mean, ROC curve cut-off

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