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Role of Serum glypican-3 in the diagnosis and differentiation of small Hepatocellular carcinoma from Hepatitis-C virus cirrhosis

Tarek E Korah, Eman A E Badr, Ashraf Abdel Ghani, Sawsan El-Sayed and Safaa Badr
Menoufiya University, Egypt

Background: Serum alpha-fetoprotein (AFP) has insufficient sensitivity and specificity for detection of hepatocellular carcinoma (HCC). Recently, glypican-3 (GLP-3) was suggested as a new biomarker for the detection HCC.

Objectives: To determine the role of serum GLP-3 levels in the early diagnosis and differentiation of small (3 cm or less in diameter) HCC from liver cirrhosis. Also, to correlate GLP-3 levels to clinico-laboratory data.

Methods: The study included sixty patients; 30 of them with hepatitis C virus (HCV) cirrhosis, and 30 patients with proved HCC. In addition, 20 healthy subjects were included as a control group. Clinical and radiological features (abdominal ultrasonography and/or abdominal triphasic computed tomography) were recorded. Liver function tests, complete blood cell count, and serum AFP were measured. Serum GLP-3 values were determined by an ELISA technique.

Results: Serum levels of GLP-3 were significantly elevated in patients with HCC compared with HCV cirrhosis group ($p < 0.001$). Also, these levels were significantly elevated in these two patients' groups versus controls ($p < 0.001$). Also, serum GLP-3 levels with cut-off value of ≥ 240 ug/L had a higher sensitivity (100%) and same specificity (93.3%), than AFP with cut-off value of ≥ 200 ng/ml, for detection of HCC. Moreover, GLP-3 levels showed a higher sensitivity than AFP (50% vs. 41.7%), for detection of small HCC. The combined use of both markers (i.e. when either one of the two markers positive) improved the specificity to 88.9%. Regarding unicentric HCC, GLP-3 at cut-off value of ≤ 580 ug/L had better specificity than AFP at cut-off value of ≤ 765 ng/ml (57.1% vs. 42.9%). The combined use of both markers improved the sensitivity and specificity to 82.6% and 71.4%, respectively.

Conclusion: Serum GLP-3 levels are higher in HCC versus HCV cirrhosis, which can differentiate HCC from liver cirrhosis. Also, serum GLP-3 is highly sensitive and specific for detecting HCC. Moreover, GLP-3 is more sensitive than AFP for the detection of small HCC. Furthermore, a combination of both serum markers yielded an improved specificity and both sensitivity and specificity for the diagnosis of small and unicentric HCC, respectively.

Biography

Tarek E Korah is currently working as a Professor and head of Hepatology/Gastroenterology unit, Faculty of Medicine, Menoufia University, Egypt. He was a clinical research fellow of Newcastle University, U.K. He is a member of Egyptian-German association for the study of the liver. He published more than 35 papers in national and international peer-reviewed journals. Also, he served as a reviewer of Menoufia, and Alexandria Medical Journals, Egypt.

tarekkorah@yahoo.com

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