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Urinary lipocalin-2 as a potential marker for diagnosis of early hepatocellular carcinoma

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Background: Diagnosis of hepatocellular carcinoma (HCC) is particularly complex for nodules between 1 and 2 cm morphological criteria alone still pose problems for the differential diagnosis of high grade dysplastic nodules versus early HCC. Lipocalin-2 (Lcn2) is preferentially expressed in hepatocellular carcinoma.

Aim: To determine the possibility of using urinary lipocalin-2 as a potential marker for early detection of HCC.

Methods: A written informed consent was taken from the all patients included in our study. Diagnosis of HCC was done by characteristic vascular enhancement pattern detected by multislice triphasic spiral CT scan or MRI according to established diagnostic criteria. Serum samples were taken for assessment of liver tests, alfa fetoprotein level. Urinary lipocalin-2 levels were measured using ELISA in patients with HCC (n=40), patients with liver cirrhosis (n=40) and 40 healthy control subjects.

Result: The mean age of patients with HCC (59.53±7.90-years old) was significantly higher than those with cirrhosis or healthy controls (P\0.01). Males represented 75% (n=30) in the HCC group. The mean urinary lipocalin level was significantly higher in the HCC group (3661.43±3258.71 pg/ml) and it was (238.46±152.89 pg/ ml) in the control group. Lipocalin-2 had a sensitivity of 95% and a specificity of 100% with area under the curve (AUC) of 0.950; P\0.001 at a cut-off value of 860 pg/ml for diagnosis of HCC. However, a-fetoprotein (AFP) had a sensitivity of 87.5% and a specificity of 81.1% at a cut-off value of 22 ng/ml. The sensitivity and specificity of adding AFP with lipocalin 2 at cutoff value 1003 pg/ml for diagnosis of HCC showed the same sensitivity and high specificity Hepatol Int (2017) 11 (Suppl 1):S1–S1093 S13123 (95%, 100%), respectively, with PPV, NPV was (100%), (94.9%), respectively. The area under the curve was (0.999) and accuracy was (97.4), it was statistically significant (P value=0.001) and CI= (1.0).

Conclusion: Urinary lipocalin 2 was more effective than AFP at detecting presence of early stages of HCC. Measuring both urinary lipocalin 2 and AFP in serum could be used as diagnostic markers for HCC.

Speaker Biography

Lamyaa Bakery Hamed Ata is an Assistant lecturer and Phd student of Hepatology and Gasteroenterology at the National Liver Institute, Menoufiya University, Egypt. Her main areas of Research Interests and Expertise include Viral hepatitis, Portal Hypertension and its complications and treatment of Liver cancer and transplantation.

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