PREDICTIVE AND DIAGNOSTIC ROLE OF CIRCULATING GOLGI PROTEIN-73 AND GLYPICAN-3 PROTEIN FOR CHRONIC VIRAL HEPATITIS ASSOCIATED HEPATOCELLULAR CARCINOMA

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Introduction

Viral hepatitis, including Hepatitis B and C, is a significant global health challenge and a leading cause of mortality. In Egypt, approximately eight to ten million people are affected by these viruses, posing a serious public health threat. Chronic viral hepatitis can lead to severe complications, with cirrhosis often emerging after prolonged infection, increasing the risk of advanced liver diseases like hepatocellular carcinoma (HCC). Early detection of HCC is crucial, and current guidelines recommend biannual abdominal ultrasound and AFP testing for at-risk patients, though this method has limitations, including a sensitivity of only 63%.Identifying accurate biomarkers for HCC diagnosis is a priority. Glypican-3 (GPC3) and Golgi Protein 73 (GP73) have shown promise as potential biomarkers. GPC3 is highly expressed in HCC tumors and detectable in serum, while GP73 has demonstrated superior sensitivity to AFP. Despite their potential, further validation is necessary.

Aim of the work

The present study aimed to assess the serum level of GP73 and GPC-3 as diagnostic biomarkers for HCC in patients with viral hepatitis B and C liver cirrhosis.

Patients and Methods

The study was conducted on 90 patients divided into three groups. Group (I) 35 cases of HBV and HCV-induced liver cirrhosis without HCC. Group (II) 35 cases of HBV and HCV-induced liver cirrhosis with HCC. Group (III) 20 cases of matched age and sex-healthy subjects as a control group. Serum levels of Golgi Protein 73 (GP73) and Glypican-3 (GPC3) were measured using ELISA.

Results

Table (1) : Comparison of Glypican-3 (ng/mL) in the three studied groups

Glypican-3 (ng/mL)	Group			Test of significance p-value
	Group I (n=35)	Group II (n= 35)	Group III (n=20)	
Min. – Max. Mean ± SD SEM 95% CI for mean 25th Percentile–75th Percentile	5.690-13.650 9.908±1.815 0.307 9.285-10.532 8.55-10.980	10.200-15.800 12.641±1.779 0.301 12.029-13.252 11.40014.200	4.18-9.14 6.416±1.514 0.339 5.707-7.124 5.17-7.39	$F_{(df=2)}=82.279$ p<.001*
Post Hoc Tests				
	Group I (n=35)	Group II (n= 35)	Group III (n=20)	
Group I		Diff=-2.732 p<.001*	Diff=3.493 p<.001*	
Group II			Diff=6.225 p<.001*	
Group III				

Table (2): Sensitivity, Specificity and Cut off values for Glypican-3

	AUC	p	95% CI	Cut off	Sensitivity	Specificity	PPV	NPV
Glypican-3 "pg/mL"	0.859	p<.0001*	0.755 -0.930	> 10.14 pg/mL	100.00%	60.00%	71.43%	100.00%

Table (3) : Comparison of Golgi Protein-73 level (ng/mL) in the three studied groups

Golgi Protein 73 level (ng/mL)	Group		
	Group I (n=35)	Group II (n= 35)	Group III (n=20)
Min. – Max. Mean ± SD SEM 95% CI for mean 25th Percentile–75th Percentile	105.32-315.98 213.86±65.34 11.04 191.41-236.30 143.52-269.84	125.22-379.32 251.89±58.52 9.89 231.79-271.99 219.98-277.54	118.98-151.20 135.84±7.52 1.68 132.33-139.36 132.47-140.33
Test of significance p-value	$F_{(BF)(df=2, 68.431)}=36.195$ p<.001*		
Post Hoc Tests			
	Group I (n=35)	Group II (n= 35)	Group III (n=20)
Group I		Diff=-38.029 p=.014*	Diff=78.015 p<.001*
Group II			Diff=116.044 p<.001*
Group III			

Table (4): Sensitivity, Specificity and Cut off values for Golgi Protein-73

	AUC	p	95% CI	Cut off	Sensitivity	Specificity	PPV	NPV
GP-73 "ng/mL"	0.651	p=.0228*	0.528 -0.761	>204.12 ng/mL	88.57%	40.00%	59.62%	77.78%

Conclusion

GP3 and Golgi Protein 73 might be used as a useful biomarkers for identifying HCC in patients with liver cirrhosis