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Role of Serum Squamous Cell Carcinoma Antigen-IgM in Response Assessment of Hepatocellular Carcinoma Radiofrequency Ablation

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Abstract

Background: Hepatocellular carcinoma (HCC), one of the main complications of liver cirrhosis, is one of the most common malignancies with high mortality rate requiring early diagnosis and treatment.Serum squamous cell carcinoma antigen-IgM (SCCA-IgM) can be distinguished in the serum of HCC patients and has been suggested to be a biomarker for its diagnosis and in assessment of radiofrequency ablation (RFA).

Aim of Study: The aim of this study is to evaluate the value of SCCA-IgM in assessment of response to hepatocellular carcinoma thermal radiofrequency ablation.

Subjects and Methods: Forty HCC patients and 15 patients with liver cirrhosisestimated clinically, laboratory and by abdominal ultrasound were enrolled. The patients were sub-divided into three subgroups as following: Group I: Twenty-five patients with HCC and alpha-fetoprotein (AFP) <200ng/mL [HCC with low AFP]. Group II: Fifteen patients with HCC and AFP >200ng/ml [HCC with significant AFP]. Group III: fifteen patients with liver cirrhosis estimated clinically, laboratory and by abdominal ultrasound without HCC. Using a validated ELISA, AFP and SCCA-IgM were measured in all the studied subjects (Group I, II and III) and after 1 month after radiofrequency ablation of HCC patients (Group I & II).

Results: SCCA-IgM was highly significant difference between the three groups of patients (p<0.001) as well as there is a statistically highly significant was found between each group and other except the comparison between group I and II (p>0.05). Also, SCCA-IgM before and after RFA shows statistically highly significant decrease in HCC patients of both groups I and II (p<0.001). In comparison between the HCC of patients' groups I (HCC with low AFP) and II (HCC with significant AFP) after RFA, the decrease in SCCA-IgM was statistically insignificant (p>0.05). The diagnostic performance of SCCA-IgM at a cut-off 40 AU/mL in HCC patients (GI and II) had sensitivity 95.5%, specificity 96%, AUC 0.997, PPV 96, NPV 97.5 and Accuracy 97 respectively.

Conclusion: SCCA-IgM assay could be helpful inresponse assessment of the efficacy of HCC radiofrequency ablation without difference in the outcome of HCC patients with low or high AFP.

Key Words: *Squamous cell carcinoma antigen-IgM (SCCA-IgM) – Radiofrequency hepatocellular carcinoma.*

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Introduction

HEPATOCELLULAR carcinoma, one of the main complications of liver cirrhosis, and the leading cause of death among these patients, is the fifth most common neoplasm and the third most frequent cause of cancer death **[1]**. A panel of experts on HCC convened in Barcelona on behalf the European Association for the Study of the Liver (EASL) and developed for the first-time non-invasive criteria for HCC based on a combination of imaging and laboratory findings **[2]**. AFP has achieved widespread use as a biochemical test for HCC screening and diagnosis since 1970. However, its role in diagnosis is relatively limited in patients with small HCC **[3]**. About thirty three percent of small HCC patients are AFP-negative therefore, development of novel biomarker for the detection of HCC is required to compensate for AFP-negative HCC patients' diagnosis **[4]**. The diagnosis of HCC relies upon both AFP as a screening marker and radiological imaging contemplates. Typically, the degrees of AFP are underneath 1 0ng/mL, yet AFP more prominent than 200ng/mL is reminiscent of HCC. In any case, as the affectability of AFP for HCC is about 67% **[5]**. Although the diagnostic role of serum AFP is well recognized in advanced HCC, in early stages of the disease or with small HCC focal lesions, only 2.4%-22% of patients presented with serum AFP levels ^ 200ng/mL **[6]**. Squamous cell carcinoma antigen (SCCA) is an individual from the high atomic weight group of

serine protease inhibitors named serpins. They are physiologically found in the granular layers of ordinary squamous epithelium but on the other hand are seen as regularly communicated by neoplastic cells of epithelial birthplace in various diseases [7]. Over expression of SCCA variations (SCCA1 and SCCA2) has been accounted for in all precisely resected HCC examples yet in none of the ordinary control livers as recognized by immunohistochemistry [8]. Both SCCA isoforms SCCA1 and SCCA2 protect neoplastic cells from apoptotic death induced by several kinds of stimuli, and in vivo experiments had demonstrated that SCCA1 can promote tumor growth [9]. Also, both SCCA1 and 2 are undetectable in normal hepatocytes, but their expression progressively increases from chronic liver disease to dysplastic nodules and HCC [8]. IgM immune complexes can be distinguished in the serum of HCC patients as revealed for SCCA; and the evaluation of SCCA-IgM insusceptible buildings has permitted a higher analytic presentation than the assurance of the free, not complex one [10]. Cagnin and his colleagueshad suggested a potential use of serum SCCA-IgM as prognostic tool in patients diagnosed with liver cirrhosis patients with HCC [11]. The objective of this study is to summarize the role of SCCA-IgM as a tool to monitor hepatocellular carcinoma evolution and response to RFA treatment in cirrhotic patients.

Subjects and Methods

After approval of Ethical and Research committee in Benha Faculty of Medicine and National Hepatology & Tropical Medicine Research Institute. Fifty-five patients were enrolled from patients attending to Department of Hepatology and Gastroenterology and Infectious diseases in Benha University Hospitals and National Hepatology & Tropical Medicine Research Institute at the period from December 2018 January to 2020. The patients were sub-divided into three subgroups as following: Group I: Twenty-five patients with hepatocellular carcinoma (HCC) and alpha-fetoprotein (AFP) <200ng/mL [HCC with low AFP]. Group II: Fifteen patients with HCC and AFP >200ng/ml [HCC with significant AFP]. Group III: Fifteen patients with liver cirrhosis estimated clinically, laboratory and by abdominal ultrasound without HCC.

Inclusion criteria:

- Age > 18 years old, both genders included; males and females.
- Patients with liver cirrhosis estimated clinically, laboratory and by ultrasound.
- Patients with hepatocellular carcinoma diagnosed by imaging techniques obtained by ultrasound with multiphasic CT or dynamic contrast-enhanced MRI suggesting the typical vascular pattern of HCC lesions which is characterized by hyper-enhancement in the arterial phase which is followed by contrast wash-out in the venous phase. These characteristics (wash-in and wash-out) are caused by the relative difference of contrast media due to differences in arterial and portal venous blood supply of HCC lesions and normal liver tissue [12].
- Platelet count >50000c/mm ^{3} and Prothrombin conc. >50% in HCC patients.
- Medical consent.

Exclusion criteria:

- Patients with malignancies other than HCC.
- HCC metastasis or abdominal lymph node infiltration.
- Portal vein thrombosis.
- Tumors located within 1cm of the liver hilum, gall bladder or common bile duct.
- Tumors in the dome of the liver may be unreachable percutaneously.
- Patients with Child-Pugh class C.
- Patients with comorbidities e.g., cardiac, renal ... etc.
- Patients with other disease may increase SCCA-IgM as: Patients with psoriasis, allergic rhinitis, patients with atopic dermatitis.
- Uncooperative patients or refused the consent.

All participants were subjected to the following:

- History taking: Personal data, past and present disease history.
- General and local examination: With stress to signs of liver disease in abdominal examination including pallor, jaundice, ecchymosis, lower limb edema, ascites, spleen and liver size.
- Laboratory investigation: Complete blood count (CBC), liver tests (ALT, AST), serum bilirubin, albumin, PT and PC, and INR, kidney function tests (serum urea and creatinine).
- Imaging: Abdominal US, contrast enhanced CT ± dynamic MRI.
- Determination of AFP by ELISA.
- Levels of serum SCCA-IgM complexes were determined with a validated commercially-available ELISA kit (Hepa-IC, Xeptagen, Venice, Italy), used according to manufacturer's instructions. The amount of SCCA-IgM was expressed in arbitrary units per milliliter (AU/mL). N.B.

arbitrary unit is a relative unit of measurement to show the ratio of amount of substance, intensity, or other quantities, to a predetermined reference measurement. Also termed procedure defined unit (p.d.u) which does not specify the unit for the kind-of-quantity in question. Although it may appear to be a well-defined unit, the concept contains a heterogeneous group of arbitrary and proprietary unit.

The reference measurement is typically defined by the local laboratories or dependent on individual measurement apparatus **[13]**.

- Radiofrequency (RF) is performed to HCC patients (Gr I and Gr II) strictly with the aid of imaging using ultrasound. RF electrical current was used asasource of clinical hyperthermic tumor ablation. these energies are applied using interstitial devices that are essentially needlelike in form for 3-5 minutes.

Percutaneous RF Ablation Procedures: Treatment was performed with the patient under conscious sedation and analgesia induced by the administration of diazepam 10-20mg (Neuril; Nile) or propofol (Deprivan) intravenously. All ablation procedures were performed under local anesthesia with 1% lidocaine. Real-time ultrasound was used for the guidance and monitoring of ablation needle by using RITA Medical System and Boston Scientific. The aim of the treatment was to completely destroy the tumor with a safety margin of 0.5-1.0 cm normal liver tissue. At the end of the procedure, needle track can be done to prevent any tumor cell dissemination.

Assessment response after RF:

- SCCA-IgM assay by ELISA in (Gr I and Gr II) after one month.
- Spiral triphasic abdominal CT after one month.

Statistical analysis: Data were collected in a master sheet, coded, entered and analyzed using both SPSS version 22 medical statistics software and Microsoft Excel v. 2013. Categorical data were compared using chi-square (χ^2) and calculated. The confidence interval was set to 95% and the margin of error accepted was set to 5%. One-way ANOVA test was used to compare more than two groups of normally distributed data. Kruskall-wallis test was also used to compare between more than two continuous not normally distributed data. Categorical data were compared using Chi-square test.

Results

Table (1): Demographic data of the studied group.

	Gr I HCC with low AFP (No: 25)	Gr II HCC with significant AFP (No: 15)	Gr III Liver cirrhosis (No: 15)	Test	*p*-value
Age:					
Range	34-75	41-70	45-71	F: 1.428	0.673
Mean ± SD	58.4±8.39	59.87±8.54	60.47±8.95		
Sex:					
Male (%)	17 (68)	11 (73.3)	11 (73.3)	χ^2: 0.191	0.979
Female (%)	8 (32)	4 (26.7)	4 (26.7)		
Residence:					
Rural (%)	18 (72)	9 (60)	10 (66.7)	χ^2: 11.988	0.007*
Urban (%)	7 (28)	6 (40)	5 (33.3)		

F: Fisher Exact test.
χ2: Chi-square test.
p-value >0.05 NS.
**p*<0.01 = Significant.

Table (2): Liver function tests among the studied patients.

	HCC with low AFP	HCC with significant AFP	Liver cirrhosis	F-test	*p*-value	p_1	p_2	p_3
Albumin (3.5-5) g/dl:								
Range	3-4.1	2.9-4	3.2-4.5	4.217	0.006*	0.791	0.009*	0.008*
Mean ± SD	3.55±0.40	3.45±0.44	3.85±0.69					
ALT (5-40) U/L:								
Range	21-91	18-137	14-90	0.314	0.732	0.906	0.486	0.466
Mean ± SD	48.24±18.80	49.20±35.21	42.53±24.08					
AST (5-40) U/L:								
Range	18-93	15-162	13-171	0.414	0.604	0.319	0.640	0.634
Mean ± SD	50.04±18.48	60.93±45.68	55.13±45.41					
T. Bilirubin (0.2-1) mg/dl:								
Range	0.35-2.1	0.34-2.2	0.38-2.1	0.813	0.548	0.782	0.634	0.519
Mean ± SD	1.225±0.46	1.29±0.59	1.24±.740					
PC %:								
Range	55-82%	55-75%	70-83%	1.174	0.317	0.117	0.306	0.619
Mean ± SD	68.51±18	60±16	76.5±20					

p : Comparing significance between the three studied groups.
p1: Comparing significance of HCC with low AFP (group I) and HCC with significant AFP (group II).
p2: Comparing significance of group (I) and liver cirrhosis group (III).
p3: Comparing significance of group (II) and group (III).
ALT: Alanine aminotransferase. AST: Aspartate aminotransferase. Albumin: T. Bilirubin and prothrombin concentration.
F: Fisher exact test. *Statistically significant difference.

Table (3): SCCA-IgM of the studied patients and control.

SCCA- IgM	Gr I HCC with low AFP (No: 25)	Gr II HCC with significant AFP (No: 15)	Gr III Liver cirrhosis (No: 15)	F-test	*p*-value
Range	98.9-488.3	61-476	12.6-41	29.723	0.001*
Mean ± SD	188.42±103.43	292.2±115.646	16.39±6.93		
p_1: 0.036, p_2: 0.001*, p_3: 0.001*					

p : Comparing significance between the studied groups.
p1: Comparing significance of HCC of group I (HCC with low AFP) and group II (HCC with significant AFP).
p2: Comparing group I with group III (HCC with sliver cirrhosis).
p3: Comparing significance of group II with group III patients.
F: Fisher exact test. *Statistically significant difference.

Table (4): Computed tomography (CT) findings of Hepatic Focal Lesion (HFL) before radiofrequency ablation (RFA) in HCC patients with low AFP and HCC patients with significant AFP.

CTofHFL before RFA	HCC with low AFP	HCC with significant AFP	χ^2	*p*-value
Number:				
Single:				
N	23	14	0.253	0.654
%	92%	93.3%		
Multiple:				
N	2	1		
%	8%	6.7%		
Arterial phase Enhancement:				
No:				
N	0	0	–	–
%	.0%	.0%		
Yes:				
N	25	15		
%	100.0%	100.0%		

χ2: Chi square. p<0.05: Statistically insignificant difference.
- This table shows that all CT parameters of HFL before RFA show statistically insignificant difference between HCC patients with low AFP and HCC patients with significant AFP (p>0.05).

Table (5): Computed tomography (CT) findings of HFL after RFA in HCC patients with low AFP and HCC patients with significant AFP.

CT of HFL after RFA	HCC with low AFP	HCC with P significant AF	χ_2	*p*- value
Arterial phase Enhancement:				
No:				
N	22	14	0.296	0.586
%	88.0%	93.3%		
Yes:				
N	3	1		
%	12.0%	6.7%		
RF ablation:				
Partial:				
N	3	1	0.296	0.586
%	12.0%	6.7%		
Complete:				
N	22	14		
%	88.0%	93.3%		

χ2: Chi square. p<0.05: Statistically insignificant difference.
- This table shows that all CT parameters of HFL before RFA show statistically insignificant difference between HCC patients with low AFP and HCC patients with significant AFP (p>0.05).

Table (6): Serum SCCA-IgM before and after one month of RFA of the studied patients' subgroups HCC with low AFP and with significant AFP.

SCCA- IgM	Before RFA	After RFA	*p* value
HCC with low AFP:			
Range	98.9-488.3	39-167	0.001*
Mean ± SD	188.42±103.43	86.56±33.18	
HCC with significant AFP:			
Range	6-476	33-314	0.001*
Mean ± SD	293.67±112.30	125.73±87.54	

*p<0.01 highly significant.

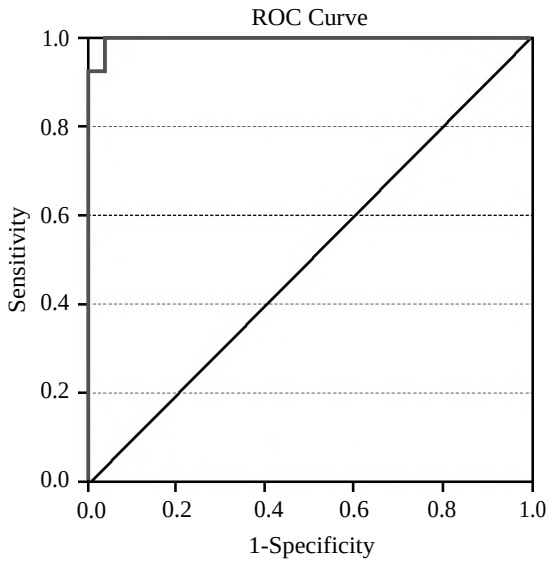

Fig. (1): Area under the curve and ROC curve representing sensitivity and specificity of SCCA-IgM for HCC diagnosis in both groups.

SCCA-IgM	Cutoff	AUC	Sensi-tivity	Speci-ficity	PPV	NPV	Accuracy
	40	0.997	97.5	96	96	97.5	97

This table showed the cut-off value and area under the curve (AUC), sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) and accuracy of SCCA-IgM prediction of HCC. The sensitivity and specificity of in prediction of HCC before RFA of SCCA-IgM for HCC ablation in both groups.

Discussion

Hepatocellular carcinoma (HCC) is the fifth most common malignancy and the third leading cause of cancer-related death worldwide [1]. The diagnosis of HCC relies upon both AFP as a screening marker and radiological imaging contemplates.

Table (7): Serum SCCA-IgM after one-month RFA of the studied patients; comparison between HCC with low AFP and HCC with significant AFP subgroups.

SCCA-IgM	Groups	Range Mean ± SD	*t*-test	*p*-value
After RFA	HCC with low AFP	39-167 86.56±33.18	2.022	0.051
	HCC with significant AFP	33-314 125.73±87.54		

t: Paired *t*-test.
-This table shows that SCCA-IgM after RFA was statistically non-significant between patients' subgroups I and II (p>0.05).

Typically, the degrees of AFP are underneath 1 0ng/mL, yet AFP more prominent than 200ng/mL is reminiscent of HCC. In any case, as the affectability of AFP for HCC is about 67%, normal AFP serum levels or levels <200ng/mL don't exclude HCC [5]. The variation in AFP level in HCC cases may be explained by that plasma AFP test has a low sensitivity, and about one third of early-stage HCC patients with small tumors have low level of AFP as that in healthy individuals, which makes the AFP test insufficient for the early detection of HCC in high-risk populations [14]. The aim of this study was to assesses of the diagnostic accuracy of SCC-IgM in diagnosis of hepatocellular carcinoma and to assess its role in prediction of short-outcome after hepatocellular carcinoma thermal ablative therapy. Fifty-five patients wereenrolledand sub-divided into three subgroups as following: Group I: Includes 25 cirrhotic patients with HCC and low AFP (<200ng/mL). Group II: Includes 15 cirrhotic patients with HCC and significant AFP (>200ng/mL). Group III: Includes 15 patients with liver cirrhosis estimated clinically, laboratory and by ultrasound without HCC. The mean age of patients with HCC was 58.4±8.39 years in group I and 59.87±8.18 years in group II, while in group III 60.47±8.95. This result agreed with Atta and his colleagues who reported in a study including 41 HCC patients that, the mean age of HCC patients was 57.95±8.41 years [15]. However, Ryder who reported the average age of HCC 66 years and seventh or eighth decades of life [16]. The HCC patients in this study in (Gr I and Gr II) including 28 males (70%) and 12 females (30%). This result also agreed with Di Bisceglie who reported that men are two to three times higher than women in most regions [17]. On the other hand, El-Shahat and his colleagues reported a nonsignificant difference in sex distribution among HCC patients [18]. In Egypt male predominance of HCC may be explained by the higher prevalence

of viral hepatitis and high susceptibility to environmental carcinogens among males than females especially in rural areas [19]. In the current study, according to the liver profile, the mean AST level was significantly insignificant in HCC patients (50.04± 18.48 and 60.93 ±45.68 IU/L) in group I and II respectively with patients with liver cirrhosis group III (55.13±45.41). This was in disagreement with Wen and his colleagues who stated that, serum AST levels were statistically significant independent predictors of HCC risk [20]. Serum albumin levels were significantly lower in HCC patients (3.45±0.40 and 3.45±0.44gm/dl) in group I and II respectively than with patients with liver cirrhosis group III (3.85±0.69). These results were consistent with Hsu and his colleagues who stated that serum albumin was more frequently abnormal in HCC than in chronic viral hepatitis and its related cirrhosis [21]. In the current study, serum total bilirubin levels. Prothrombin concentration, ALT and AST were HCC patients the studied group I and II respectively with patients with liver cirrhosis group III. In contrast These results were also comparable with Ali and his collogues who found a statistically significance of total and direct bilirubin, ALT and AST [7]. This can be attributed to small sample size and exclusion of Child C cirrhotic patients. In the current study, 32 out of 40 HCC patients (80%) had single hepatic focal lesion while 8 patients (20%) had multiple hepatic focal lesions. in the Child C excluded HCC patients. Also, can be attributed to all selected HCC patients were fulfilled Milan criteria with lesion less than 5cm and multiple not more than three lesions and less than 3cm. In this study AFP ≥200ng/ml was used as a point of significance in HCC patients and these patients were subdivided into patients with low HHC and patients with significant HCC. This was in agreement Ozer and his collogues who mentioned that 51.4% of HCC cases had AFP ≥200ng/ml [22]. The cut off value was selected according to the same study who stated that normally, the levels of AFP are below 1 0ng/mL, but AFP greater than 200ng/mL is suggestive of HCC. However, as the sensitivity of AFP for HCC is about 67%, normal AFP serum levels or levels <200ng/mL do not exclude HCC [22]. This variation in the AFP level in HCC cases may be explained by that plasma AFP test has a low sensitivity, and about one third of early-stage HCC patients with small tumors have low level of AFP as that in healthy individuals, which makes the AFP test insufficient for the early detection of HCC in high-risk populations [14]. Initial serum SCCA-IgM assay in all the studied groups reviledstatistically decreased in group III (liver cirrhosis patients) than the other HCC two patients' groups (I, II). Gr I (HCC with low AFP) was statistically highly significant with the group III (HCC with liver cirrhosis), while it was insignificant with group II (HCC with significant AFP). This in agreement of Pozzanand his collogues study results are significant in considering a role of SCCA-IgM in the detection of HCC [10]. These results with in agreement with Aliand his collogue who found serum SCCA-IgM levels were statistically higher significant in HCC patients than cirrhotic patients.These results offer evidence that, irrespective of the cause of liver cirrhosis, an important increase of SCCA-IgM among HCC patients [7]. This was proved by Cagnin and his collogues who suggest a potential use of serum SCCA-IgM as prognostic tool in patients with liver cirrhosis patients with HCC [11]. Irrespective of the underlying cause of liver cirrhosis, 120AU/mL of SCCA-IgM is a cut-off value above which lay such patients who are exposed to a substantially higher risk of HCC occurrence and mortality [11]. This cut-off value was higher than the cutoff value in this study which 40AU/mL in HCC detection with high sensitivity and specificity. Furthermore, many studies reported different cut-off values for SCCA IgM in HCC patients, which were 95 104AU/mL and 89AU/mL respectively [10,23]. While, other study revealed that the best cut-off value for SCCA-IgM was 200 arbitrary unit/mL with 57% sensitivity and 89% specificity [24].These conflicting results could be attributed to the small sample size, population ethnicity, the diversity between the patients regarding the disease cause or different mechanisms underlying carcinogenesis and dissimilarity in tumor stages. Radiofrequency ablation (RFA) is among the more frequently therapeutics of choice for HCC, is more effective in treating early single HCC focal lesion (<3cm). RFA has reduced efficiency for HCC ≥3cm [25].In this study, complete ablation was observed in 36 patient (90%) in both HCC groups (I,II) and partial response in 4 patients (10%) who were treated with another sessions. This iscomparable with the results of Zhang and his colleagues in which the complete ablation rate was achieved in 83.4% (78/93) of the treated tumors with RF ablation [26]. In this study, serum SCCA-IgM was highly statistically decreased in studied HCC patients' subgroups HCC before and after one month of RFA. In HCC with low AFP (before 98.9-488.3 with mean ± SD 188.42± 103.43AU/ml and after 39-167 with mean ± SD 86.56±33.18AU/ml) respectively and HCC with significant AFP (before range 61-476 and with mean ± SD 293.67± 112.30 after 39-167 with mean ± SD 125.73±87.54AU/ml) respectively (*p*-value 0.00 1 *).While, Serum SCCA-

IgM after one-month RFA between HCC with low AFP and HCC with significant AFP subgroups (Gr I and Gr II) was statistically non-significant (p>0.05). These results with in agreement with Pozzan and colleagues, as they found Serum SCCA-IgM levels were markedly decreased in response to treatment **[10]**.

In conclusion: SCCA-IgM assay could be taken in consideration for prediction of short-term outcome of radiofrequency ablative therapy for HCC, with negligible difference between patients with low or significant AFP after thermal ablation.

Study drawback: Small sample size, lack of randomization and short period of follow-up with no survival rate assessment.

Recommendations: Further extended studies on large scale populations are required to define the cutoff level of SCCA Ig-M in HCC diagnosis, staging and prediction of the efficacy of therapeutic modalities.

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Conflicts of interest: None.

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دور مستضدات سرطان الخلية الصدفية (IgM) فى تقييم الاستجابة لإستئصال سرطان الكبد بالتردد الحرارى

سرطان الخلايا الكبدية من الأمراض السرطانية الأكثر شيوعاً فى العالم. وقد تبين حدوث سرطان الخلايا الكبدية فى حوالى ٤.٧٪ من المرضى المصابين بمرض مزمن فى الكبد. ويعتبر مستضدات سرطان الخلية الصدفية ضمن عائلة الوزن الجزيئى العالى من مثبطات الانزيم المحلل للبروتين السيرينى والمسماة بالسيربينز قد وجد أنها تزداد فى أنسجة سرطان الكبد. حيث يزداد ظهورها فى مرحلة السرطان مقارنة بظهورها فى مرحلة ما قبل السرطان فى نسيج سرطان الكبد وذلك يقوى دوره كأداه للكشف النسيجى عن سرطان الخلايا الكبدية. والمرضى فى المراحل المبكرة من سرطان الخلايا الكبدية يمكنهم الاستفادة من العلاجات الشافية والتى تشمل الاستئصال الجراحى، زراعة الكبد والكى عن طريق الجلد. ويعتبر الاستئصال الجراحى هو أفضل طرق العلاج لمرضى سرطان الخلايا الكبدية الغير مصابين بالتليف الكبدى، أما فى المرضى الذين لا تسمح حالتهم الطبية للتدخل الجراحى فقد وجد أن الكى الحرارى عن طريق الجلد تحت ارشاد الأشعة هو أفضل الطرق العلاجية باستخدام الكى الموضعى التردد الحرارى فى المراحل المبكرة لسرطان الخلايا الكبدية. إن مستوى مستضدات سرطان الخلية الصدفية فى مرضى سرطان الخلايا الكبدية ذو أهمية فى التنبؤ ومتابعة الاستجابة للعلاج خصوصاً فى الكى الحرارى مع تحقيق تقييم أفضل للخطة العلاجية.

الهدف من الدراسة: تقييم دور مستضدات سرطان الخلية الصدفية فى التنبؤ باستجابة سرطان الخلايا الكبدية للعلاج بالتدمير الحرارى للخلايا عبر الجلد.

المرضى وطرق البحث: تم إجراء هذه الدراسة على ٥٥ حالة من قسم الكبد والجهاز الهضمى والأمراض المعدية بمستشفيات جامعة بنها والمعهد القومى للكبد والأمراض المتوطنة تم تقسيمهم إلى ثلاثة مجموعات كالأتى:

- المجموعة الأولى: وتشمل خمسة وعشرون مريضاً بالتشمع الكبدى والمصابين بسرطان الكبد مع إنخفاض مستوى ألفا فيتو بروتين أقل من (٢٠٠ نانو جرام / ميلليمتر).
- المجموعة الثانية: وتشمل خمسة عشرة مريضاً بالتشمع الكبدى الكبد والمصابين بسرطان الكبد مع ارتفاع مستوى ألفا فيتو بروتين أكثر (٢٠٠ من نانو جرام / ميلليمتر).
- المجموعة الثالثة: وتشمل خمسة عشرة مريضاً بالتشمع الكبدى الذين تم تشخيصهم بالكشف الإكلينيكى وبالتحاليل المعملية والموجات فوق الصوتية والغير مصابين بسرطان الكبد.

وتم تحديد المرضى ذوى الحالة الإكلينيكية التى تسمح بإجراء الكى بالتردد الحرارى وفقاً للمعايير الأتية:

المرضى المصابين ببؤرة مفردة <٥ سم أو بؤرتين ولكن كلا منهما <٣ سم، مرضى تصنيف تشيلد أ، ب والغير مصابين بثانويات سرطانية خارج الكبد أو موانع عامة تمنع استخدام الكى الحرارى.

وقد وجد أيضاً أن مستضدات سرطان الخلايا الصدفية ببلازما الدم عند مستوى ٤٠ وحدة / ملى يمكنه تشخيص سرطان الكبد بنسبة حساسية بلغت ٩٧.٥٪ وتخصصية بلغت ٩٦٪.

وقد استخلصت الدراسة: أن مستضدات سرطان الخلية الصدفية يمكن أن تكون عاملاً فى التنبؤ باستجابة سرطان الخلايا الكبدية للعلاج بالتدمير الحرارى للخلايا عبر الجلد.

قيمة مصل سرطان الخلايا الحرشفية Antigen-IgM فى سرطان الخلايا الكبدية (HCC)، أحد المضاعفات الرئيسية لتليف الكبد، هو أكثر الأورام الخبيثة شيوعاً مع ارتفاع معدل الوفيات التى تتطلب التشخيص والعلاج المبكر. تم اقتراح مستضد سرطان الخلايا الحرشفية المصل – IgM (SCCA-IgM) ليكون علامة بيولوجية لتشخيص سرطان الخلايا الكبدية والتنبؤ بفاعلية العلاج الاستئصالى الحرارى.

الهدف: الهدف من هذه الدراسة هو تقييم قيمة SCCA-IgM فى تقييم الاستجابة للاجتثاث الحرارى بالترددات الراديوية فى مرضى التليف الكبدى المصابين بسرطان الخلايا الكبدية.

الموضوعات والطرق: تم تسجيل أربعين مريضاً من سرطان الكبد و ١٥ مريضاً يعانون من تليف الكبد تقديرياً سريرياً ومختبرياً وعن طريق الموجات فوق الصوتية على البطن. تم تقسيم المرضى إلى ثلاث مجموعات فرعية على النحو التالى: المجموعة الأولى: خمسة وعشرون مريضاً يعانون من سرطان الخلايا الكبدية (HCC) وبروتين ألفا فيتوبروتين (أ ف ب) <٢٠٠ نانو غرام / مل (سرطان الخلايا الكبدية مع إنخفاض ضغط الدم المنخفض) المجموعة الثانية: خمسة عشر مريضاً مصاباً بسرطان الخلايا الكبدية والـ AFP >٢٠٠ نانو غرام / مل (سرطان الكبد مع ارتفاع كبير فى ضغط الدم). المجموعة الثالثة خمسة عشر مريضاً يعانون من تليف الكبد مقدرة إكلينيكياً ومختبرياً وبواسطة الموجات فوق الصوتية على البطن بدون سرطان الكبد. باستخدام ELISA و AFP وSCCA-IgM تم التحقق من صحتها فى جميع الموضوعات المدروسة (المجموعة الأولى والثانية والثالثة) وبعد شهر واحد بعد الاستئصال بالترددات الراديوية لمرضى سرطان الكبد (المجموعة الأولى والثانية).

النتائج: كان SCCA-IgM ذو دلالة إحصائية عالية بين المجموعات الثلاث من المرضى (p<٠.٠٠١)، كما توجد دالة إحصائية عالية بين كل مجموعة وأخرى بأستثناء المقارنة بين المجموعتين الأولى والثانية (p<٠.٠٥). أيضاً، يُظهر SCCA-IgM قبل وبعد RFA إنخفاضاً ذا دلالة إحصائية عالية فى مرضى سرطان الكبد فى المجموعتين الأولى والثانية (p<٠.٠٠١). بالمقارنة بين HCC لمجموعتى المرضى الأول والثانى قبل وبعد HCC RFA، كان إنخفاض SCCA-IgM فرقاً ضئيلاً من الناحية الإحصائية (p<٠.٠٥). فى مرضى سرطان الكبد (GI و II)، كان الأداء التشخيصى لـ SCCA-IgM عند الحد الأقصى ٤٠ نانو غرام / مل و SCCA-IgM (الحساسية ٩٥.٥٪، النو عية ٩٦٪، AUC ٠.٩٩٧، PPV ٩٦، NPV ٩٧.٥ والدقة ٩٧ على التوالى).

الخلاصة: قد يكون اختبار SCCA-IgM مفيداً فى التنبؤ بفعالية الاجتثاث الحرارى بالترددات الراديوية HCC مع فرق ضئيل بين المرضى الذين يعانون من إنخفاض أو إنخفاض كبير فى RFP بعد الاستئصال.