

Role of Ascitic Fluid Rantes in Diagnosis and Prognosis of Spontaneous Bacterial Peritonitis in HCV Cirrhotic Patients

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Abstract

Introduction: hepatitis C is a disease with a significant global impact. According to the world health organization (WHO), there are 150-200 million people chronically infected with HCV, corresponding to 2-2.5% of the world's total population. there are considerable regional differences. **Aim of the work:** This study will be carried out to assess the presence of ascetic fluid RANTES and its value in diagnosis of spontaneous bacterial peritonitis SBP among (HCV) cirrhotic patients. **Patients and methods:** This cross-sectional prospective, case-control hospital based study was conducted in internal medicine department, minia university hospital from June 2016 to June 2017. This study included 80 patients who were recruited from inpatient and out-patient clinic and divided into two groups: **Results:** this study included 80 subjects in 2 groups:-group I (cases): it included 50 patients with HCV- related liver cirrhosis complicated with SBP. (31 male and 19 female), their ages ranged from 33 to 59 years old with mean of 51.6 ± 5.4 SD.

Keywords: ACLF: acute-on-chronic liver failure, ADH: anti-Diuretic Hormone, AF: Ascetic Fluid.

Introduction

Hepatitis C is a disease with a significant global impact, according to the world health organization (WHO), there are 150-200 million people chronically infected with HCV, corresponding to 2-2.5% of the world's total population. There are considerable regional differences. The hepatitis C burden in many developed counties is <2% (world health organization., 2011, cornberg et al., 2011). Egypt has the highest prevalence of HCV worldwide (15%) making the most challenging public health problem facing our country (Mahmoud et al., 2013).

Liver cirrhosis is the final common pathological pathway of liver damage arising from a wide variety of chronic liver diseases (Qua et al., 2011). It is a diffuse pathophysiological state characterized by chronic necroinflammatory and fibrogenetic processes, with subsequent conversion of normal liver architecture into structurally abnormal nodules, dense fibrotic septa, concomitant parenchymal exhaustion and collapse of the liver tissue. Initial phase of cirrhosis is termed compensated cirrhosis followed by rapid progressive complicated

phase termed decompensated cirrhosis (Mauss et al., 2015). The patho-physiological features of cirrhosis involve progressive liver injury and fibrosis resulting in portal hypertension and decompensation, including ascites, spontaneous bacterial peritonitis, hepatic encephalopathy, variceal hemorrhage, the hepatorenal syndrome, and hepatocellular carcinoma (Ge and Runyon, 2016).

Aim of the work

This study will be carried out to assess the presence of ascetic fluid RANTES and its value in diagnosis of spontaneous bacterial peritonitis SBP among (HCV) cirrhotic patients.

Patients and Methods

This cross-sectional prospective, case-control hospital based study was conducted in internal medicine Department, Minia University-Hospital from June 2016 to June 2017. This study included 80 patients who were recruited from inpatient and out-patient clinic divided into two groups:

Group 1: it included 50 patients with HCV- related liver cirrhosis complicated with SBP.

Group 2: it included 30 patients with non SBP ascetic HCV-related liver cirrhosis.

Group 1 patients received treatment in for SBP in the form of third-generation cephalosporin (cefotaxime) for five days as the first-line treatment (2g/8hours) (piano et al., 2016) then follow up of the patients by clinical examination. Ultrasonography and measuring RANTES level in ascetic fluid was done to evaluate effect of treatment on its level.

Group 2 patients were decompensated liver cirrhosis (by clinical, laboratory investigation and ultrasonography) without any sign or symptoms of infection .

(I) thorough history taking.

(II) thorough clinical Examination:

(III) laboratory investigations:

(IV) Radiological investigation:

Ascetic fluid analysis:

The simplest and most inexpensive way to orient the diagnostic workup of a patient with ascites, is though the analysis of ascetic fluid.

A diagnostic paracentesis was the test performed in our patients who were affected with ascites.

Ascetic tap was done in the hospital within 24 hours of admission of the patients and applying full protocol of aseptic techniques,

10 ml fluid was aspirated from each patient in a disposable syringe.

The ideal location for performing a paracentesis is in the left lower quadrant (LLQ), two fingerbreadths medial and cephalad to the anterior superior iliac spine in right lateral position, because in this location the abdominal wall is thinner.

RANTES analysis in ascetic fluid cells:

The previous sample was taken using sterile tubes for analysis of RANTES level. The samples were kept at room temperature (18-25⁰C) samples should be centrifuged to remove suspended solids.

Results

This study included 80 subjects in 2 groups:-group I (cases): it included 50 patients with HCV-related liver cirrhosis complicated with SBP. (31 male and 19 female), their ages ranged from 33 to 59 years old with mean of 51.6±5.4 SD.

-group II 9control): it included 30 patients with non SBP ascetic chronic HCV-related liver cirrhosis. They were 16 male and 14 females, their ages ranged from 34 to 55 years old with mean of 51.2±5.5 SD.

(table 1): shows clinical characteristics of group 1 and group 2. There were statistically significant differences between them as regard presence of jaundice, degree of ascites and child score.

(table 1): comparison between the two group as clinical data:

		Group 1 N=50	Group 2 N=30	p-value
		Freq.(%)	Freq.(%)	
Jaundice	yes	27(54%)	5(16.7%)	0.01*
	No	23(46%)	25(83.3%)	
Ascites	Mild	0(0%)	3(10%)	0.043*
	Moderate	40(80%)	19(63.3%)	
	Marked	10(20%)	8(26.7%)	
		Freq.(%)	Freq.(%)	
Child score	1₂	9(18%)	15(50%)	0.002*
		41(82%)	15(50%)	

Freq: frequency.

- Indicates significant result

Discussion

Chronic liver disease as a result of HCV infection with progression to decompensated cirrhosis and its associated complications, including hepatic encephalopathy, spontaneous bacterial peritonitis and sepsis, is a leading cause of mortality and morbidity (Oliveira et al., 2016).

The pathophysiology of decompensated cirrhosis, leads to the development of gut microbiome changes causing dysbiosis. This is likely related to altered bile acid composition, with a subsequent increase in the relative abundance of potentially pathogenic bacteria that contributes to hepatic encephalopathy and leads to their translocation and the development of spontaneous bacterial peritonitis (SBP) and bacteremia (Lachar & Bajaj, 2016).

SEP has an incidence rate of 10%-30% in patients with severe liver damage. It refers to the bacterial infection of the peritoneum and / or ascites that occurs in the absence of any inflammation in adjacent tissues (e.g., intestinal perforation and intestinal abscess) (Gu et al., 2017).

Conclusion and future Recommendations

In conclusion, we found that RANTES is strongly associated with the process of spontaneous bacterial peritonitis and related to hepatic function deterioration and significant decline in its levels with successful treatment of spontaneous bacterial peritonitis.

- RANTES can be used for diagnosis of spontaneous bacterial peritonitis.

Finally, we recommend:

Further studies in other populations with a different background and geographical origin are needed.

Further studies for detection of RANTES level in both serum and ascetic fluid then finding the correlation between them and diagnosis of SBP.

Further studies including functional relevance and clinical implications are needed to study the role of RANTES in prediction of etiology, mechanism of occurrence of LC and SPB and its relation

to other different causes of liver cirrhosis that may lead to SBP.

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