Research Article

Hyaluronic Acid as A Biomarker for Liver Fibrosis in Chronic Hepatitis "C" Patients

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Abstract
Introduction: Because of that and its short half-life in blood (2–5 min), serum HA levels can reflect liver fibrosis stage and were incorporated into a long list of serum noninvasive liver fibrosis markers such as procollagen III N-terminal propeptide (PIIINP), laminin and transforming growth factor beta (TGF-b) (Afdhal NH, Nunes D., 2004). It was found that serum levels of hyaluronic acid are elevated in chronic liver diseases in which the serum levels of ECM would be changed. These include alcoholic and non-alcoholic steatohepatitis, hepatitis B, C and others (Rostami S, et al., 2013). **Patient And Methods**: This study was designed to evaluate the effect of antiviral therapy on the serum hyaluronic acid as abiomarker of fibrosis ;in patients with chronic hepatitis C. **Results:** We found that serum hyaluronic acid level showed asignificant decrease after treatment. **Recommendations:** Hyaluronic acid can be used to determine the stage of fibrosis when liver biopsy is contraindicated.
Keywords: Hyaluronic Acid, Liver Fibrosis, Chronic Hepatitis "C"

Introduction
Worldwide, 130–170 million persons are living with chronic hepatitis C virus (HCV) infection which, if left untreated, can result in cirrhosis and liver cancer. Egypt has the largest burden of HCV infection in the world, with a 10% prevalence of chronic HCV infection among persons aged 15–59 years (El-Zanaty,et al., 2009). If untreated, HCV infection leads to cirrhosis in a quarter of patients over a period of 20–30 years, while successful antiviral therapy with a sustained virological response (SVR) results in a reduction of liver-related morbidity and mortality including a lower incidence of HCC and a reduced need for liver transplant (Shiha G, et al., 2009).

Aim of the work
Aim of this study is to evaluate the effect of antiviral therapy on the serum hyaluronic acid.

Patient and Methods
Thirty nine patient with chronic HCV-related liver disease will be enrolled in this study. All patients were eligible for the standard of cure therapy. Patients were selected from the outpatient clinic of hepatitis viruses of tropical medicine department at Elminia university hospital.

The patients divided into two groups:
Group (1) 11 patients with liver cirrhosis.
Group (2) 28 patients with chronic hepatitis C.
All patients were with HCV antibodies and with detectable hepatitis C viraemia as detected by real time PCR.

Data collection and patients follow up:
All patients subjected to:
1- Full history taking.
2- Thorough clinical examination.
3- Abdominal ultrasonography using Mindray 2200 machine.
4- Fasting venous samples will be collected for laboratory tests and serology.
Serological tests including: HCV antibodies using ELISA test Real time PCR for detection of viremia
5- APRI score was calculated according to following formula:

AST(IU/l*100)/ULNAST *Platelet count (10^9/L).
6- Serum samples were collected, center-fuged for fifteen minutes and stored at -70c for hyaluronic acid serological assay.

Results

We compared between the two groups in the following: basic demographic and basic laboratory data, APRI score,and serum Hyaluronic acid.

Table 1: The mean serum level of Hyaluronic acid in patients with chronic hepatitis C and liver cirrhosis.

Item	Chronic hepatitis N=28	Cirrhotic N=11	P value
H.A(ng/ml)			
Range	(93-219)	(230-299)	<0.001*
Mean ± SD	171.4±38.3	260.5±25.7	

Table 2: The mean serum level of Hyaluronic acid in patients with chronic hepatitis C and liver cirrhosis.

Item	Chronic hepatitis N=28	Cirrhotic N=11	P value
H.A(ng/ml)			
Range	(93-219)	(230-299)	<0.001*
Mean ± SD	171.4±38.3	260.5±25.7	

Discussion

Many noninvasive markers (NIMs) for assessing liver fibrosis have been developed, and they are frequently used in clinical practice. They have been validated in different studies, and some were found to be highly accurate in the assessment of liver fibrosis compared with liver biopsies, which have always been used as the standard reference method for evaluating the accuracy of noninvasive methods (Chwist A. et al., 2013).

We found that, there was a highly significant increase in serum HA level in cirrhotic patients in comparison with non cirrhotic patients. These results are in agreement with those of Khan et al.,

Our study proofed that there was a regre-ssion of fibrosis after treatment in both groups as hyaluronic acid decreased significantly and this in agreement with a study done by Bachofner and his colleagues (2017) who observed a reduction in APRI scores and Fib-4 index after HCV eradication (Bachofner et al., 2017).

Recommendations

Hyaluronic acid can be used to determine the stage of liver fibrosis, especially cirrhosis. Further studies are needed on a large group of patients to validate the result of this study and to show the possible use of HA levels as a follow-up of HCV therapy.

References

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