



CHRONIC VIRAL HEPATITIS B; EVALUATION OF LIVER FIBROSIS BY NONINVASIVE MARKER IN PATIENTS WITH CHRONIC VIRAL HEPATITIS B

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INTRODUCTION

Hepatitis B (HBV) is an general wellbeing worry in both creating and created nations influencing around 3.5 billion of the total populace and furthermore 400 million are carriers.^{1,2} In Pakistan the pervasiveness of perpetual HBV contamination is 2.4%.³ Liver fibrosis is the pathologic procedure of all end stage of liver disorders paying little respect to the reason subsequently visualization of constant liver illnesses incredibly rely upon the degree of liver fibrosis.⁴ So early discovery of anti-fibrotic measures would take into account start of hostile to fibrotic therapies equipped for ending the process. This would thus anticipate movement to hepatic cirrhosis, and the horribleness and mortality this condition involves. As of now, liver biopsy, the best quality level, is restricted by invasive, examining mistake, inconstancy in obsessive translation and the hesitance of

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ABSTRACT... Objectives: To determine the frequency of liver fibrosis by non invasive marker in patients with chronic viral hepatitis B. **Study Design:** Cross sectional clearly investigate about chronic viral hepatitis population. **Setting:** Liaquat University Hospital Hyderabad. **Period:** Six months, 09-Jan-2014 to 08-July-2014. **Patients and Methods:** All the patients of 16-50 years of age, of either gender with chronic viral hepatitis B infection for more than 6 months duration were admitted and evaluated for liver fibrosis through non invasive marker (APRI). The SPSS was used to manipulate the data. **Results:** During six month study period, total 140 patients with chronic viral hepatitis B infected patients were evaluated for liver fibrosis. Majority of patients were from urban areas 112/140 (80%). The mean \pm SD for age of patients with chronic viral hepatitis B infection was 37.95 ± 9.77 . The mean age \pm SD of hepatic fibrotic patients was 35.72 ± 7.62 . The mean \pm SD for age of male and female population was 35.83 ± 8.74 and 33.83 ± 6.53 respectively. The mean \pm SD for APRI score in hepatic fibrotic subjects was 1.31 ± 0.31 while in relation to liver fibrotic male and female patients it was 0.91 ± 0.21 and 1.00 ± 0.32 respectively. Majority of the subjects were 30-39 years of age and the male population predominant ($p=0.02$) whereas the liver fibrosis was identified in 89/140 (63.5) [$p < 0.01$] as far as gender distribution is concerned. **Conclusion:** APRI may be used as a simple and readily available tool for the diagnosis of significant fibrosis in patients with chronic viral hepatitis B.

Key words: Cirrhosis, Chronic Viral Hepatitis, Fibrosis, Hepatic Fibrosis and APRI, Viral Hepatitis, Hepatitis B, HbsAg, Liver Fibrosis.

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patients to experience re-hashed biopsies to disease progression with 0.2-2% morbidity rate.⁵ Cost of technique and accessibility of master professionals is likewise an issue. A French review general experts inferred that liver biopsy might be declined by up to 59% of patients with end stage liver cirrhosis and that 22% of the doctors share a similar concern in regards to this intrusive strategy. In this way, there is a growing propensity to utilize non-invasive measures rather than histopathological investigation of liver tissue for the assessment of disease progression in subjects with perpetual liver illnesses. Break through, a few research center tests, scores, and files have been proposed for noninvasive prediction of hepatic fibrosis and different investigations has been led for the assessment or assurance of liver fibrosis by non-intrusive markers. Shaikh S, et al⁶ compared the three noninvasive markers

with liver biopsy in patients with chronic hepatitis and revealed the prevalence of APRI to assess fibrosis. The observed prevalence for discovery of liver fibrosis by non-invasive marker (APRI) in tolerant with constant viral hepatitis B is 63%.⁷

Therefore this study was conducted to detect the liver fibrosis by non-obtrusive marker in patients with chronic viral hepatitis B at tertiary care health facility Hyderabad.

PATIENTS AND METHODS

The descriptive cross-sectional study (six months) was planned at tertiary care teaching hospital Hyderabad. The inclusion criteria of the study were the patients of 16-50 years of age, of either gender having chronic viral hepatitis B infection for more than 6 months duration while the exclusion criteria were, the patients with chronic hepatitis C (CHC), hepatocellular carcinoma, alcoholics (daily intake >30g), already on antiviral or interferon treatment, patients with other comorbidities like Diabetes mellitus, obese (BMI more than 28 kg/m²), hematological causes of thrombocytopenia and prolonged history of steatogenic drugs use [like steroids, methotrexate, tetracycline, amiodarone, antiviral (nucleoside analogues), temozolomide]. The chronic hepatitis B was labelled on the basis of HBsAg positive for more than 6 months with serum ALT level more than 2 times the upper limit of normal within last 6 months while the non-invasive marker was AST to Platelet Ratio Index (APRI) which combines biochemical variables (AST and platelet count) with age. If APRI \leq 0.5 then it was labeled as no fibrosis and if $>$ 0.5 then it was considered as fibrosis.

All the patients with chronic viral hepatitis B visited at OPD of Liaquat University Hospital Hyderabad were enrolled and entered in the study. The informed consent was taken and all such patients were assessed for the liver fibrosis through non-invasive marker (APRI) and for that 4 cc venous blood sample was taken in a disposable syringe, of that 2 cc was transferred to CP bottle for platelet count and remaining 2 cc in disposable syringe for aspartate aminotransferase (AST) then the both specimens collectively were sent to laboratory for analysis. After collecting the laboratory

results the APRI was calculated and the fibrosis was evaluated while the data was collected on pre-designed proforma. The SPSS was used to manipulate the data, mean \pm SD, frequencies and percentages and p-value (reading of significance was \leq 0.05).

RESULTS

Total 140 patients with chronic viral hepatitis B infected patients were evaluated for liver fibrosis. Majority of patients were from urban areas 112/140 (80%). The mean \pm SD for age of patients with chronic viral hepatitis B infection was 37.95 ± 9.77 . The mean age \pm SD of hepatic fibrotic patients was 35.72 ± 7.62 .

The mean \pm SD for age of male and female population was 35.83 ± 8.74 and 33.83 ± 6.53 respectively. The mean \pm SD for APRI score in hepatic fibrotic subjects was 1.31 ± 0.31 while in relation to liver fibrotic male and female patients it was 0.91 ± 0.21 and 1.00 ± 0.32 respectively. The mean \pm SD for age of patients with chronic viral hepatitis B infection in relation to no fibrosis was 40.82 ± 7.84 while in relation to male and female gender it was 38.64 ± 7.54 and 36.82 ± 5.31 respectively. The mean \pm SD for APRI score in non-hepatic fibrotic subjects was 0.21 ± 0.11 while in relation to non-liver fibrotic male and female patients it was 0.31 ± 0.21 and 0.22 ± 0.31 respectively. The results are presented in Table-I-III.

DISCUSSION

Former researches have evaluated the capability of serum biomarkers for liver characteristic and importance of these markers in predicting hepatic fibrosis and cirrhosis in hepatitis B and C population. The liver biopsy is frequently essential but the doctors and patients are probably reluctant because of associated risks commonly are pain (84% of sufferers), bleeding and death (because of hemorrhage). 148 Newly emerged non-invasive biomarkers are able to assess degree of hepatic fibrosis and necrosis in chronic liver disease population.⁸

The present series observed non-invasive biomarkers formerly primarily based on simply available laboratory tools.⁹

		Gender		Total	P-value
		Male	Female		
Age	16-19	10	18	28	0.02*
		11.9%	32.1%	20.0%	
	20-29	30	14	44	
		35.7%	25.0%	31.4%	
	30-39	39	19	58	
		46.4%	33.9%	41.4%	
	40-50	5	5	10	
		6.0%	8.9%	7.1%	
Total		84	56	140	
		100.0%	100.0%	100.0%	

Table-I. The age and gender of study population
*P-value is statistically significant

		Gender		Total	P-value
		Male	Female		
Duration (months)	6-12	17	39	56	<0.01*
		20.2%	69.6%	40.0%	
	12-24	50	12	62	
		59.5%	21.4%	44.3%	
	24 +	17	5	22	
		20.2%	8.9%	15.7%	
Total		84	56	140	
		100.0%	100.0%	100.0%	

Table-II. The gender and duration of the disease
*P-value is significant

		Liver Fibrosis		Total	P-value
		Yes	No		
Gender	Male	81	3	84	<0.01*
		91.0%	5.9%	60.0%	
	Female	8	48	56	
		9.0%	94.1%	40.0%	
Total		89	51	140	
		100.0%	100.0%	100.0%	

Table-III. The gender and liver fibrosis
*P-value is statistically significant

These comprises load of hepatitis B viral DNA, platelet count, hepatitis B ‘e’ antigen (HBeAg), alanine aminotransferase (ALT), aspartate aminotransferase (AST), APRI (AST to platelet ratio index) and API (age platelet index).¹⁰ The results acquired from cutting edge take a look at confirmed that fibrotic markers in addition to the age had been extensively related to the severity of hepatic disease. In present study majority of the patients have were 30-39 years of age and it’s far steady with the take a look at by Poynard T, et al.¹¹ In current series the male populace was major and the finding turned into also by Rockey

DC.¹² In present study the majority of the patients had 12-24 months of period of the disease and the statement is likewise steady with the take a look by Friedman SL, et al.¹³

In our study the APRI tool became used to detect the liver fibrosis and it is consistent with the study by Shin WG, et al,¹⁴ whereas different studies reported limitation of APRI in evaluating the hepatic fibrosis;¹⁵ even though some other stated that APRI may want to perceive widespread and enormous fibrosis with an AUROC value 0.71.¹⁶

Former literature have explored the non invasive serum markers to explain the hepatic fibrosis level to omit the liver biopsy.¹⁷ Blood marker are easy to determine, accessible and prevent the patients to get liver biopsies complications and also avoids the sampling mistakes hazards related to liver biopsy. Serum biomarkers are decided with the aid of laboratory analyses that are not affected by inter-observer interpretation discrepancies and peripheral blood assessment to determine modifications in hepatic fibrosis after management.

In present series, the liver fibrosis identified in 89(63.5%) sufferers of which eighty one had been males and 08 were women, the observation is consistent with the observe by means of Schuppan D, et al.¹⁸ Previous studies have advised that the Fibro Test is a tool to evaluate the fibrosis stage in sufferers with chronic viral hepatitis B.¹⁹⁻²³ Numerous studies had been executed to evaluate the predictive efficacy of numerous fibrosis models in sufferers with chronic hepatitis B in Asia, together with Korea.²⁴

Therefore, making of an effective model might useful resource for analysis, prognosis, treatment decision and the response of the patient. It appears that evidently this index is a good biomarker to evaluate and predict the liver disease and its severity. The APRI is simple novel indices composed of effortlessly to be had usual laboratory tests that can as it should be differentiate slight to moderate fibrosis in subjects with chronic viral hepatitis B. If extra studies in sufferers with chronic HBV guide those findings, APRI can be used to as it should be become aware of sufferers with extensive fibrosis who may benefit from anti-HBV remedy and just as importantly in sufferers with moderate disorder in whom therapy may be deferred.

CONCLUSION

APRI is a simple and easily available tool to detect the significant fibrosis in subjects with hepatitis B. Advance studies are needed and considering its easily accessibility the tool is useful possibly with clinical and other specific biochemical parameters to detect the presence of liver fibrosis

and avoiding the liver biopsy.

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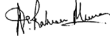

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AUTHORSHIP AND CONTRIBUTION DECLARATION

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2	Aqeel Ahmed Channa	Drafting the article and shares its expert research opinion and experience in finalizing.	
3	Abdul Raheem Memon	Contributed in conception and interpretation of data and give his expert view for manuscript designing.	
4	Syed Zulfiqar Ali Shah	Analysis and interpretaion of data contributed in conception and shares its expert research opinion.	
5	Muhammad Iqbal	Collection and acquisition of data, analysis and interpretation of data and make it suitable for final revision and a corresponding author.	