COMPARISON OF SERUM ALANINE AMINOTRANSFERASE (ALT) OF NEWLY DIAGNOSED PATIENTS OF HEPATITIS C WITH HEALTHY INDIVIDUALS

*MUHAMMAD HUMAYUN, **ZAMEER AHAMAD, ***MUHAMMAD MUSTANSAR, ****AMBREEN KHALID

**ASSISTANT PROFESSOR BIOCHEMISTRY, SHALAMAR MEDICAL AND DENTAL COLLEGE LAHORE
**PROF. OF BIOCHEMISTRY AND PRINCIPAL, SAHIWAL MEDICAL COLLEGE SAHIWAL
***ASSISTANT PROFESSOR BIOCHEMISTRY, SAHIWAL MEDICAL COLLEGE SAHIWAL
****ASSISTANT PROFESSOR PHYSIOLOGY, SHALMAR MEDICAL AND DENTAL COLLEGE LAHORE

CORRESPONDENCE TO DR. MUHAMMAD HUMAYUN, ASSISTANT PROFESSOR EMAIL: mrhumayundr@gmail.com

ABSTRACT

Viral hepatitis is one of the major public health problem all over the world. Once infection with HCV occurs it leads to chronicity in upto 85% of cases. This can lead to cirrhosis, hepatocellular carcinoma and liver failure. The serum alanine aminotransferase (ALT) level test had been shown to be a viable and cost-effective screening test for HCV infection that could reduce the incidence of post-transfusion infection. Serum Alanine Amino Transferase (ALT) is the most frequently utilized screening test in routine evaluation of liver damage. Donors with increased catalytic activity of ALT are excluded from future blood donations, even if their anti Hepatitis C virus status is non reactive. Present study was to evaluate the importance of S/ALT in newly diagnosed patients of HCV from the blood donors and the comparison with normal healthy individuals with seronegative HCV with same ratio of age, sex and BMI. In the present study 100 patients newly diagnosed patients of HCV were enrolled, compared with 100 normal healthy individuals. The mean S/ALT in normal persons was 25.22±8.03 and in newly diagnosed patients was 48.75±6.26 with P value 0.035 which is significant.: From our study we can concluded that S/ALT can be a useful marker for the diagnosis of HCV in blood donors and in whom there is some technical problem to diagnose by routine screening test.

KEY WORDS: Hepatitis, S/ALT, BMI

INTRODUCTION

Viral hepatitis is one of the major public health problem all over the world. Once infection with HCV occurs it leads to chronicity in upto 85% of cases. There are about 170 million people infected chronically with HCV. Up to 70% of chronically infected individual develop active liver disease. This can lead to cirrhosis, hepatocellular carcinoma and liver failure. Antibody to HCV (anti-HCV) test is the accepted method for the diagnosis of HCV infection. It is routinely used in the screening for HCV infection among blood donors. The serum alanine aminotransferase (ALT) level test had been shown to be a viable and cost-effective screening test for HCV infection that could reduce the incidence of posttransfusion infection. Serum Alanine Amino Transferase (ALT) is the most frequently utilized screening test in routine evaluation of liver damage. Donors with increased catalytic activity of ALT are excluded from future blood donations, even if their anti Hepatitis C virus status is non reactive. It is expected that a number of asymptomatic donors would be suffering from early hepatitis C at the time of blood donation. Failure to diagnose early infection may be secondary to undetectable levels of hepatitis C virus antibodies during initial phase of infection. This is further compounded by different sensitivities and specificities of various commercially available reagents which are being used for detection of anti-HCV. Polymerase chain reaction which can be successfully employed for recognition of hepatitis C virus ribonucleic acid is neither practical nor cost effective for developing countries. Because of these obstacles, ALT testing may serve as a probable indicator of continuous viral
AIMS AND OBJECTIVES

To evaluate the importance of ALT for the diagnosis of HCV infection and to determine the affect of HCV on liver cells in early stages. The study aims to correlate the association of hepatitis C virus ribonucleic acid with serum alanine transaminase in healthy seronegative blood donors.

MATERIALS AND METHODS

A total 100 blood donors with HCV positive were enrolled from the blood banks of Mayo Hospital, Services Hospital, Ganga Ram Hospital and Jinnah Hospital. These patients were accidentally diagnosed having HCV infection by dot immuno-chromatographic method using Nobis anti HCV commercial kit. Blood samples where collected for estimation of serum ALT level. 2 cc blood sample collected aseptically serum separated by centrifugation and shifted to laboratory for estimation serum ALT by kinetic method with spectrophotometer at a reaction wavelength of 340 nanometer at a temperature of 25°C. ALT levels of all diagnosed were evaluated with respect to age, BMI and gender and also of normal healthy subjects. Reference range in the lab was 5-30 U/L. Markedly elevated ALT was defined as results greater than twice the upper limit of reference range. Basic descriptive statistic were performed using SPSS-10

RESULTS
In the present study 100 patients were enrolled with the mean age 27.78±5.29 years and 100 normal healthy individuals with mean age 24.63±4.49 years and P value is 4.9 which is not significant (Table 1). In normal individuals 74 were males and 26 were females and in HCV positive patients 81 were males and 19 were females (Table 2). Mean BMI of HCV negative individuals was 27.99±1.92 Kg/m² and that of HCV positive was 28.44±12.08 and P value is 0.0573 which is also not significant (Table 3). The mean S/ALT level was 25.55±8.03 IU for normal healthy individuals and for HCV positive patients it was 48.75±6.26 and P value is 0.035 which is less than 0.05 and is significant (Table 4).

Table 1: Comparison of age in years between HCV positive and normal individual

<table>
<thead>
<tr>
<th>Status</th>
<th>mean</th>
<th>SD</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCV navigate (n=100)</td>
<td>24.63</td>
<td>4.49</td>
<td>4.9</td>
</tr>
<tr>
<td>HCV positive (n=100)</td>
<td>27.78</td>
<td>5.29</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Sex distribution between HCV positive and normal individuals

<table>
<thead>
<tr>
<th>Status</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCV navigate (n=100)</td>
<td>74</td>
<td>26</td>
</tr>
<tr>
<td>HCV Positive (n=100)</td>
<td>81</td>
<td>19</td>
</tr>
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Table 3: Comparison of body mass index between HCV positive and normal individuals

<table>
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<th>Status</th>
<th>Mean</th>
<th>SD</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCV navigate (n=100)</td>
<td>27.99</td>
<td>1.92</td>
<td>0.0573</td>
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<tr>
<td>HCV Positive (n=100)</td>
<td>28.44</td>
<td>2.08</td>
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Table 4: Comparison of Serum ALT levels between HCV positive and normal healthy individuals

<table>
<thead>
<tr>
<th>Status</th>
<th>Mean</th>
<th>SD</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCV navigate (n=100)</td>
<td>25.55</td>
<td>8.03</td>
<td>0.035</td>
</tr>
<tr>
<td>HCV Positive (n=100)</td>
<td>48.75</td>
<td>6.26</td>
<td></td>
</tr>
</tbody>
</table>

Discussion

Viral hepatitis is one of the major public health problem all over the world. Once infection with HCV occurs it leads to chronicity in upto 85% of cases. The serum alanine aminotransferase (ALT) level test had been shown to be a viable and cost-effective screening test for HCV infection that could reduce the incidence of posttransfusion infection. Serum Alanine Amino Transferase (ALT) is the most frequently utilized screening test in routine evaluation of liver damage. Donors with increased catalytic activity of ALT are excluded from future blood donations, even if their anti Hepatitis C virus status is non reactive.

Present study was to evaluate the importance of S/ALT in newly diagnosed patients of HCV from the blood diners and the comparison with normal healthy individuals with seronegative HCV with same ratio of age, sex and BMI. So there is no significant difference between the two groups regarding to age, sex and BMI as P value is not less than 0.05 as shown in tables. The mean S/ALT in normal persons was 25.22±8.03 and in newly diagnosed patients was 48.75±6.26 with P value 0.035 which is significant. This suggest that the S/ALT level can be good marker to diagnosed HCV in whom there is some technical problem of the detection of HCV in routine screening methods. Dr. C. K. Lin et-al also suggest that there is a direct relation ship between serum ALT and anti-HCV positivity and there is direct correlation between serum level and anti-HCV ratio. Our study is supported by Khouri ST et-al who narrated that ALT can be a useful marker for the detection of HCV infected donors in whom technical problems might have occurred in serological screening. However Saab S et-al concluded against our results, according to him a newly elevated aminotransferase level was neither sensitive nor positively predictive of chronic infection.
Therefore, an elevated ALT level is an ineffective method for screening for HCV infection in hemodialysed patients.

CONCLUSION

From our study we can concluded that S/ALT can be a useful marker for the diagnosis of HCV in blood donors and in whom there is some technical problem to diagnose by routine screening test.

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