Introduction

Hepatitis, the inflammation of the liver tissue, is caused by viruses like Hepatitis A virus, Hepatitis E virus, Hepatitis B virus, Hepatitis D virus and Hepatitis C virus. Amongst these, Hepatitis C is an important health problem in many countries including India. Since its detection in 1989, the diagnostic tools for Hepatitis C infection have undergone evolution. Recently, several commercially available highly sensitive and specific immunoassays are used to detect the presence of anti-HCV antibody in serum or plasma. The detection of viral antigens is important towards the detection of the host generated antibodies to HCV proteins. Since its detection in 1989, the diagnostic tools for Hepatitis C have undergone evolution. Recently, several commercially available highly sensitive and specific immunoassays are used to detect the presence of anti-HCV antibody in serum or plasma. The detection of viral antigens is important towards the detection of the host generated antibodies to HCV proteins.

Prevalence of Hepatitis C in chronic liver disease patients at a Tertiary Health Care Centre in Western Maharashtra

Hepatitis C is an emerging infection in India. HCV causes life-long chronic infections of cirrhosis, chronic liver disease and hepatocellular carcinoma. Infection is currently defined by the presence of specific anti-HCV antibodies, with or without the presence of detectable viral RNA. Among the diagnostic modalities, tests that detect the anti-HCV antibodies are widely used in developed countries. Rapid tests have certain advantages over the others thus compelling their widespread use in resource limited settings. The study was aimed to determine the seroprevalence of HCV among the chronic Liver disease patients at a tertiary health care centre in Solapur, Maharashtra.

Results: The anti HCV antibody seroprevalence was 227 (2.10%) by rapid anti-HCV antibody immunochromatographic test. The age group of 41-60 years was most commonly affected and males outnumbered the females with a male: female ratio of 1.76.

Conclusion: Rapid anti HCV antibody detection tests provides sensitive and specific results for high risk groups.

Material and Methods:
The study is a retrospective analysis of the data available at the virology laboratory in department of Microbiology at Dr.V.M. G.M.C, Solapur, Maharashtra. Serum or plasma from patients presenting with symptoms of chronic liver disease were processed. About 2-3ml of whole blood was collected in clean test tubes from each patient and allowed to clot and retract. The serum thus separated was used for analysis. The duration of the study was around 2 years from January 2015 to January 2017. The demographic data were reviewed from the available records. A rapid immunochromatographic test (Aspen HCV kit) was done on the specimen (serum/plasma) for qualitative detection of the anti-HCV antibody. This rapid test utilizes a combination of protein A coated particles and recombinant HCV proteins to qualitatively detect the presence of anti-HCV antibody in serum or plasma. The recombinant proteins are encoded by the genes for both structural (nucleocapsid) and non-structural proteins.

Results: A total 10,780 patients were evaluated for anti- HCV antibody of which 227 (2.10%) were positive by the rapid Hepatitis C virus

ABSTRACT

Prevalence of Hepatitis C in chronic liver disease patients at a Tertiary Health Care Centre in Western Maharashtra

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The study was aimed to determine the seroprevalence of HCV among the chronic Liver disease patients at a tertiary health care centre in Solapur, Maharashtra.

Results: The anti HCV antibody seroprevalence was 227 (2.10%) by rapid anti-HCV antibody immunochromatographic test. The age group of 41-60 years was most commonly affected and males outnumbered the females with a male: female ratio of 1.76.

Conclusion: Rapid anti HCV antibody detection tests provides sensitive and specific results for high risk groups.

The prevalence of HCV varies across different regions and populations. Since meager data is available on Hepatitis C from this region of Maharashtra, this study was carried out in a view to contribute to the existing prevalence of chronic hepatitis C in our country.

Material and Methods:
The study is a retrospective analysis of the data available at the virology laboratory in department of Microbiology at Dr.V.M. G.M.C, Solapur, Maharashtra. Serum or plasma from patients presenting with symptoms of chronic liver disease were processed. About 2-3ml of whole blood was collected in clean test tubes from each patient and allowed to clot and retract. The serum thus separated was used for analysis. The duration of the study was around 2 years from January 2015 to January 2017. The demographic data were reviewed from the available records. A rapid immunochromatographic test (Aspen HCV kit) was done on the specimen (serum/plasma) for qualitative detection of the anti-HCV antibody. This rapid test utilizes a combination of protein A coated particles and recombinant HCV proteins to qualitatively detect the presence of anti-HCV antibody in serum or plasma. The recombinant proteins are encoded by the genes for both structural (nucleocapsid) and non-structural proteins.

Results: A total 10,780 patients were evaluated for anti- HCV antibody of which 227 (2.10%) were positive by the rapid Hepatitis C virus
immunochromatographic test. The age group of 41-60 years was most commonly affected having 54.62% cases followed by 21-40 years (22.46%), >60 years (14.09%), and 0-20 years (8.81%). Among the positive cases, males (63.88%) outnumbered the females (36.12%) with a male:female ratio of 1.76. The age and sex distribution is shown in table 1.

Table 1: Showing age and sex distribution of HCV positive patients

<table>
<thead>
<tr>
<th>Age group</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-20 years</td>
<td>14 (70%)</td>
<td>6 (30%)</td>
<td>20 (8.81%)</td>
</tr>
<tr>
<td>21-40 years</td>
<td>31 (60%)</td>
<td>20 (40%)</td>
<td>51 (22.46%)</td>
</tr>
<tr>
<td>41-60 years</td>
<td>78 (62.90%)</td>
<td>46 (37.10%)</td>
<td>124 (54.62%)</td>
</tr>
<tr>
<td>&gt;60 years</td>
<td>22 (68.75%)</td>
<td>10 (31.25%)</td>
<td>32 (14.09%)</td>
</tr>
<tr>
<td>Total</td>
<td>145 (63.88%)</td>
<td>82 (36.12%)</td>
<td>227</td>
</tr>
</tbody>
</table>

Discussion:

The prevalence of HCV differs widely among the developed and developing countries. A study done by Petruziello et al. in Italy estimated the global prevalence of HCV by carrying out a systematic analysis of the published data between 2000 and 2015 that covered nearly 90% of global population as per the definition of Global burden of disease project. This study states the global prevalence of 2.5% ranging from 2% in Africa and 1.3% in America. The study also highlights that the global prevalence has decreased from 2.8% (during 1990 to 2005 period) to 2.5% with a relevant decrease in the prevalence of high income zones especially western Europe. This could be attributed to the mandatory testing of blood donors for the HCV as well the advent of the directly acting antiviral drugs (DAA) for the treatment.

The prevalence of anti-HCV in the general population of the south Asia region which includes India along with Afghanistan, Bangladesh, and Pakistan, is 2.5%, ranging between 6.7% in Pakistan and 0.8% in India.

The seroprevalence of anti-HCV antibodies at our tertiary health care centre is 2.10%. On evaluating the studies carried out near our region, the seroprevalence of HCV antibodies in a study done in Karad revealed a prevalence of 0.38%. Population based studies in rural Maharashtra stated the prevalence to be very negligible as low as 0.9%.

A study carried in all the rural areas of the USA reported 0.8% of the population to be HCV positive. A study carried in all the rural areas of the USA reported 0.8% of the population to be HCV positive.

A higher seroprevalence of 13% was recorded in a study from Amritsar. A study carried in all the rural areas of the USA reported 0.8% of the population to be HCV positive.

The data in our study showed wide variation on comparing with the data of other regions of India. The anti HCV seroprevalence among the acute hepatitis and chronic liver disease patients in a study of Central India was 4.85% and 25.4% respectively. A study in AFMC Pune had zero prevalence of hepatitis C among the soldiers. Thus on comparing with the available data from nearby regions, the prevalence of Hepatitis C is still high in our region.

The prevalence of anti-HCV antibodies among acute hepatitis and chronic liver disease patients in a study of Central India was 4.85% and 25.4% respectively. A higher seroprevalence of 13% was recorded in a study from Amritsar. A study carried in all the rural areas of the USA reported 0.8% of the population to be HCV positive.

The prevalence in our study could be related to the fact that they are exposed more with Afghanistan, Bangladesh, and Pakistan, is 2.5%, ranging between 6.7% in Pakistan and 0.8% in India.

The prevalence of this infection is showing a downward trend, but the fact that it is not completely eliminated, should not be neglected and thus the screening of this infection in the blood banks and in risk populations should be continued to prevent transmission and ensure safety of mankind. Though the rapid anti-HCV detection tests show low proportion of false negative and false positive results have sensitivity and specificity closely comparable with the efficient screening tests like ELISA, their beneficial characteristics allow for the easy diagnosis and treatment of cases than the laboratory based tests and also are a great choice in resource limited settings. However, the results of these screening tests must be evaluated by confirmatory methods.

Conclusion:

The prevalence of this infection is showing a downward trend, but the fact that it is not completely eliminated, should not be neglected and thus the screening of this infection in the blood banks and in risk populations should be continued to prevent transmission and ensure safety of mankind. Though the rapid anti-HCV detection tests show low proportion of false negative and false positive results have sensitivity and specificity closely comparable with the efficient screening tests like ELISA, their beneficial characteristics allow for the easy diagnosis and treatment of cases than the laboratory based tests and also are a great choice in resource limited settings. However, the results of these screening tests must be evaluated by confirmatory methods.

References:


