HCV Prevalence in the Volunteer Blood Donors in District Bajaur Khyber Pakhtunkhwa Pakistan

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ABSTRACT

Hepatitis c is one the most common blood born disease casing by the hepatitis c virus. HCV infection is a leading reason for liver cirrhosis and major source of hepatocellular carcinoma. And about 3% of the overall population of the world is infected by the hepatitis c virus. HCV is one of the significant casing of morbidity and mortality globally. This study was designed to describe the anti-HCV prevalence based on ELISA (Enzyme linked immune sorbent assay) among the blood donors of DHQ hospital Bajaur Khyber Pakhtunkhwa province of Pakistan. During January 2016 to December 2018 a total 7,309 blood samples were collected in the blood bank of GHQ hospital Bajaur Khyber Pakhtunkhwa Pakistan. For the detection of anti-HCV antibodies all the samples were tasted with ICT, ELISA and with Real Time PCR.

INTRODUCTION

Hepatitis c is a liver disease cases by hepatitis c virus and may often case fibrosis, cirrhosis or liver cancer the hepatitis c virus can case hepatitis c and this is not the only one casing agent of HCV and some other infection, toxic substances (e.g alcohol , certain drugs) and autoimmune diseases can also cause the HCV from 1989 from the discovery time of HCV it is considering the main reason for chronic liver diseases according to 2 004 WHO report 2-3% of world population living with HCV infection and hepatocellular carcinoma (HCC) accounts for ~5.6% all the cancers and it is the 5th common cancer in the world and third case of cancer death. HCV is enveloped small circular RNA virus from genus hepatitis c virus family flaviviridal with diameter of 50 nm and with 9.6 kb RNA genome and has six main genotypes HCVG1, HCVG2, HCVG3, HCVG4, HCVG5, and HCVG6. Out of these HCVG1 is the most prominent in the world.

MATERIALS AND METHODS

The main goal and aim of this study to analyze the prevalence of anti-HCV antibodies or HCV-RNA among the volunteer blood donors of district Bajaur Khyber Pakhtunkhwa province of Pakistan from January 2016 to December 2018. For the fining of anti-HCV antibodies or HCV-RNA we were used the following three different methods. And the scope of ICT and ELISA Technique for screening blood was also evaluated.

Blood Donors

Blood samples was taken from the volunteer blood donors and examined either at DHQ hospital Khar district Bajaur or at the department of Biotechnology KPK Pakistan.

Immune-Chromatographic Test (ICT)

Initially all the collected blood samples of the volunteer blood donors were tested through Immune-chromatographic test (ICT) and each samples with anti-HCV antibodies was tested twice. And the sample positive by ICT technique were tested using ELISA technique for further evaluation.

Enzyme-linked Immunosorbent Assay (ELISA)

The samples which shows positivity with ICT was further analyzed with the Enzyme-linked immunosorbent assay Technique for the testing of anti-HCV antibodies. And those samples which shows positivity with ELISA were processed for RNA Extraction

RNA Isolation and Real Time PCR

From the HCV positive ELISA samples the RNA was isolated and subsequent RT-PCR was carried out with the help of RNA extraction and RT-PCR kit.

Results

Initially screening of total 7,309 voluntary blood donors is done throughICT, ELISA technique and RT-PCR for anti HCV antibodies.

Out of the total numbers of volunteers 17 subject 0.232% were positive for anti-HCV antibodies table-1.Morever HCV prevalence was less is compare to the other areas of the Khyber Pakhtunkhwa province of Pakistan.

Table.1: Years wise HCV prevalence

<table>
<thead>
<tr>
<th>Years</th>
<th>Total Samples</th>
<th>HCV Positive %</th>
<th>HCV Negative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>14040</td>
<td>0.498%</td>
<td>99.50%</td>
</tr>
<tr>
<td>2017</td>
<td>3714</td>
<td>0.1077%</td>
<td>99.89%</td>
</tr>
<tr>
<td>2018</td>
<td>2191</td>
<td>0.273%</td>
<td>99.73%</td>
</tr>
<tr>
<td>Total</td>
<td>7,309</td>
<td>0.8787%</td>
<td>99.1213%</td>
</tr>
</tbody>
</table>

And average prevalence from the January 2016 to December 2018 is 0.2929%.

DISCUSSION

Hepatitis c is extremely attentive problem for the public health worldwide. Pakistan is the second highest number of HCV infection in the world after Egypt. Due to poor health care facilities unhygienic conditions and lack of awareness in most of the part of the country HCV is associated with increasing ratio of morbidity and mortality. In Khyber Pakhtunkhwa and mostly the tribal areas where the health care services are badly prepared with essential for screening and sterilization HCV has become an economic burden over population earlier studies done in Pakistan used different methods of selection of subjects supported the presences of High HCV percentage in Pakistan ranging from 3.3% to 5.3%. All the donated blood and sera reported to the DHQ hospital Bajaur Khyber Pakhtunkhwa Pakistan from January 2016 to December 2018 were analyzed the purpose of the present study was to determine the prevalence of HCV in the volunteer blood donors in District Bajaur Pakhtunkhwa Pakistan. The screening of the blood through ICT, ELISA technique and RT-PCR reviled that 0.232% of the blood donors were positive for anti-HCV antibodies. According to a “screening test for HCV held in FATA 2016” by health services FATA Dr javad Habib khan screening of about 3080 samples collected from three different areas, Khyber agency, FR Peshawar, Bajaur Agency out of these 72 cases were confirmed with HCV reported from Bajaur agency which showed about 2.33% prevalence ratio that area.

Study conducted in other part of the country including Kuram Agency, interior Sindh and Hyderabad has shown prevalence ratio 1.1%, 5.7% and 3.45% respectively but in this study we analyzed all the donors blood samples through ICT, ELISA technique and RT-PCR confirmed that 0.232% of the total sample collected had anti-HCV antibodies. This study confirmed that the prevalence of HCV is different in different areas of the country and is more then our prevalence.

This might be due to difference in subject involvement season of
study area of selection and technique used. In comparison to all of the above Prevalence conducted in different part of KPK or Pakistan the prevalence is in decreasing order. This might be happened due to the advancement in health care facilities awareness of the spread of infection or it may be due to adaptation of proper hygienic condition and migration of refuges back to Afghanistan from that area. Out of the total numbers of volunteers 17 subject 0.232% were positive for anti-HCV antibodies table-1.Morever HCV prevalence was less is compare to the other areas of the Khyber Pakhtunkhwa province of Pakistan.

**CONCLUSION**

HCV prevalence in the volunteer blood donors of District Bajaur of Khyber Pakhtunkhwa province of Pakistan was lower (0.232%) then the other regions of the Khyber Pakhtunkhwa province of Pakistan.

**REFERENCES**

18. "Screening test for HCV held in FATA 2016" by health services FATA Dr javad Habib khan.