Seroprevalence of Hepatitis C Virus
(Case in District Mardan, Pakistan)

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Abstract: Hepatitis C virus (HCV) is a blood borne pathogen answerable for a vast share of cases of publish-transfusion hepatitis. Hepatitis C is a single stranded RNA virus. Both of the diseases are the main cause of a lot of liver complications. HCV can cause also permanent liver harm and in lots of cases death. A study was conducted in Mardan Medical Complex Hospital, in which total 400 samples of HCV were collected from general population by questionnaire and blood specimen for detection by Immuno Chromatographic Technique (ICT) while for further confirmation by ELISA. The seroprevalence of Hepatitis C virus is 38.25% However HCV infection is 20.25% n male and 18% seropositivity in female patients. HBV is 8.41% incidence in rural and 7.61% in urban area while in case of HCV incidence is 17.25% in rural and 20.25% in urban area. HCV rate of positivity is increase in married that is 31.5% then unmarried that is 6.75%. Hepatitis C virus infection is a serious health problem and a high rates of seroprevalence of viral Hepatitis have been observed in various region in District Mardan.

Keywords: Hepatitis C, RNA, Mardan, Liver Complications, Death.

1. INTRODUCTION

Hepatitis C virus (HCV) is a blood borne pathogen of causing hepatitis C disease (Khan et al., 2000). HCV that is a disease which cause a lot of health complication not only in Pakistan but also in the whole world (Raja and Janjua, 2008). In the whole world about a 170 million human beings are inflamed with chronic hepatitis C virus. It is estimated that there are about 54,000 death occur per year due to HCV globally (Hanafiah et al., 2013). While in United State about 2.7 million infected HCV patient (Kim, C.W. and Chang, 2013). In different areas the range of HCV infection is different such as in USA 2.7 million peoples are infected, in Japan about 2 million instances occur (Raja and Janjua, 2008). HCV occurrence prices in Europe is among 1.7% to 2.5% were mentioned (ward et al., 2000). In America there are about 4 million peoples are infected with HCV (Dieperink et al., 2000). The incidence of HCV is 4.6% in Eastern
Mediterranean, while in Southeast Asia the seropositivity is higher as 2.2% as compared to North America, 1.5% in Thailand and 1.0% in Taiwan (Jutavijittum et al., 2007). The epidemiology of HCV antibody is 0.87% in Belgium. In the UK, at the least 200,000 adults deliver HCV. In Northern Italy, the rate of HCV is about 3.2% (Sy, T. and Jamal, 2006). Anti- HCV incidence in Eastern Europe is calculated from 1.5 to 5%, in Japan about 1.5 to 2.3% and Italy has 2.2% of HCV have been calculated, while the lowest occurrence has been reported from Germany 0.6% and Canada has 0.8% (Shalmani et al., 2013). In Indonesia about 2.1%, in China about 3.2% peoples are infected with HCV (Jafri and Subhan, 2008). According to WHO, in 1999 it is estimated that the seropositivity of HCV is 2.4% in Bangladesh and 1.8% is in India (Uddin et al., 2010). HCV disorder is turning into the big health trouble in the developing nations also in Pakistan that is the 2nd maximum prevalence price of hepatitis C from 4.5% to 8% (Jiwani and Gul, 2011). In Pakistan the HCV prevalence is 29% in individuals with liver diseases and about 8% in peoples having hepatocellular carcinoma (Ghias and Pervaiz, 2009). In Pakistan the rate of HCV infection in different cities such as in Islamabad 5.31%, in Gujranwala 23.8%, in Lahore 15.9% and the maximum seropositivity of HCV in Pakistan is in Faisalabad that is 20.6% and Darsano Channo that is 44% (Wasim and Subhan, 2008). Hospital based research discovered occurrence costs of 2.45% in Rawalpindi, 4.06% in Multan, 20.89% in Faisalabad, 4-6% in Karachi, 5% in Buner, NWFP, 25.7% in Northern areas (Akbar et al., 2009). According to the network-based study in Hafizabad and Punjab HCV infection become regularly occurring in 6.5% of the citizens (Mujeeb and Pearce, 2008). HCV prevalence which can be notably higher inside the Hazara division, especially after 2005 earthquake, which are more than 100,000 lives (Jamil et al., 2010). HCV prevalence in blood donors become suggested as in Sindh 7.5%, in Rawalpindi about 4% and in Peshawar 4.1% (Jafri and Subhan, 2008). The earlier study has been suggested that about 9% of peoples have seroprevalence of HCV occur in Mardan (Qazi1 et al., 2010).

1.1 Aims and Objective
The aim of the further investigation to find out the seropositivity rate of Hepatitis C Virus in patients visiting MMC hospital.

2. MATERIAL AND METHOD
The total 400 samples of hepatitis C which are collected from MMC hospital in district Mardan.

2.1 Immuno Chromatographic Technique (ICT)
2 ml of blood is collected from patient in a tube and put it in centrifuge machine. Took a strip from Hepatitis C foil pouch, with the help of micropipette picked 10 µl plasma and dispensed into the sample well of the strip. Put 1 drop of HCV buffer on HCV strip, leave for 20 minutes of incubation period and the results were appeared. Thus the result of 2 colored bands means positive or 1 colored band means negative is recorded.

2.2 Enzyme Linked Immuno Sorbent Assay
All of the reagents brought to room temperature before starting HCV ELISA, components were shaken and Kit is removed. Via micropipette put 100µl of Specimen Dilute in the kit wells, then 10µl of serum of the suspected person blood is added in it, seal it and it for 30 minutes at room temperature. After that sealing are removed and washed the microwells clearly with wash buffer solution 5 times, put 100µl of HRP Conjugate HCV, seal and leave it for 30 minutes on 37°C. Then the microwells are washed 5 times with wash buffer and added 50µl of Chromogen solution A and 50 µl of Chromogen solution B, thus leave it for 15 minutes at room temperature, the positive Microwell well color will be yellow. Finally added 50µl of stop solution to stop the further reaction, if the color is change into blue then person is effected from HCV while if the color is remain same than it means that the result is negative, and find out their reading by ELISA Plate Reader.
3. RESULTS

Table 1. Seroprevalence of Hepatitis C Virus in Mardan

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>f (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>400</td>
<td>153 (38.25%)</td>
</tr>
<tr>
<td>Hepatitis C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>247</td>
<td>69 (17.25%)</td>
</tr>
<tr>
<td>Urban</td>
<td>153</td>
<td>81 (20.25%)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>208</td>
<td>81 (20.25%)</td>
</tr>
<tr>
<td>Female</td>
<td>192</td>
<td>72 (18%)</td>
</tr>
<tr>
<td>Educational Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educated</td>
<td>109</td>
<td>48 (12%)</td>
</tr>
<tr>
<td>Uneducated</td>
<td>291</td>
<td>105 (26.25%)</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>281</td>
<td>126 (31.5%)</td>
</tr>
<tr>
<td>Unmarried</td>
<td>111</td>
<td>27 (6.75%)</td>
</tr>
</tbody>
</table>

Fig 1: Over all seroprevalence of Hepatitis C

During investigation total 400 samples were collected from Mardan Medical Complex Hospital in which 153 were positive with the percentage of 38.25%.

Fig 2: Area wise seroprevalence of Hepatitis C

247 individual was living in rural areas in which positive range is 69 with the percentage of 17.25% while 153 was living in urban area in which positive range is 81 with the percentage of 20.25%.
The total 400 of HCV participants are collected in which male samples are 208 with positivity of 81 (20.25%) while total female participants are 192 with the positivity of 72 (18%).

During HCV data collection, literate of 109 samples are collected in which 48 are positive with the percentage of 12% and illiterate of 291 samples are collected in which 105 are positive with the percentage of 26.25%.
Currently married individuals had significantly higher HCV positivity relative to those having no history of marriage total samples are 289 of married peoples of 126 positive patients with 31.5% percentage while 111 unmarried peoples in which 27 are positive with 6.75% percentage.

4. DISCUSSION

The general seroprevalence of the present investigation of HCV contamination is 38.25% that is lower than Abdul Majid et al., (2013) who demonstrate 52.05% of HCV Infection in a same region Mardan and Khan. A, J et al., (2000) present 44% seropositivity in Karachi. Both of these are higher when contrasted with the current investigation that may be because of contaminated needles, surgical equipment’s and blood transfusion.

Present HCV information gathering having occurrence of 17.25% in rural and 20.25% in urban region which is lower than Ghias and Pervaiz, (2009) who present that rural region having 49.6% and urban region having 50.4% prevalence in Punjab zone. This lower rate may be because of uneducated individuals and contaminated food. Anyway the present investigation is higher than Luksamijarulkul et al., (2002) who present HCV seroprevalence in Thailand that in rural zone is 0.91% and in urban zone is 0.54%. Thus lack of awareness is the main cause of Hepatitis infection.

In current investigation HCV has seropositivity of 20.25% in male and 18% in female that is lower than Abdul Majid et al., (2013) who completed HCV pervasiveness is 47.94% in male and 52.06% in female in same zone. That could be due to reused syringes, sharing razor, dental methodology and having nail treatment at beauty shops.

Current HCV in literate people groups are 12% while in uneducated are 26.25% that is higher than Mujeeb and Pearce, (2008) who present HCV rate in Sindh that is 8.8% in illiterate peoples and 4.5 to 6.5% in literate peoples. Higher rate of HCV disease might be related with risk factors for example, ear puncturing, tainted needles and contaminated blood transfusion.

Present study have the incidence of HCV in married peoples are 31.5% and in un married are 6.75% that is higher than Qureshi et al., (2010) who carried out the overall incidence in Pakistan that in married having 7.3% and unmarried having 3.8% and Luksamijarulkul et al., (2002) who’s find out HCV positivity in married having 2.72% and unmarried having 3.13% in Thailand. This is just because of sexual activity and injection-drug use. However the current study is lower than Ghias & Pervaiz, (2009) who present HCV prevalence that is 80.3% patients were married and 19.8% were unmarred in Punjab. This may be due to most of the peoples are transfring in developed countries thus the mode of transmission is the main cause of spreading disease in Pakistan.

5. CONCLUSION

The outcome of the current study specify that there is high seroprevalence of HCV in district Mardan during the study it is discovered that there is lack of knowledge and poor attention of peoples toward these diseases. It is concluded that the increasing rate may be due to transmission and improper treatment because most of the peoples are poor. The research was use to assess nurse knowledge, protection from viral Hepatitis and their seroprevalence so as to reduce and avoid the spread of the infection.

6. REFERENCES


