HCV IN PUNJAB;
ZONAL MOLECULAR DISTRIBUTION

Fouzia Ashraf, Amna Rasheed, Sajjad Ullah, Mahmood Shaukat

ABSTRACT... Background: HCV is the foremost cause of liver cirrhosis and hepatocellular carcinoma and its prevalence is increasing in developing countries like Pakistan. Present study is focusing on its frequency in different districts of the Punjab of Pakistan. Setting: Different districts of Punjab. Period: Jan 2010 to Dec 2010. Material and methods: 5ml venous blood was collected from each donor by using disposable syringes. Sample is transferred to vials containing anticoagulant, centrifuged and plasma was separated for further analysis.140 ul plasma of every patient was analyzed for HCV RNA Virus by Real time PCR using Artus HCV Quantification kit (Germany). For statistical analysis SPSS 16 was used. Results: A total count of 3262 samples was collected from 32 districts of the Punjab and all these samples were both rapid HCV screening and Anti HCV by Elisa positive. Out of which 2041 (62.57%) patients were detected positive for HCV, 1221 (37.4%) were not detected.49.5% patients were male while 50.5% were female. 30.99% males were detected positive including patients with low viral load. 31.58% were detected positive for HCV including low positive female patients.30.71% females were detected positive for HCV, 37.5% were not detected for HCV. Conclusion: Highest prevalence of HCV among different age groups is found in age group of 36-40 years with 12.23% and lowest is found in age group > 15 years with 0.31% (p=0.009).

Key words: HCV, Prevalence, Punjab, Distribution,

INTRODUCTION
Hepatitis C virus (HCV) is a member of the genus Hepacivirus, in the family Flaviviridae and HCV genome is comprised of linear single stranded RNA molecule of positive polarity of ~9.6 kb. It is a leading cause of chronic liver disease, cirrhosis, and hepatocellular carcinoma. HCV also affects a variety of other organs and may direct to considerable morbidity and mortality.1 Waheed et al. (2009) reviewed ninety one different studies conducted from 1994 to May 2009 and reported that more than 10 million people are living with Hepatitis C virus (HCV) in Pakistan, with high morbidity and mortality. HCV prevalence was found to be moderate in the general population but high rates of HCV infection were reported injecting drug users and multi-transfused populations.6

Transmission of HCV is mainly by parental pattern however 90% intravenous drug users are at greatest risk. Interferon and ribavirin is a standard therapy for chronic HCV and have 38-43% sustained virological response.3

MATERIALS AND METHODS
3262 samples were collected from different districts of Punjab from January 2010 to December 2010. Patient information including study number, name, age, sex and address was recorded. All the patients selected for the study were positive for HCV by rapid screening and Anti HCV by Elisa.

5ml venous blood was collected from each donor by using disposable syringes. Sample is transferred to vials containing anticoagulant, centrifuged and plasma was separated for further analysis.

140 ul plasma of every patient was analyzed for HCV RNA Virus by Real time PCR using Artus HCV Quantification kit.
Data were analyzed by the programs Microsoft Excel 2007 and SPSS version 14.0. To compare the prevalence rates were calculated used the chi-square and significance level was $p < 0.05$.

RESULTS

A total count of 3262 samples was collected from 32 districts of the Punjab and all these samples were both rapid HCV screening and Anti HCV by Elisa positive. Out of which 2041 (62.56%) patients were detected positive for HCV, 1221 (37.4%) were not detected (Fig-1).

Out of 3262 samples 1614 (49.5%) were male and 1648 (50.5%) were female. Out of 1614 males 1011 (62.63%) males were detected positive for HCV, 603 (37.36%) were not detected for HCV Fig-2.

Out of 1648 females 1030 (62.5%) females were detected positive for HCV, 618 (37.5%) were not detected for HCV (Fig-3).

Prevalence of Hepatitis C in males is 30.99% while in females is 31.57%. 19 (0.6%) samples were from age group of <15 years out of which 10 were detected, 140 (4.3%) were from 15-20 years out of which 86 were detected, 54 were not detected and only, 388 (11.9%) were from 21-25 years out of which 212 were detected positive for HCV, 176 were not detected, 588 (18.0%) samples were from 26-30 years out of which 347 were detected positive for HCV, 241 were not detected, 526 (16.1%) were from 31-35 years out of which 342 were detected positive for HCV, 184 were not detected, 642 (19.7%) were from 36-40 years out of which 402 were detected positive for HCV, 240 were not detected, 370 (11.3%) were from 41-45 years out of which 236 were detected positive for HCV, 148 were not detected, 370 (18.0%) were from 46-50 years out of which 298 were detected positive for HCV, 240 were not detected, 20 (0.6%) were above 60 years of age out of which 19 (95%) were detected positive for HCV and 01 (05%) were not detected (Fig-4).
Prevalence of Hepatitis C in age group of < 15 years in 0.31%, in 15-20 years is 2.63%, in 21-25 years is 6.49%, in 26-30 years is 10.63%, in 31-35 years is 10.48%, in 36-40 years is 12.32% in 41-45 years is 7.23% in 46-50 years is 9.13%, in 51-55 years is 1.90%, in 56-60 years is 0.83% and in >60 years is 0.58%.

Out of 3262 samples 9 (0.3%) samples were received from Bahawal Nagar from Bhakkar 2 (0.1%), from Chakwal 5 (0.2%) samples were received, from D.G. Khan 01 (0%), from Faisalabad 42 (1.3%) were received, 67 (2.1%) samples from Gujranwala were received, 9 (0.3%) samples from Gujarat, 20 (0.6%) samples from Hafizabad, 2 (0.1%) samples from Jaranwala, 3 (0.1%) samples from Jhelum, 16 (0.5%) samples from Jhang, 338 (10.4%) were from Kasur, 9 (0.3%) samples were from Khanewal, 1720 (52.7%) were from Lahore, 7 (0.2%) samples were from Layyah, 1 (0%) sample from Mianwali and Lodhran each, 7 (0.2%) samples from Mandi Bahauddin, 10 (0.3%) samples from Multan, 2 (0.1%) samples from Muzaffargarh, 23 (0.7%) from Nankana Sahib, 17 (0.5%) samples from Narowal, 183 (5.6%) samples from Okara, 160 (4.9%) samples from Pakpattan, 4 (0.1%) samples from Rahim Yar Khan and Rajanpur each, 7 (0.2%) samples from Rawalpindi, 367 (11.3%) samples from Sahiwal, 22 samples from Sargodha (0.7%), 136 (4.2%) samples from Sheikhupura, 21 (0.6%) samples from Sialkot, 21 (0.6%) samples from Toba Tek Singh, 26 (0.8%) samples from Vehari were received (Table-I).

**DISCUSSIONS**

Hepatitis C virus (HCV) is the major etiological agent of hepatitis. In the present study 3262 HCV rapid screening and anti HCV by Elisa positive samples were tested for HCV RNA by Real Time PCR. Prevalence of HCV in the district of Punjab is found to be 62.6% (including patients with low viral load) in the year of 2010. It is estimated recently that 200 million individuals are infected with HCV worldwide including approximately 17 million in Pakistan. Hospital-based studies revealed prevalence rates of 5.31% (Islamabad), 2.45% (Rawalpindi), 4.06% (Multan), 20.89% (Faisalabad), 4-6% (Karachi), 9% (Mar- dan), 5% (Buner, NWFP) and 25.7% (Northern Areas). Present study reveals that prevalence of HCV in the Punjab is slightly higher in females with (31.57%) as compared to males with (30.99%) (p = 0.279) but according to a previous study higher anti-HCV
prevalence in males compared to females could be due to this additional exposure to used and non-sterile shaving blades.\(^7\)

In present study highest prevalence among different age groups is found in age group of 36-40 years with 12.32% and lowest is found in age group > 15 years with 0.31% (\(p=0.009\)). In a similar study it has been observed that the prevalence of HCV increases with age which may be due to increasing exposure to risk factors. HCV may be different in different regions and various groups of the same community.\(^8\)

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PREVIOUS RELATED STUDY


Muhammad Naem, Ameer Ahmad, Imran Qaisar, Fiaz Ahmad. STATUS OF HEPATITIS C VIRUS (HCV) INFECTIONS; CHILDREN ADMITTED IN PEDIATRIC WARD OF BAHAWAL VICTORIA HOSPITAL BAHAWALPUR (Original) Prof Med Jour 18(3) 445-449 Jul, Aug, Sep 2011.


AUTHORSHIP AND CONTRIBUTION DECLARATION

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<tr>
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<tr>
<td>1</td>
<td>Fouzia Ashraf</td>
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<tr>
<td>2</td>
<td>Amna Rasheed</td>
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<td>3</td>
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<td>Muhammad Shaukat</td>
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