

# PREVALANCE OF HEPATITIS B AND HEPATATIS C AMONG HEALTHY BLOOD DONORS AT KURRAM AGENCY

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## ABSTRACT

**Objectives:-** To find sero-prevalance of HBSAg and HCV antibody among healthy donors of Kurram Agency, FATA, Pakistan

**Material and Methods:-** The study design was cross-sectional. Data was collected from blood transfusion units, Pathology departments, blood donor units at Parachinar and Sadda to know the frequency of Hepatitis B and Hepatitis C in healthy blood donors. For blood donations non professional blood donor were selected. Questions regarding frequent blood donation, surgical procedure in past and other risk factors about hepatitis B and C transmission were asked. Screening for HBsAg, and HCV antibodies was done by using rapid immunochromatography kits

**Results:-** A total of thirteen hundred healthy donors were received during a period of one year. The seroprevalence of various infectious markers was as follows; Out of the total 1300, 66(5.07%) donors were found to be positive for Hepatitis B surface antigen HBsAg and 15(1.1%) were found positive for HCV antibody. Six donors were positive for both HBsAg and Anti HCV antibody.

**Conclusion:-** It is concluded that HCV and HBV has become major problems in FATA like rest of the country and screening for not only blood donation but also in general should be done to prevent the disease escalation. Due to the high cost of treatment of hepatitis B and C virus infection and the unavailability of a vaccine against HCV, the main focus should be on preventive aspects. Here comes the importance of identifying the genotype of the virus infecting a person, which is not a common practice in Pakistan. Mostly treatment is given without knowing the genotype, which may result in no response or emergence of mutant strains of the virus.

**Key words:-** Hepatitis B, Hepatitis C, Blood donors.

## INTRODUCTION

In Pakistan more than 1.5 million pints of blood are collected each year<sup>1</sup>. Presently, a majority of blood donations are from friends and relatives of the patient. This practice is not recommended as sometimes family or replacement donors donate blood unwillingly under obligation or pressure and hide their high-risk behavior including their diseases. Clinical selection of volunteers for blood donation is essential to reduce the risk of viral transmission by blood transfusion as data is not available about hepatitis levels from the government's health department or from the WHO in Pakistan.

Rough estimate suggests that about 15.6 %

of the populations are carriers of hepatitis. About three million, who visited public sector hospitals, have hepatitis B or C.<sup>32</sup>

Hepatitis B and Hepatitis C are viral induced Hepatitis. Mode of transmission of hepatitis B and Hepatitis C are from infected person or a chronic carrier person to healthy person via blood and blood products, fluids of the body, blood contaminated saliva in dental or other surgical procedures.<sup>18-23</sup> Unsafe injections, use of blood contaminated implements for surgery, traditional scarification, injecting drug use, acupuncture, tattooing, body piercing, mother-infant transmission, and sexual transmission are few sources of viral hepatitis transmission but in undeveloped countries or in countries where laws

## AGE AND GENDER DISTRIBUTIONS OF HEALTHY DONORS

Age in Years	Male	Female
18-29	405	01
30-40	609	26
41-50	200	59
Total	1214	86

Table 1

for safe blood transfusions are not implemented blood and blood products transfusion are the most common sources of viral hepatitis transmission.<sup>2,3,18</sup>

Hepatitis B virus (HBV) is responsible for a substantial proportion of cases of post-transfusion hepatitis, liver cirrhosis and hepatocellular carcinoma<sup>2</sup>. An estimated 2 billion people are infected with HBV worldwide; among them 350 millions are chronic carriers: hepatitis B surface antigen (HBsAg) positive.<sup>2</sup> HBsAg positivity in developed countries varies from 0.6 percent in Wales, England, to 1.2 percent in Texas, USA. However, higher prevalences of infection with HBV have been reported from various parts of the developing world including 3.5% in Gaza, Palestine<sup>3,4</sup> 1.6%–7.7 % in Brazil<sup>6,7</sup> 19.6 % in Egypt<sup>3</sup> and 2%–10 % from various parts of India.<sup>32</sup>

The national estimates for prevalence and/or incidence of HBV infection in Pakistan are unknown. However, studies in selected groups have shown variable prevalence of chronic infection with HBV as assessed by HBsAg positivity: 7% in health professionals<sup>13</sup>, 2%–14% in blood donors<sup>17,35-44</sup> Pre-employment screening revealed 2.6% HBsAg positivity among the healthy individuals in northern Pakistan<sup>17,19</sup>. Moreover, some hospital-based studies have revealed that 30% – 42% of the cases of chronic liver disease<sup>17,18</sup> and 78% of the cases of hepatocellular carcinoma<sup>16</sup> were positive for HBsAg.

Developed countries have been successful in reducing the risk of HBV spread by interrupting some of the known routes of HBV transmission

and through mass HBV vaccinations. The vaccine against HBV infection is available in most of the developing world including Pakistan, but its high cost limits the widespread use. Recently, Pakistan initiated universal HBV vaccination for neonates through its expanded program of immunization with the assistance of Global Alliance for Vaccines and Immunization.<sup>2</sup> However, public health benefits of this initiative require some time to accrue as the program focuses on neonates only.<sup>10</sup> Therefore, a multi-prong approach needs to be undertaken to curtail the spread of HBV infection in Pakistan and perhaps other developing countries in the region Similarly Hepatitis C virus (HCV) infection is also an important worldwide public health problem. It is believed that 2-3% of the world's population is persistently infected with HCV and up to 170 million individuals may be infected, all of them are at risk of developing cirrhosis and primary liver cancer.<sup>2,3</sup> In Pakistan both these infections are common with considerable variation in different parts of the country because of variability in the ethnicity and geography<sup>16-23</sup>.

## MATERIAL AND METHODS

This cross sectional study was conducted at Kurram Agency, Parachinar and Sadda from Jan.2007 till December 2007. Questions regarding frequent blood donation, surgical procedure in past and other risk factors about Hepatitis B and C transmission were asked. Informed consent was obtained for physical examination.

They were tested for HBsAg and anti-HCV antibodies in the laboratory and the collected data analyzed.

The Frequency of Hepatitis B and Hepatitis C in selected group of population in Kurram Agency Hospitals was detected as;

- Blood Donors units working on humanitarian grounds.
- Pathology Laboratory at AHQ Parachinar.
- Pathology Laboratory at THQ Sadda
- Blood Bank at AHQ Parachinar and THQ Sadda.

## SEROPREVALENCE OF HEPATITIS B AND HEPATITIS C AMONG HEALTHY BLOOD DONORS

Age in Years	Hepatitis B	Hepatitis C	Hepatitis B and Hepatitis C
18-29	405	01	-
30-40	609	26	02
41-50	200	59	04
Total	1214	86	06

Table 2

### Inclusion Criteria

Healthy donor reporting for blood donations (not professional blood donors).

Age 18-50 years; weight: >45 kg; body temperature 96 – 98°F; hemoglobin >10 g/dl, blood pressure: systolic 100-180 mm, diastolic: 60-100 mm; pulse rate >65/min. Clinical history of volunteers was noted, especially jaundice, blood transfusion, exposure to syringes, surgical and dental procedures.

### Exclusion Criteria

Apparently unhealthy or malnourished individuals were excluded.

HBV and HCV screening: on the spot screening for HBs Ag, anti HBs antibodies and HCV antibodies was done by using rapid immunochromatography kits (ICT, Australia and Abbott, USA).

### RESULTS

A Total of 1300 healthy donors were selected in this study. The participants were in the age range of 18 till 50. Out of the total donors males accounted 1214 and dominated the total number of donors while 86 females turned up for the donation. Table I.

It was further found that 66(5.07%) were found to be positive for Hepatitis B surface antigen HBsAg and 15(1.1%) were found positive for HCV antibody. Six donors were positive for both HBsAg and Anti HCV antibody. Figure II

Furthermore, it was noted that the age group 30-40 had greater number of cases of Hepatitis B positive and 41-50 had least number of donors positive for the same. Hepatitis C was found to be higher in the age group of 41-50 and

least in age group of 18-29. It was noted that the age group 30-40 were the main sufferer from Hepatitis B or C. Table II.

### DISCUSSION

Blood recipients are at higher risk of getting infected with Hepatitis B and Hepatitis C through untested blood. Healthy donors were selected in this study though this study does not reflect the overall prevalence of hepatitis B and C in the Kurram Agency. The study was conducted on healthy donors of blood, so it gives insight to greater danger of the spread of the disease among the hepatitis negative recipients. Pakistan remains in the intermediate HBV and HCV prevalence area.<sup>24-26</sup>

Majority of the blood donors in this study were males. The reason can be attributed to the cultural values of the region.

Studies published in literature documenting prevalence of HBV and HCV in healthy donors were compared with this study. Mean prevalence of HBV and HCV are 5.0% and 2.3%. Hepatitis B mean prevalence was found to be common with this study. It is different from the recent study by Javed Iqbal Farooqi et al, mean frequency was found to be 1.83% and 2.3% for HBV and HCV respectively.<sup>10</sup>

Nasir Khokar, et al screened 47,538 in Islamabad and mean frequency was found to be 5.31% positive for anti HCV and 2.56% were positive Hepatitis B which is reverse to this study. Ishtiaq Ahmed Chaudary et al<sup>29</sup> at Fouji Foundation Hospital Rawalpindi. Prevalance of Hepatitis B and Hepatitis C was 2.45% and 2.52% respectively.

The seroprevalence of Hepatitis C

### PREVALENCE OF HEPATITIS B & C AMONG BLOOD DONORS REPORTED IN LITERATURE PUBLISHED DURING LAST TEN YEARS

Author and place of study	Year	Anti HCV	Hbs Ag
Amir Muhammad et al Khyber medical University Peshawar <sup>11</sup>	2007	1.8%	2.3%
Javed Iqbal Farooqi et al Govt. Lady Reading Hospital and Khyber Teaching Hospital Peshawar <sup>10</sup>	2007	3.21%	2.54%
Ahmed J et al Rehman medical institute Peshawar <sup>36</sup>	2004	2.2%	1.9%
Mehmood et al, Nishtar medical college Multan <sup>29</sup>	2004	.27%	3.37%
Asif N et al Shifa international Hospital Islamabad <sup>35</sup>	2004	5.14%	2.251%
Ali N et al Combined military Hospital Quetta <sup>34</sup>	2003	1.87%	-
Fayyaz KM et al Quaid Azam Medical College Bahawalpur <sup>43</sup>	2002	----	7.35%
Ahmed S et al Sir Ganga Ram Hospital Lahore. <sup>41</sup>	2002	4.97%	-----

Table 3

observed in our study is 1.1% which is near to the study conducted in Quetta<sup>34</sup> and Multan<sup>42</sup>, and study conducted at Hayatabad Medical Complex by Alia Zaidi<sup>14</sup> et al and Umer Khitab et al<sup>15</sup>. On reviewing the literature published in last five years the seroprevalence of HCV is reported 2.2% from Peshawar,<sup>36,45</sup> 5.14% from Islamabad,<sup>2</sup> 4% to 6.21% from Rawalpindi,<sup>12,14</sup> 2.89% to 4.97% from Lahore,<sup>40-42</sup> 3.26% from Sialkot,<sup>35</sup> 0.27% from Multan,<sup>42</sup> 6.8% from Karachi<sup>33</sup> and 1.87% from healthy blood donors from Quetta.<sup>44</sup> So the seroprevalence of HCV varies from 0.27% to 6.8% among healthy blood donors from different parts of country. The highest seroprevalence of HCV is reported from Karachi<sup>43</sup> (6.8%) and Rawalpindi (6.21%).<sup>37</sup>

Similarly the seroprevalence of Hepatitis B is 5.07% in our study. This study is comparable with study conducted at Rawalpindi<sup>37</sup> and Karachi.<sup>33</sup> On reviewing the literature published during last five years, the seroprevalence of HBsAg is reported 1.9% from Peshawar,<sup>45</sup> 1.55% from Abbottabad,<sup>35</sup> 2.51% from Islamabad,<sup>35,44</sup> 3.3% to 6.4% from Rawalpindi,<sup>22,25,28,37</sup> 2.06% to 4.3% from Lahore,<sup>33,40-42</sup> 7.53% from Bahawalpur,<sup>43</sup> 3.37% from Multan<sup>42</sup> and 5.5% from healthy blood donors from Karachi.<sup>33</sup> So the seroprevalence of HBsAg varies from 1.55% to 7.53% among healthy blood donors from different parts of country. The highest seroprevalence of HBsAg is reported from Bahawalpur (7.53%)<sup>43</sup> and Rawalpindi (6.4%).<sup>37</sup>

Blood transfusion is main risk factor of transmission of HBV and HCV. In present study 25% HBV and 50% HCV positive cases have donated blood so there should be proper screening facilities even at private blood campus<sup>34</sup>.

## CONCLUSION AND RECOMMENDATIONS

Due to the high cost of treatment of hepatitis B and C virus infection and the unavailability of a vaccine against HCV, the main focus should be on preventive aspects.. Women are considered to play the main role in the families. Infected women can spread infection among their family members, especially infections such as HBV and HCV. Their health and education in health related issues could have a broad impact on the overall health status of the country. Besides awareness programs and improved treatment strategies, we also need to evaluate the available HBV vaccines in the market for their proper storage, their efficacy, side effects and immunogenicity. In Pakistan there is an urgent need to raise public awareness, which can be accomplished through programs in schools, colleges, and universities, and through information

media about the value of immunization and preventive measures. In rural areas and specially the federally administered tribal areas much emphasis should be on education of the elders of the area and those people who are the public speakers in their particular area about Viral Hepatitis.

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