



Prevalence of Hepatitis B, C & HIV in Replacement Donors at Northern Area of Pakistan

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ABSTRACT

The aim of this study was to find the seroprevalence of HIV and hepatitis (B, C) between replacement donors at northern district of KPK, Pakistan. Cross sectional retrospective study was conducted. The blood of all donors who donated blood for transfusion at Saidu group of teaching Hospital blood bank, Saidu Sharif Swat, KPK, Pakistan from May 2017 to July 2017 was screened using own testing facility at hospital. Screening of all donors for HBsAg, anti-HCV & Anti-HIV was done using ICT rapid strip test. All were male. Just male gave their blood in this hospital in light of the fact that in this province there is no traditions of female to give their blood. The blood of 3154 donors was screened in this study. The prevalence of hepatitis B, C and HIV was 0.67% (21), 0.50% (16) and 0.00% (0), respectively. The highest prevalence was recorded for HBV 21/3154 followed by HCV 16/3154 in donors between 19-50 age group. HIV in this area are zero. Mass-screening programs followed in this study is helpful in distinguishing proof of seropositive blood donors for Hepatitis B, C and HIV, which subsequently facilitated in the choice of healthy blood donors. Previous studies claimed a decline in seropositivity and this study investigated the recent trends in seropositivity. As indicated by this examination the prevalence of HBV, HCV and HIV is low because of more education among the general population of Swat.

Keywords: HBV, HCV, HIV Blood transfusion, Blood donor, Hepatitis B, Hepatitis C.

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INTRODUCTION

Hepatitis, a common term alluding to an inflammation of the liver [1] is most usually brought about by viruses; anyway there are some other potential reasons of hepatitis as well. These incorporate autoimmune hepatitis and hepatitis that occurs as an auxiliary after effect of medications, poisons, drugs and alcohol [2]. In the event that you have infectious types of hepatitis that are chronic, similar to hepatitis B and C, you may not watch manifestations in the first place. They include: Unexplained weight reduction, weariness, stomach upset, loss of hunger, influenza like side effects dull pee, pale stool, yellow skin and eyes, which might be indications of jaundice [26]. Chronic hepatitis appears slowly, so these signs and symptoms might be too unpretentious to even think about noticing [3]. HBV and HCV are transferred through the blood, vertically from moms to offspring and horizontally through blood items and body fluids [4].

Hepatitis B infection (HBV) a double fold stranded DNA virus has a place with Orthohepadna virus with in Hepadnaviridae and causes hepatitis B [5]. Globally there are evaluated that 325 million individuals overall are living with chronic HBV. In south Asia 2% of population (39 million people) are infected with chronic HBV. In Pakistan almost 12 million people are suffering from hepatitis B. Most of individuals get this disease in human services settings without monitoring it. The illness is known as a quiet executioner on the grounds that numerous patients stay undiscovered and untreated for a long time before creating complexities and dying [6]. HBV is transmitted by exposure to contaminated blood or body fluids. Infection around the hour of birth, intravenous medicine use and sex are the most normal courses of tainting. Other risk factors consolidate working in therapeutic administrations, blood transfusions, living

with a suffered individual, dialysis, and travel in countries where the malady rate is high and from inking and needle treatment [7]. Anticipation methodologies incorporate essential counteractive action of new contaminations (for example wellbeing instruction and correspondence, immunizations and post-presentation prophylaxis), secondary prevention of HBV transmission by proper sexual and sterile practices, and tertiary counteractive action of the pathological outcomes of constant HBV by against viral treatment [8].

Hepatitis C disease is somewhat, wrapped, positive-sense single-stranded RNA virus of the family Flaviviridae. Hepatitis C contamination is the explanation behind hepatitis C and a couple of maladies, for instance, liver irritant development and lymphomas in individuals [5]. At an early stage disease ordinarily has no side effects. Over numerous years nonetheless, it frequently prompts liver infection and once in a while cirrhosis. Now and again, those with cirrhosis will create intricacies, for example, liver failure, liver malignant growth, or enlarged veins in the throat and stomach [8]. Globally 130-210 million are suffering from HCV and are living with HCV infection. Roughly 399000 individuals bite the dust every year from hepatitis C, generally from cirrhosis and hepatocellular carcinoma [8]. In South Asia Region: 0.5% of populations (up to 55 million people) are infected with HCV. Viral hepatitis is currently perceived as a significant general wellbeing challenge that requires a critical reaction [6]. In Pakistan around 10 million individuals, which is about 4.5 percent of the all-out populace, is influenced with HCV [9]. HCV is transmitted through blood-to-blood contact related with intravenous medication use, low sterilized instruments, needle stick wounds in hospitals, and transfusions. It might likewise be spread from an infected mother to her child during birth. It isn't spread by touching contact. Finding is by blood testing to search for either antibodies to the infection or it's RNA [10].

HIV (Human immunodeficiency Virus), a lentivirus (a subgroup of retrovirus) causes HIV contamination and is in charge of acquired immunodeficiency syndrome (AIDS). In this contamination, CD4+ T cell numbers rot underneath an essential measurement, cell-mediated resistance is lost, and the body ends up being powerfully logically unprotected to enterprising illnesses [6]. Globally 36.7 million individuals are living with HIV, making it a standout among the most significant worldwide general medical problems in written history. An estimated HIV has executed between 28.9 million to 41.5 million people around the world [6]. In Pakistan 133529 have been infected with HIV [11]. Pakistan is second most Muslims biggest populace on the planet and has low predominance of HIV/AIDS. A province of Pakistan "Punjab" is home to in excess of 80,000 HIV patients. Individuals for the most part get infected with HIV subsequent after accepting a blood transfusion, organ or tissue transplant from a HIV-infected donor or having unprotected sex with a HIV infected individual [12]. This virus can be transferred from some body fluids like blood, semen, pre-seminal fluids, rectal liquids, vaginal liquids, Sharing needles, Touch between broken skin, injuries, or mucous layers, inking or body penetrating, From mother to babies during birth, breastfeeding or pregnancy [13]. Blood is a rare, yet lifesaving asset, be that as it may, blood transfusion can be a wellspring of hazardous diseases, if screening isn't done appropriately. Checking the patterns in prevalence of transmissible irresistible agents in blood donors will give a component to assess the wellbeing of the blood supply [14].

Unscreened blood donors, unsafe therapeutic practices, including the utilization of deficiently disinfected needles and restorative instruments are the significant courses of HBV, HCV and HIV transmission among everywhere throughout the world [15].

Saidu teaching hospital is not only for the individuals of Swat yet additionally the individuals originated from other locale like Dir, Bajawar, Buner, Shangla and from everywhere throughout the region Malakand division, KPK, Pakistan. In all over Pakistan remarkable endeavors have been made to grow the national blood transfusion giving safe blood free from transmissible contaminations like HBV, HCV and HIV which is critical [16].

Consequently in this examination we intended to explore the prevalence of HBV, HCV and HIV in evidently healthy population at northern area, which is arranged in rural and urban piece of Khyber Pakhtunkhwa, Pakistan. Moreover, we wanted to discover some demographic characteristics of donors and distribution of seroprevalence of those contaminations.

MATERIAL AND METHODS

Study Area and Period

The samples were collected from district Swat, which is situated in Northern Area Khyber Pakhtunkhwa province (KP) of Pakistan. As indicated by 2017 statistics the number of inhabitants in Swat District was 2,309,570, making it the third biggest district of Khyber Pakhtunkhwa placed behind district Peshawar and Mardan [17]. The area of swat is 5,337 km² in which there were 51.53% male and 49.47% female

respectively. This study was conducted in Saidu group of teaching Hospital blood bank, Saidu Sharif District swat from May 2017 to July 2017.

Study Design

Cross sectional retrospective study was coordinated.

Population

Source population

The blood samples for transfusion were collected at Saidu group of teaching Hospital blood bank, Saidu Sharif Swat.

Study population

The blood samples for transfusion were collected at Saidu group of teaching Hospital blood bank, Saidu Sharif Swat during May 2017 to July 2017.

Inclusion criteria

All blood donors were male. Just male give their blood in this hospital in light of the fact that in this province there is no customs of female to give their blood.

Exclusion criteria

Incomplete record of patients.

Sample size

In this study blood samples of 3154 donors were included.

Sampling technique

Samples were collected through non-probability (convenient Sampling) technique.

Data collection procedure

Secondary data were collected under the supervision of head of blood bank.

Data processing and analysis

The information was analyzed for culmination, consistency and lucidity amid information data management, accumulation, and investigation. The information was coded, entered and cleaned before examination. A descriptive analysis was done to examine the prevalence of HBV, HCV & HIV in the study population. All analyses were done using Microsoft Excel.

Screening for HBV, HCV & HIV by ICT

Screening of all donors for HBsAg, anti-HCV & Anti-HIV was done utilizing ICT rapid strip test. For HbsAg screening SD Bioline One step HbsAg Rapid Test (Catalogue No: 01FK10, 01FK11) manufactured by standard diagnostic, INC were used.

For anti-HCV antibodies, On Site HCV Ab plus Rapid standard diagnostic Test (Catalogue No: R0023C) manufactured by CTK Biotech, INC were utilized [18].

For Anti-HIV screening SD Bioline One step Anti-HIV Rapid Test (Catalogue No: 03FK10CE-En-3, 03FK16CE-En-2) manufactured by standard diagnostic, INC were used [19].

Statistical Analysis

Contrasts in prevalence and habitation group were determined utilizing the χ^2 test. A P estimation of $\leq .05$ was viewed as significant. Information was examined utilizing the descriptive analysis, and the Pearson chi square significance test for comparison of variables. The level of significance was set as $P \leq 0.05$.

RESULTS

Socio-Demographic Information

A Sum of 3,154 individuals who donated their blood at Saidu group of teaching hospital were involved in this study. All were male and 19-50 age groups. Of all the donors, 1906 (60.5%) live in urban and 1248 (39.5%) in rural areas. More than half of the blood donations were made by students (44.6%) Employed (22.37%), Daily laborer (17.37%), Farmer (8.97%), other (6.43%). (Table 1)

Prevalence of HBV infection

The sero prevalence of HBV was 21/3154 (0.67)% in which 9/21 (42.85)% lives in urban area, 12/21 (57.15)% lives in rural areas and there was no HIV. Of these 7/21 (33.33)% was student, 4/21 (19.05)% was employers, 6/21(28.57)% was daily laborer, 1/21 (4.76)% was farmer and 3/21 (14.29)% was other people. The HBsAg positivity was higher in Students than in other occupational groups ($P > 0.32$). (Table 2).

Table 1: Percentage Prevalence & Socio-demographic characteristics of blood donors

Variables		Number	Percentage %
Sex of the donor	Male	3154	100
Place of residence	Urban	1906	60.5
	Rural	1248	39.5
Occupation	Student	1408	44.64
	Employed	712	22.57
	Daily laborer	548	17.37
	Farmer	283	8.97
	Others	203	6.43

Table 2: Distribution of HBV result by independent variables.

Variables		HBV Positive Individual %	HBV Negative Individual %	χ^2 (p value)
Sex of the donor	Male	21 (0.67)	3133(99.33)	
Place of residence	Urban	9(0.28)	897(99.72)	0.09
	Rural	12(0.38)	1236(99.62)	
Occupation	Student	7(0.22)	1401(99.78)	0.32
	Employed	4(0.12)	708(99.88)	
	Daily laborer	6(0.19)	542(99.81)	
	Farmer	1(0.031)	282(99.969)	
	Others	3(0.095)	200(99.095)	

Abbreviations: HBV, hepatitis B virus.
Values are expressed as percentage.

Prevalence of HCV infection

The sero prevalence of HCV was 16/3154 (0.50) % in which 7/16 (43.75)% lives in urban area, 9/16 (56.25)% lives in rural areas and there was no HIV. Of these 6/16 (37.5)% was student, 3/16 (18.75)% was employers, 2/16(12.5) was daily laborer, 2/16 (12.5)% was farmer and 3/16 (18.75)% was other people. The Anti HCV positivity was much more in Students than in other related groups ($P > 0.34$). There was no significant relationship between a positive outcome for HbsAg, HCV and against HIV tests and age groups, sex, instructive status and the quantity of donation (Table 3).

Table 3: Distribution of HCV result by independent variables.

Variables		HCV Positive Individual %	HCV Negative Individual %	χ^2 (p value)
Sex of the donor	Male	16 (0.50)	3138(99.5)	
Place of residence	Urban	7(0.22)	899(99.78)	0.17
	Rural	9(0.28)	1239(99.72)	
Occupation	Student	6(0.19)	1402(99.81)	0.34
	Employed	3(0.095)	709(99.905)	
	Daily laborer	2(0.063)	546(99.937)	
	Farmer	2(0.063)	281(99.937)	

Abbreviations: HCV hepatitis C virus.
Values are expressed as percentage.

DISCUSSION

In this study, we attempt to show prevalence of these infections among the blood donors. All these diseases are considered serious health problems and masses are unaware about the prevalence of HBV, HCV and HIV in Swat. The major causes of this unawareness is lack of routine checkup and unawareness of public about symptoms and transmission risk factors of these transmissible diseases. The previous published studies reported that Pakistan is highly endemic to HBV with 12 million infected people, whereas HCV infected people were up to 130-210 million. However KP (Khyber Pukhtunkhwa), province is lucky because the prevalence is still low [20].

The sero prevalence of HBV in this study was 0.67%, HCV 0.50%, and there was no HIV. The prevalence was low in this study as we compared to other provinces in Pakistan and other countries. The finding was lower of HBV, HCV and HIV as compared 2.35% HBV, 3.26% HCV and that of 0.017% HIV in PIMS,

Islamabad [21]. This finding was also lower of HBV, HCV and HIV as compared 1.59% HBV, 3.75% HCV and that of 0.11% HIV in Lahore [14]. The prevalence was increase in Islamabad because of more donors and it is the place where all the patient came for their treatment across the whole country.

On the other hand prevalence was also more in Lahore it is also because of more donors and its area is much more than swat so their population was much and a lot of people came to donate blood to their patient, friend or other people. [22].

The prevalence of HBV, HCV and HIV in this study was low. This pattern shows that prevalence rate of HBV, HCV and HIV seem, by all accounts, to be declining. It most likely reflects more noteworthy mindfulness and more extensive acknowledgment of medicinal services measures. Also the ratio of education is more in Swat which mightily take care of blood while donating the blood to any blood bank in hospital or to charity organization laboratory.

HBV and HCV prevalence was more in rural areas in this study. WHO measures that in Southeast Asia, an ordinary individual gets four infusion for consistently, an enormous bit of which are pointless and up to 75% are hazardous or reused. Unnecessary infusions are given ordinarily in Pakistan out of the inescapable view in the populace that implanted remedies are more reasonable than oral drugs [25].

Intramuscular infusions are oftentimes utilized for fever, exhaustion, and general afflictions, while intravenous are utilized for the treatment of weakness, fever, and extreme ailments [24]. These infusions are given by doctors at clinics, by casual, undeveloped suppliers, by lady health visitor who do home visits, and by drug specialists both trained and casual. The health care suppliers may even energize the infusion looking for conduct since patients are all the more ready to pay an extra doctor's expense for infusions yet won't pay this additional charge for oral medication. Syringes are reused and sterility of infusions is frequently not kept up because of money related restrictions and absence of hazard mindfulness between the healthcare providers and the population in general [23]. These infusions have all the earmarks of being the absolute most critical factor in the spread of HBV and HCV in the overall public of Pakistan, Swat and generally in Rural areas because of inexpert technicians or other staff who have own clinic and works without the permission of government and they or not degree holder.

On the other hand use of barber razor, dental procedures, and use of one person razor by other which mightily not consider as infectious agent because of unawareness is also one of the risk factor for these Diseases especially in rural areas.

In conclusion, our study provided information on the prevalence of HBV, HCV and HIV infection among those at Northern district of KPK, Pakistan. Among blood donors HBV was 0.67%, HCV 0.50% and there was no HIV. HBV and HCV disease are still major health problem in the region, which alerts public health intervention. According to this study the prevalence of HBV, HCV and HIV is low due to increase awareness among the population of Swat. Further study required to evaluate the vaccination program at government and private sector of HBV, HCV at urban, rural area and people's access.

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AUTHORS' CONTRIBUTION

Muhammad Waseem supervised, abstracted, drafting and analyzed data, Muhammad Jaseem khan developed the original idea and the protocol, Saleh Alkarim, critical revision of the manuscript for important intellectual content, Wasim Muhammad, development of the protocol, wrote the manuscript, abstracted data.

CONFLICT OF INTERESTS

The authors announce that they have no contending interests.

ETHICAL APPROVAL

All investigations were performed as a part of routine medical care with no need for separate informed consent.

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