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Research Article

**A PROSPECTIVE OBSERVATIONAL RESEARCH TO ASSESS  
THE HEPATITIS B & C VIRUS (HBV & HCV)  
SEROPREVALENCE AMONG HEALTHY BLOOD DONORS**<sup>1</sup>Dr. Muhammad Izhar, <sup>2</sup>Dr. Rabia Basri, <sup>2</sup>Dr. Mohammad Ahmed Awan<sup>1</sup>Medical Officer, Basic Health Unit 60/WB, Vehari<sup>2</sup>House Officer, Allied Hospital Faisalabad**Abstract:**

**Objectives:** The objective of this research is to identify the HBV and HCV seroprevalence among healthy volunteers who donated the blood.

**Subjects and Methods:** We completed this prospective observational research at Sir Ganga Ram Hospital, Lahore from February to October 2017 while screening healthy blood donors who were screened for HBV and HCV. We included every blood donor who visited in the blood bank of the hospital during research timeframe. We included the patients of (18 – 60) years of age, above fifty kilograms of weight and Hb above (12 g/dl). A medical officer examined the donors in detail and excluded all the donors with viral hepatitis history, bodily evaluation, drug abuse, previous transfusion of blood or blood component, tattooing, renal disease, piercing, cardiac attack, hepatic pulmonary disease. Blood donors screened through MEIA for Anti HCV, HBsAg and HIV. Test sensitivity and specificity was respectively 100% and 99% [7]. The researcher also maintained an electronic database of all the blood donors for statistical data analysis at the end of this research.

**Results:** This research discussed 1428 blood donors who visited the blood bank of the hospital and screened for various clinical assessments. Among these blood donors' males were in dominance as they contributed 97.05% of the total population. HBV was prevalent in 2.45% healthy donors; whereas, males were about 2.38%. HCV seroprevalence was about 2.52%; whereas, 2.52% in the male population. HBV and HCV prevalence among various research studies conducted at various cities of Pakistan and in different timeframes are as under. The HBV and HCV seroprevalence was in the bracket of (1.55% to 7.53%) and (0.27% to 6.8%) respectively in all over the country.

**Conclusion:** There are common cases of HBV and HCV seroprevalence in Pakistan. This is mostly because of the contaminated blood transfusion. Public knowledge and awareness are of key importance in order to control its increasing incidence through educational programmes and by selecting healthy blood donors. This is critical in the current increased prevalence of HBV and HCV.

**Keywords:** Healthy Blood Donors, Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), Hemoglobin (Hb) and Seroprevalence.

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**INTRODUCTION:**

Various disease indications and diagnostic features are possible through screening of blood which started back in the 1930s [1]. As the techniques developed and blood banks came into being the use of blood in the patient's treatment has become popular and used widely. More than 1.5 million accumulations of blood pints is in practice in Pakistan every year [2, 3]. It includes three kinds of donors known as replacement donors, professional donors and volunteer donors with the respective proportion of 65%, 10% and 25% [2, 4]. A disease like HBV, HCV and HIV are best spread through blood transfusion. These discoveries changed the physician and patients' attitude towards the blood transfusion process as an unsafe practice brings various hazards. The concerns of the patients and physicians are even grave. A proper screening may possibly decrease or eliminate the chances of the transfusion hazards through better screening features and healthy donor selection process. Better outcomes are possible through healthy volunteer donors than the professional blood donors [5]. In the presence of highly sensitive techniques, there are still the chances of virus transmission which is almost unavoidable because of the prolonged incubation periods before the seroconversion [6]. There is a constant need to practice careful donor selection with detailed examination and medical history in order to avoid transmission of HBV and HCV.

**SUBJECTS AND METHODS:**

We completed this prospective observational research at Sir Ganga Ram Hospital, Lahore from February to

October 2017 while screening healthy blood donors who were screened for HBV and HCV. We included every blood donor who visited in the blood bank of the hospital during research timeframe. We included the patients of (18 – 60) years of age, above fifty kilograms of weight and Hb above (12 g/dl). A medical officer examined the donors in detail and excluded all the donors with viral hepatitis history, bodily evaluation, drug abuse, previous transfusion of blood or blood component, tattooing, renal disease, piercing, cardiac attack, hepatic pulmonary disease. Blood donors screened through MEIA for Anti HCV, HBsAg and HIV. Test sensitivity and specificity was respectively 100% and 99% [7]. The researcher also maintained an electronic database of all the blood donors for statistical data analysis at the end of this research.

**RESULTS:**

This research discussed 1428 blood donors who visited the blood bank of the hospital and screened for various clinical assessments. Among these blood donors' males were in dominance as they contributed 97.05% of the total population. HBV was prevalent in 2.45% healthy donors; whereas, males were about 2.38%. HCV seroprevalence was about 2.52%; whereas, 2.52% in the male population (Table – I). HBV and HCV prevalence among various research studies conducted at various cities of Pakistan and in different timeframes are as under (Table – II). The HBV and HCV seroprevalence was in the bracket of (1.55% to 7.53%) and (0.27% to 6.8%) respectively in all over the country (Table – II).

**Table – I:** Prevalence of Hepatitis B and C in blood bank donors

Distribution		Number	Percentage
HBsAg	Male	34	2.38
	Female	1	0.07
	Total	35	2.45
HCV	Male	36	2.52
	Female	0	0
	Total	36	2.52
Screened Patients	Male	1386	97.05
	Female	42	2.94
	Total	1428	100

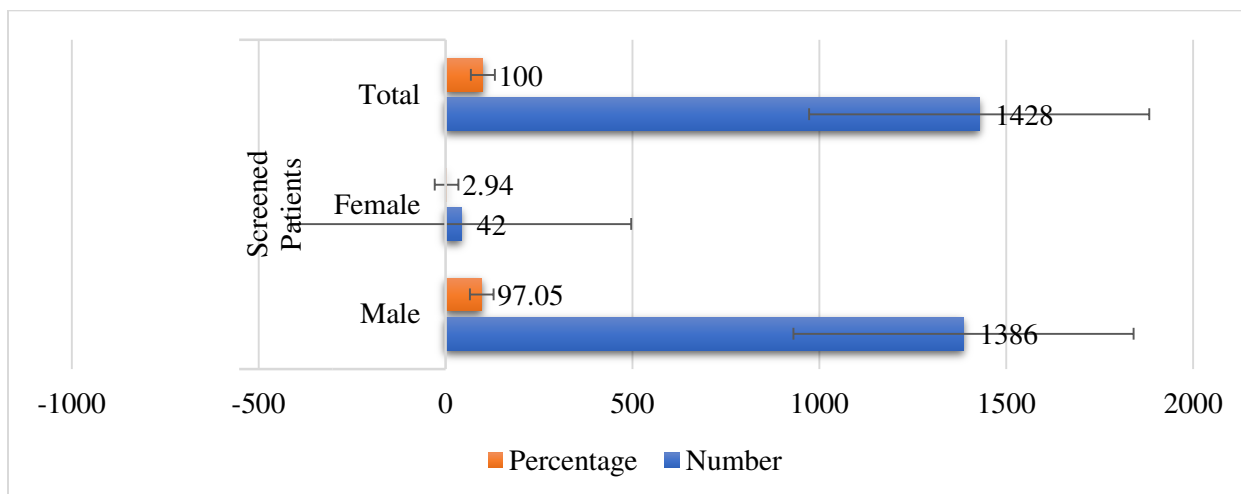
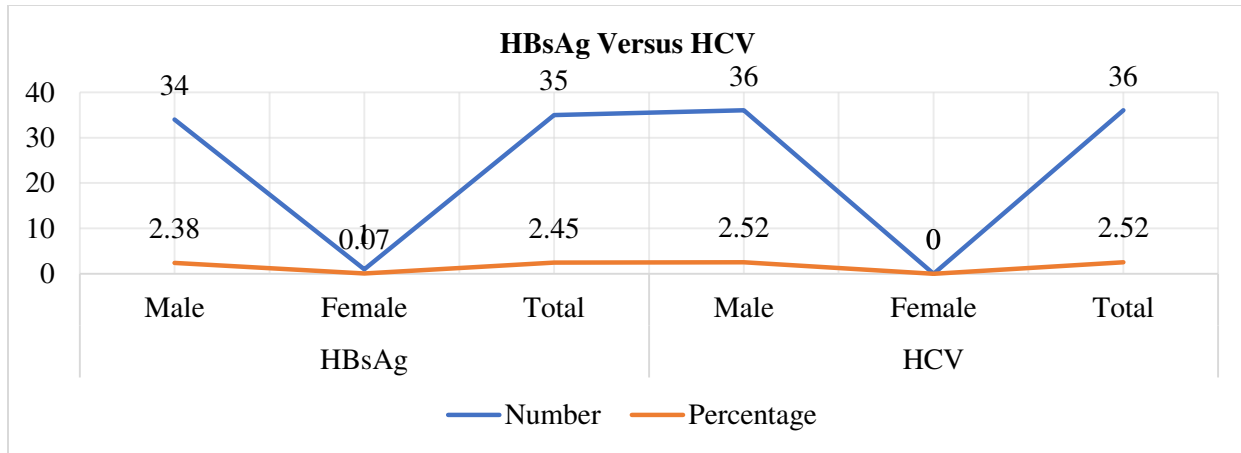
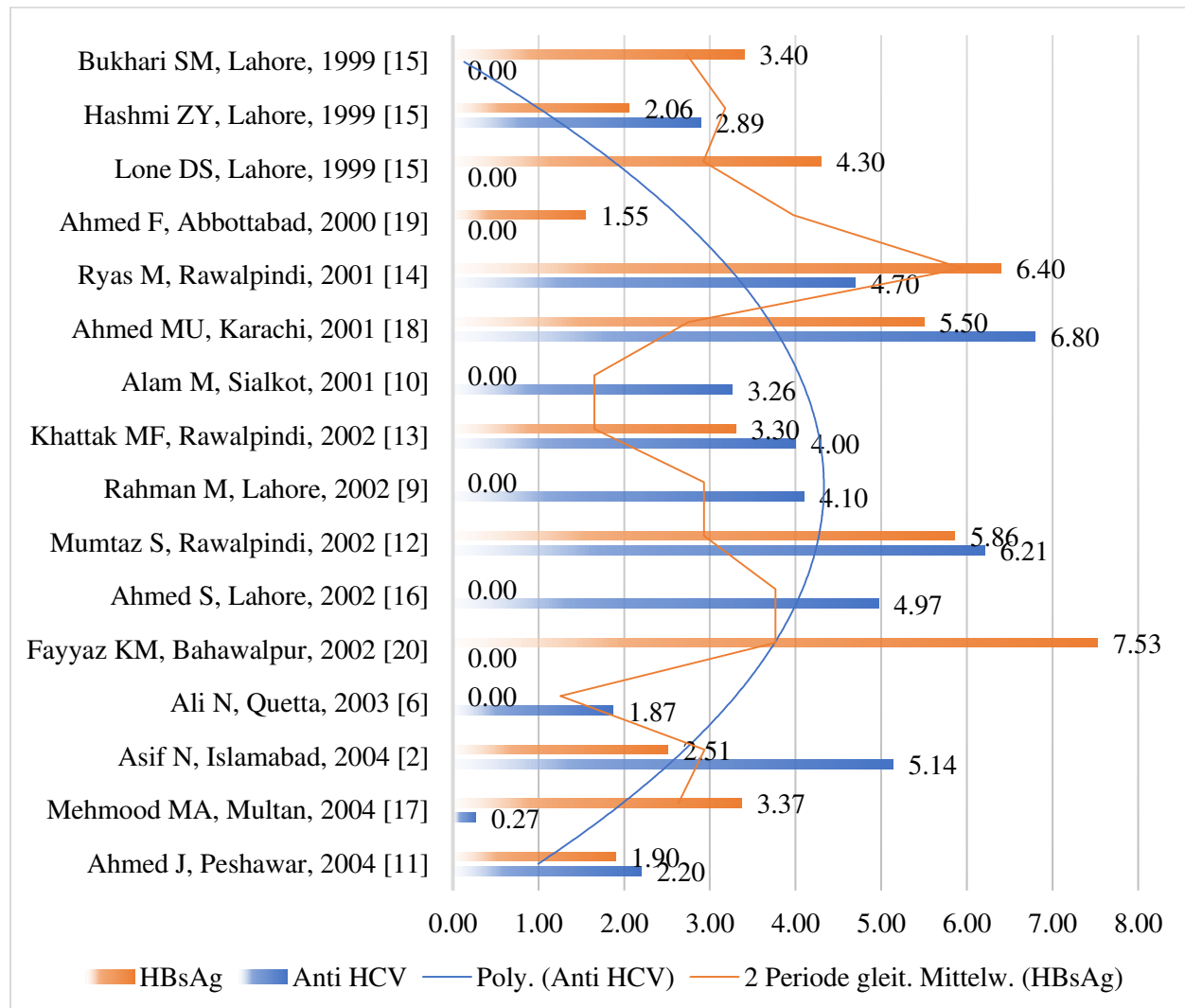


Table – II: Various Literary References

Author, Place and Year	Anti HCV	HBsAg
Ahmed J, Peshawar, 2004 [11]	2.20	1.90
Mehmood MA, Multan, 2004 [17]	0.27	3.37
Asif N, Islamabad, 2004 [2]	5.14	2.51
Ali N, Quetta, 2003 [6]	1.87	0.00
Fayyaz KM, Bahawalpur, 2002 [20]	0.00	7.53
Ahmed S, Lahore, 2002 [16]	4.97	0.00
Mumtaz S, Rawalpindi, 2002 [12]	6.21	5.86
Rahman M, Lahore, 2002 [9]	4.10	0.00
Khattak MF, Rawalpindi, 2002 [13]	4.00	3.30
Alam M, Sialkot, 2001 [10]	3.26	0.00
Ahmed MU, Karachi, 2001 [18]	6.80	5.50
Ryas M, Rawalpindi, 2001 [14]	4.70	6.40
Ahmed F, Abbottabad, 2000 [19]	0.00	1.55
Lone DS, Lahore, 1999 [15]	0.00	4.30
Hashmi ZY, Lahore, 1999 [15]	2.89	2.06
Bukhari SM, Lahore, 1999 [15]	0.00	3.40



## DISCUSSION:

There is a dire need to conduct various epidemiological studies to suggest disease prevention strategies instead of disease curing strategies. The maximum blood collection is possible through replacement donors who are either friend of the patients or relatives of the patients [3]. Safer blood transfusion practices need a proper selection of donors and screening of the blood. Hidden and professional blood donors are a constant risk for the HIV, HBV and HCV [2]. The patients without any medical history and sound physical features are best sources of blood transfusion as they pose decreased or no risk of associated risk factors as confirmed through clinical screening [4, 6].

HCV seroprevalence differs in various regions among blood donors. Different reports postulate different seroprevalences among various countries

such as Africa, Japan, USA, Finland and USA with respective proportions of 6%, 1.5%, 0.6%, 0.24% and 0.17% [6, 8]. Scandinavian countries and the UK presented a decreased prevalence of (0.1%); whereas, a higher seroprevalence reported in North American, Australian and European countries (0.2% – 1%). Mediterranean, Eastern Europe and South American countries reported an intermediate rate of prevalence (1.15 – 5%); whereas, Egypt reported a higher rate of prevalence of (28%). India and KSA reported the HCV prevalence among blood donors respectively as 5.1% and 1.5% [8, 9]. Various local research studies report the HCV prevalence in the range of (0.7% – 20%) [6, 9, 10]. There is a lack of unanimous and single representative research that decodes the exact HBV and HCV seroprevalence all across the country at a national level.

We reported the HCV prevalence as 2.52% in this research; whereas, in the literature review of previous five years its prevalence in Peshawar, Islamabad, Rawalpindi, Lahore, Sialkot, Multan, Karachi and Quetta was respectively 2.2%, 5.14%, 4% to 6.21%, 2.89% to 4.97%, 3.26%, 0.27%, 17 6.8% and 1.87% [2, 6, 11 – 18]. Different areas of the country report different HCV seroprevalence in the range of (0.27% to 6.8%). In Pakistan, Rawalpindi and Karachi had a higher HCV seroprevalence rate respectively 6.21% and 6.8% [12, 18].

In the same way the HBV seroprevalence was 2.45% as reported in this research; whereas, in the literature review of previous five years its prevalence in Peshawar, Abbottabad, Islamabad, Rawalpindi, Lahore, Bahawalpur, Multan and Karachi was respectively 1.9%, 1.55%, 2.51%, 3.3% to 6.4%, 2.06% to 4.3%, 157.53%, 3.37% and 5.5% [2, 11 – 19]. HBsAg seroprevalence is different in different parts of the country which ranges from 1.55% to 7.53%. Rawalpindi and Bahawalpur reported highest HBV seroprevalence respectively 6.4% and 7.53% [14].

There is a nationwide requirement to curb the HBV and HCV prevalence through identification of infected cases and careful blood transfusion practices. There is also a need to document all the records of medical equipment and syringes used in the blood transfusion in order to curb all the possible chances of HBV and HCV transfusion. Reuse of blades and various other equipment at barber shops and piecing centres is also a constant threat for the HBV and HCV transmission from one to one or many others. Concerned authorities need to promote general public awareness, behavioural changes and safe use of medical and clinical equipment for blood transfusion.

### CONCLUSION:

The primary source of HCV and HBV is blood transfusion through various blood donors with different involvement of the risk factors. As the majority of the blood donations are from replacement blood donors or volunteer donors. These donors are apparently healthy and present no illness signs. We reviewed countrywide research studies for HBV and HCV seroprevalence among various cities of Pakistan. There are common cases of HBV and HCV seroprevalence in Pakistan. This is mostly because of the contaminated blood transfusion. Public knowledge and awareness are of key importance in order to control its increasing incidence through educational programmes and by selecting healthy blood donors. This is critical in the current increased prevalence of HBV and HCV.

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