Prevalence of Transfusion Transmissible Infections among Volunteer Blood Donors

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ABSTRACT

The infection which are transfer through blood is called transfusion transmissible infections. It is a type of communicable infection. Communicable infection are those infections which are transfer from one individual to another through direct contact, air sole, sexual contact, or through blood infections. The most prominent among these infections are Hepatitis B Virus, Hepatitis C Virus, Human Immunodeficiency Virus, Syphilis and Malaria. The study was conducted on Volunteer blood donors in District Peshawar Khyber Pakhtunkhwa Pakistan. It is Retrospective study. The blood of 6378 donors was screened in this study. The Positive rate was 2.15%. The prevalence rate of Hepatitis B Virus infection was 1.3%, Hepatitis C Virus infection was 0.7%, Human Immunodeficiency Virus infection was 0.1%. The prevalence rate of Treponema Pallidum infection is 0.03% and Plasmodium Malaria is 0.0%. Strict selection criteria for blood donors are required during blood donation. Use of standard methods needs for screening of blood donors for Hepatitis B Virus, Hepatitis C Virus, Human Immunodeficiency Virus, Syphilis and malaria. Blood donors history is necessary. All Standard Operation Procedure during Examination of blood should be followed which is the basic step to prevent these infections.

Keywords: Screening, Regional Blood Centre, Khyber Pakhtunkhwa, Peshawar, Pakistan

Introduction

Blood transfusion is a rescue operation that transfers blood or its derivatives from a donor to another patient (recipient). Blood transfusion or its derivatives are used for various medical conditions, such as anemia, severe anemia, chemotherapy patients, etc. It has many advantages, but there is also the risk of blood transfusion. Since the 1930s, blood therapy has been used for many medical conditions. The donation service was started in 1922 by Percy Lin Oliver. The first human blood transfusion was held in 1926 by British Red Cross instituted. The first storing, preservation and utilization of Blood for future transfusion process occurred in 1935. At the same year first plastic bag was used to store blood (1). In 1937 Fundus was the man who discovered the blood bank and also called father of blood bank.

Transmissible infection is type of communicable infection. These infections are transferring through parental administration of blood or any blood products. These infections which are transmitted through blood may be viral infections, bacterial infection or parasitic infection. The most prominent among these infections are Hepatitis B Virus, Hepatitis C Virus, Human Immunodeficiency Virus, Syphilis and Malaria (2).

According to World Health Organization blood safety is fundamental human rights. It mandated at least four screening of blood donors for Transfusion Transmissible Infections i.e. Hepatitis B Virus, Hepatitis C Virus, Human Immunodeficiency Virus and syphilis (3). Transfusion of blood from donor to recipient is not free from transferring of Transfusion Transmissible Infections. The incident of Transfusion Transmissible Infections among blood donors is associated direct blood supply. Understanding the condition of a blood donor is an important safety measure if the donor is constantly monitoring the infection rate. The result of Transfusion Transmissible Infections is main effect on the population of blood donor's laboratory screening (4).

The greatest threats to blood is safety from transmitted diseases such as Transfusion Transmissible Infections from the donor to recipient. These infections are transmitted in window period of the blood donors. These transfusions transmitted diseases can cause life threatening disorders. Screening for blood donors begins in 1947 (5). Introduction of the routine laboratory screening of blood donors are dramatically decrease in the risk of Transfusion Transmissible Infections in the global view. Since1998 blood donation law come into effect in the field of blood banking in china, then many changes have been made, they successfully transfer "paid donor and family members donors" to volunteer blood donors (6). In the modern medicine plasma derivatives and blood products such as components of blood are essential therapeutics during emergency and cases like anemia and hemorrhage, red blood cell transfusion is vital in saving lives. In white blood cell disorder like acute leukemia or chronic leukemia transfer of white blood cell is essential (7).

The transfusion of infected blood has influential consequences of morbidity and mortality. Monitoring and screening of Transfusion Transmissible Infections in the blood donors is

essentials for measuring the risk of blood transfusion and also diminish infectious disease transmission (8). The major risk of Transfusion Transmissible Infections are in thalassemia major patients (9) (47). According to National Aids Control Organization guideline all the essential screening of blood donor should be carry out for Hepatitis B Virus, Hepatitis C Virus, Human Immune Deficiency Virus, Syphilis and Malaria. Those units of blood which are positive should be discarded. Department of blood transfusion not only screen Transfusion Transmissible Infections but also gives awareness about this to a healthy population (10). The major risk factors of transmission of infections is present in blood cells or plasma of asymptomatic donors through blood transfusion.

A challenge to recognize infectious agents, serological tests are entirely undetectable during the windows period, for the reductions of these problems combine serological and Nucleic acid Test is necessary (12). About one percent chance of Transfusion Transmissible Infections in every unit of blood (9). The screening of blood for Transfusion Transmissible Infections is essential for safely blood transfusion and protecting human life (13).

One paints of donated blood can save three lives (14). Every year, more than 90 million units of blood are collected worldwide. Laboratory screening is effective for the selection of low risk Transfusion Transmissible Infections in blood donors (15). The blood supply is directly involved in the prevalence and incidence rate of Transfusion Transmissible Infections among blood donors (16). In the general population it is important to evaluate and point out the burden and the risk factors of Transfusion Transmissible Infections (5). The problems of Transfusion Transmissible Infections has increased because infected blood is collected before the screening or serological test. Some of the infection in their early stages are not detected by serological test (11).

The situation in Pakistan will be the same if Transfusion Transmissible Infections continues to threaten blood in blood transfusions in modern medical practice. Transmission of these pathogens is a major concern of blood centers. Blood transfusion centers are important area in the storage of blood supplies in order to meet the needs of the population. In Pakistan, the blood transfusion sector is being transformed from a network of blood banks to a new centralized network of regional blood centers. In Pakistan, most hospital are based on blood transfusion services.

In world wide about 16 million new cases of Hepatitis B Virus infection transmitted by infected blood transfusion and 5 million of Hepatitis C virus infection every year (17). Annually in Pakistan approximately 1.2 to 1.5 million units are transfused. The standardize screening procedure for Transfusion Transmissible Infections should be strictly implemented for donor selection that help us to exclude the donors which are infected with these Infections (18). 18 to 45 years are the average age of blood donors. Males are most likely donating blood as compare to female (14). Pakistan medical and research centers conduct a survey on national seroprevalence for Hepatitis B Virus and Hepatitis C Virus that shows an estimate 18 million individuals are affected in Pakistan. The prevalence rate of Hepatitis B and Hepatitis C is 2.5% and 4.8% (19). According to World Health Organization report conducted in 2011 seroprevalence of Hepatitis B Virus, Hepatitis C

Virus, Human Immunodeficiency Virus, Syphilis and Malaria is 2.2%, 3.9%, 0.01%,0.6% and 0.1% respectively (20). It is estimated that 40% of transfused blood are not screened for Transfusion Transmissible Infections in Pakistan (21) (6) (15) (5).

Hepatitis B

Hepatitis B Virus is a member of Hepadnaviridae. It has 3200 base pair of circular genome and double stranded DNA. Main symptoms are vomiting, dark urine, nausea, fatigue and yellowish eyes and skin. 9 million people are infected with this virus. In Pakistan the rate of Hepatitis B Virus are high among developed countries (20). The major risk factor of Hepatitis B Virus is unsterilized instrument, unhygienic and substandard method of surgery, blood transfusion, drugs abuse, dialysis, sharing razor or tooth brush of infected person, acupuncture and travelling in countries where Hepatitis B Virus is endemic.

Millions of people are infected with the Hepatitis B Virus. Above half of the patient are in the chronic phase (22)**.** Hepatitis B Virus is the blood born virus and are transmitted through blood. Estimated carrier rate of Hepatitis B Virus in Pakistan is 3% to 5% and the rate is increase specially in province of Sindh (23).

Worldwide, 240 million people are infected with the Hepatitis B virus. In Pakistan, 4.5 million people are infected with the Hepatitis B Virus. Of these, about 7,780,000 deaths each year are significantly higher than those of Hepatitis C which is about 130 to 150 million people. Approximately 2.5 % of population in Pakistan is link with chronic Hepatitis B Virus despite availability of Hepatitis B Virus vaccine hence leading to the end stage of liver disease, hepatocellular carcinoma with significant mortality rate (24).

Prevalence rate of Hepatitis B Virus is 3% in Pakistan. High prevalence of Hepatitis B Virus is observed in people with low economic status in Pakistan because 67.5% our country people belong to Rural areas. About 10 to 20 % of population is at high risk in Pakistan (25).

Hepatitis C

Hepatitis C Virus is somewhat, wrapped, positive-sense single-stranded RNA virus of the family Flaviviridae (45).

About 170 million people worldwide are infected with Hepatitis C Virus. Chronic liver disease affects 71 million people. Liver cirrhosis, hepatocellular carcinoma and liver transplantation are the main risks of Hepatitis C Virus (26). Genotypes of Hepatitis C Virus are various but most virulent genotypes are 1 and 3 (22). Hepatitis C Virus is the most common global health problem since 1989 when it is discovered.

Globally, Pakistan is the second largest country having Hepatitis C Virus. Its sero-prevalence rate is 4.5 to 8.2 %. The risk factors associated with Hepatitis C Virus

transmission are blood transfusion and injection (27 to 42.2% in health care professional and 7.8 to 68% in general population (27).

Typical chronic liver infection takes 10 to 30 years to convert in serious Hepatitis C Virus infection. The researchers have identified genes like FAS in injury of liver that increases expression of pro apoptotic activity (28). In every 20 Pakistani one have infected with this virus (29) (30).

Human Immunodeficiency Virus

Human immunodeficiency Virus, a lentivirus (a subgroup of retrovirus) causes Human Immune Deficiency Virus infection 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 (13).

Human Immunodeficiency Virus transmitted through sexual contact, from mother to child and other commonly describe routs. According to World Health Organization approximately 37.9 million people are infected with Human Immunodeficiency Virus. Below the age of 15 years are 1.8 million and deaths around 35 million. From 2005 to 2015 the average growth rate of Human Immunodeficiency Virus infection in Pakistan was 17.6 % per year. In Pakistan the high prevalence is among in intra venous drug users (5 %) (31). In Pakistan Human Immunodeficiency Virus patients (adults and children are 150,000 in 2017 that increased up to 3 lac in the 2020.

The three major outbreak of Human Immunodeficiency Virus in Pakistan emerged in Larkana Sindh, Sargodha and Gujranwala. According to National Health Service in Pakistan 150,000 Human Immune Deficiency Virus patients are estimated. Out of these 75000 from Punjab and 15000 from KhyberPakhtunkhwa and Baluchistan. The high major groups are transgender, injection drugs users and homosexual (32).

Syphilis

Syphilis is a bacterial dieses caused by *Treponema palladium*. It cause 36 million cases world wide and 11 million new infections per year. Approximately 90% of syphilis infection are found in developed countries. Over 90% syphilis infection are in men, the ratio is increased in men than women. Fetal last are still present in low income population, associated with congenital syphilis.

Studies suggest that 15 to 40 percent of individuals developed tertiary syphilis. The main symptoms are associated with tertiary syphilis are severs skin disease, visceral lesion, distractive cardiac or neurological condition. Tertiary syphilis is less common now a days due high use of antibiotics.

In the cerebrospinal fluid *Treponema Pallidum* can be frequently identify in the early stage of disease during the first one to two years after exposure of sexual transmission. From

mother to child transmission is highest in primary and secondary stages. Benzethene penicillin G is preferred for most patients with syphilis (34).

Malaria

A parasite that frequently infects a particular species of mosquito that feeds on people can result in the serious and occasionally fatal disease known as Malaria.

Malaria occurs mostly in poor, tropical and subtropical areas of the world. The death ratio of this infection mostly occurs in Africa. In the past the death ratio was also increased in south Asia. 1.5 million of cases occur per year according to the World Health Organization categorized groups. Pakistan is involved in those group of eastern Mediterranean region, where 95% of Malaria is endemic. Especially plasmodium Plasmodium vivax and Plasmodium falciparum is common in Pakistan. Ratio of Plasmodium vivax is high than Plasmodium falciparum, (Plasmodium vivax accounts for 75% while Plasmodium falciparum is 25%) in Pakistan (35).

The major routes of transmission of malaria through mosquito bite and blood transfusion. Malarial disease is seasonal in the areas that is cool in temperature, north western region of Pakistan transmission of Plasmodium falciparum is observed between August and December. During rain in hot weather, transmission of Plasmodium vivax predominant is common (40). From June to September and again from April to June transmission Plasmodium vivax is observed and relapses of Plasmodium infections in this season are also observed (36).

S.M. Sajidai et al., (2018) collect 18304 donations in Iran from volunteer blood donors. In his study 94.23% were male and 5.57% were female, the prevalence rate of Transfusion Transmissible Infections were 0.13%, 0.06% for Hepatitis B Virus and Hepatitis C Virus. In his study only 3 positive cases for Human Immunodeficiency Virus. His study duration was ten years he observed gradual increase in the transfusion infection (37), (38) (39), (40), (41).

Zheng et al., (2006-2012) studied in china, the sample size of his study were 1,616,120. Over all prevalence rate were 0.5% for Hepatitis B Virus, 0.25% for Hepatitis C Virus, 0.15% for Human Immune Deficiency Virus and 0.53% for syphilis. In his study 60% donors are male. The average age of blood donors were 25 years. In his study 60% donors were repeat volunteer donors and 40% are 1st time volunteer donors. The prevalence rate of Hepatitis B Virus, Hepatitis C Virus, and Human Immune Deficiency Virus are higher in males. The prevalence of syphilis is high in female than males (6).

Alsheranin et al., (2021) studied transfusion transmissible infection in Abbah *Saudi Arabia*. He studies 25253 blood donation. Donors ratio in male was high which were 89.58% and 10.42 % was in female donors. He studies the positive rate was 10.98% (2772 sample) in which anti Hepatitis C Virus was 5.91%, Hepatitis B Virus was 4.5%. The prevalence rate for Hepatitis C Virus, Human Immune Deficiency Virus, and malaria antigen was 0.01%,

less than 0.01% and 0%. The average age of donor in the study was 25 to 27 years. The positive rate was increase with age 50.

Ramanayake et al, find out prevalence of transfusions transmissible infection among volunteer blood donors in eastern regional blood center Sri Lanka. Has sample size was 56079. The overall prevalence of Hepatitis B Virus was 0.01%, Hepatitis C Virus 0.01%, syphilis 0.05% and Human Immune Deficiency Virus were 0.01% (42).

Hasan et al., (2020) study Transfusion Transmissible Infections among volunteer blood donor in district Shirajganj *Bangladesh.* In his study the prevalence rate of Hepatitis B Virus were 6.8%, Hepatitis C Virus 0.8%, Human Immune Deficiency Virus 1.2% and syphilis were 6.1%. The prevalence rate was increase in female. (43).

N. Saba et al., (2021) study on Transfusion Transmissible Infections among volunteer and replacement blood donors at *Peshawar* regional blood center KhyberPakhtunkhwa Pakistan. She studied a total of 41817 out of which 22343 (53.43%) were volunteer blood donors while remaining 19474 (46.57 %) were replacement donors. 41493 (99.22 %) were male and 324 (0.7%) were female. The prevalence rate in volunteer blood donors are 1.77% Hepatitis B Virus, Hepatitis C Virus were 1.13%, Human Immunodeficiency Virus were 0.19 %, Syphilis were 0.71% and malaria were 0.08% (44).

The main aim of the study was to determine the prevalence of transfusion transmissible infections among volunteer blood donors in different blood center of Peshawar KhyberPakhtunkhwa, Pakistan.

Materials and Methods

Study Area, Period, Population and design

This study was conducted in District Peshawar, Khyber Pakhtunkhwa, Pakistan from January 2021 to 9 June 2021**.** Cross sectional retrospective study was coordinated. The blood samples of blood donors was collected at different blood banks and Hospital from Peshawar, Khyber Pakhtunkhwa, Pakistan. The patients of Peshawar, Khyber Pakhtunkhwa was included in this study. It is Retrospective study.

Sampling and Sample Size

In this study blood samples of 6378 blood donors were included. In which 98.04% were males and 1.96% were females. Samples were collected through nonprobability (convenient Sampling) technique.

Statistical Analysis:

Statistical Package for Social Sciences version 22 was used for the analysis of the data.

Laboratory detection methods

Blood was taken in Ethylene diamine tetra acetic acid tube. Detections for Hepatitis B Virus, Hepatitis C Virus, Human Immune Deficiency Virus and Syphilis was done on advance method, Enzyme-linked Immunosorbent Assay through Cobas e 411, Roche Diagnostics.

Laboratory detection of Malaria: Blood was taken in EDTA tube. Giemsa stain is used for staining. Further Microscopy was done.

Inclusion criteria and Exclusion criteria

Only Volunteer Blood Donor were included in this study. Other than volunteer blood donors were excluded from this study.

Data Collection Procedure

The data of the volunteer was collected. Secondary data was collected only from official record of Fatimid foundation and other Blood centers in Peshawar. These above mention foundations arrange Blood camps throughout Khyber Pakhtunkhwa, Pakistan.

Results

The result of this study give us 2.15% prevalence rate of Transfusion Transmissible Infections among volunteer blood donors. The prevalence rate of Hepatitis B Virus infection was 1.3% recorded, whereas Hepatitis C Virus is 0.7%, Human Immunodeficiency Virus infection rate is 0.1%. The prevalence rate of Treponema Pallidum infection is 0.03% and the lowest ratio in this study whereas is no cases were found is Plasmodium Malaria.

Gender of Blood Donor

A total of 6378 Volunteer blood donors were involved in this study. Out of which 125 (2.0%) were Female and 6253 (98.0%) were males.

Age of Blood Donors

Different blood banks in Peshawar who need emergency blood donation were not notice the age. In our data 44% donors age were mention. Out of which 90% donors age was between 20-35 years.

Blood Group of Donors

From data analysis we find that majority of blood donors are B^+ follow by O^+ and A+. 2.1% are A Negative, 25.1% A positive, 8.0% AB negative, 9.6% AB positive, 2.7% B negative, 30.6% B Positive, 2.5% O negative, and 26.5% O positive blood donors. Table 1.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A Positive	1604	25.1	25.1	25.1
	A Negative	137	2.1	2.1	27.3
	B Positive	1952	30.6	30.6	57.9
	B Negative	171	2.7	2.7	60.6
	O Positive	1691	26.5	26.5	87.1
	O Negative	158	2.5	2.5	89.6
	AB Positive	611	9.6	9.6	99.2
	AB Negative	54	.8	.8	100.0
	Total	6378	100.0	100.0	

Table-1. This table shows Blood groups among Volunteer blood donors

Prevalence of Hepatitis B Virus:

In total 6378 blood donors, 81 (1.3%) were positive for Hepatitis B Virus and only 2 donors screening show indeterminate result. Table 2.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Indeterminate	2	.0	.0	.0
	Non-Reactive	6295	98.7	98.7	98.7
	Reactive	81	1.3	1.3	100.0
	Total	6378	100.0	100.0	

Table-2 Prevalence of Hepatitis B virus infection among Volunteer blood donors

Prevalence of Hepatitis C Virus:

In total of 6378 donors 43 (0.67%) were positive for Hepatitis C Virus and 7 donors (0.11%) screening show indeterminate result. Figure 1

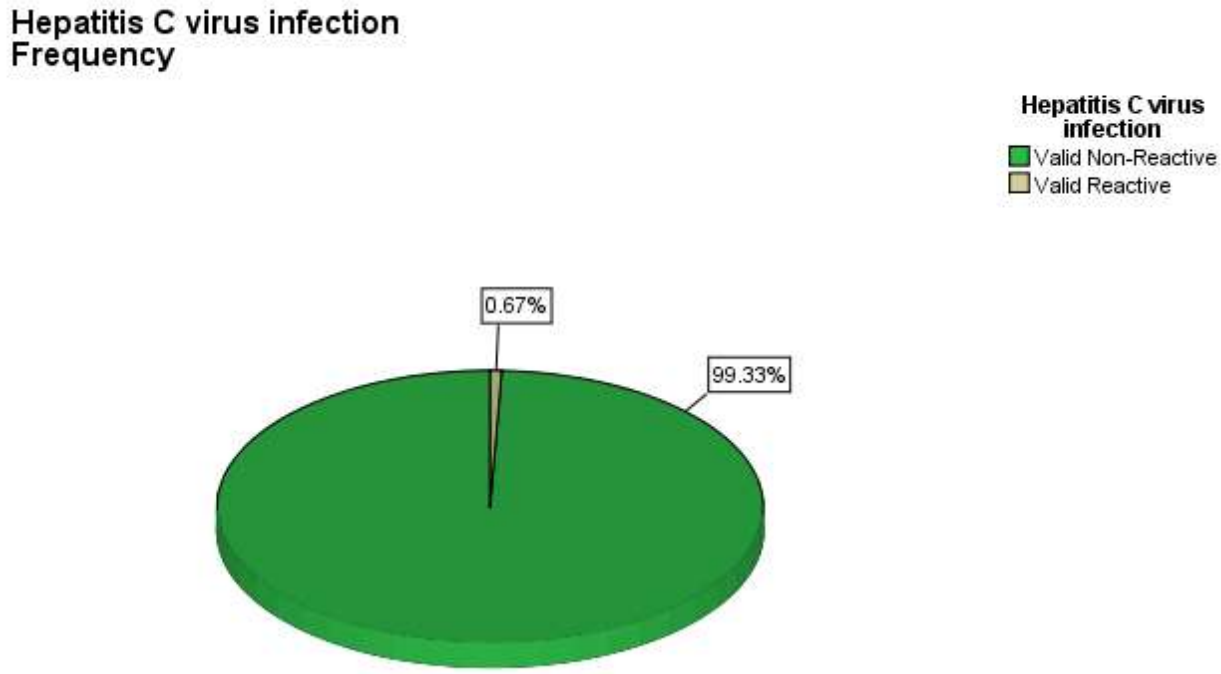

FIG-1 Prevalence of Hepatitis C Virus infection among Volunteer blood donors

Prevalence of Human Immunodeficiency Virus:

Prevalence rate of Human Immunodeficiency Virus in 6378 donors are 0.1%. Only 6 donors reactive for Human Immunodeficiency Virus and 14 screening show indeterminate result. Figure 2.

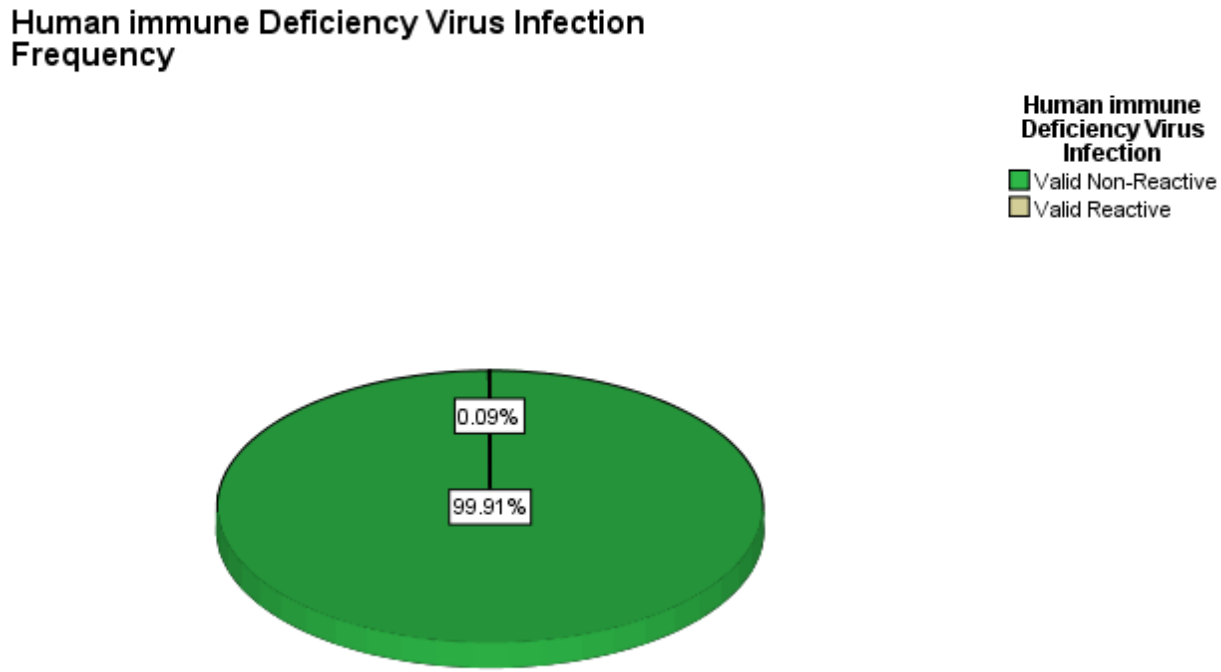

FIG-2 Human immunodeficiency Virus Infection among Volunteer blood donors

Prevalence of Syphilis

Only 2 donors were positive for syphilis out of 6378 blood donors. The positive rate is 0.03%. Table 3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	6376	100.0	100.0	100.0
	POSITIVE	2	.0	.0	100.0
	Total	6378	100.0	100.0	

Table 3. Prevalence of Treponema Pallidum infection among Volunteer blood donors

Prevalence of Malaria

No malarial infection detects in screening of volunteer blood donors.

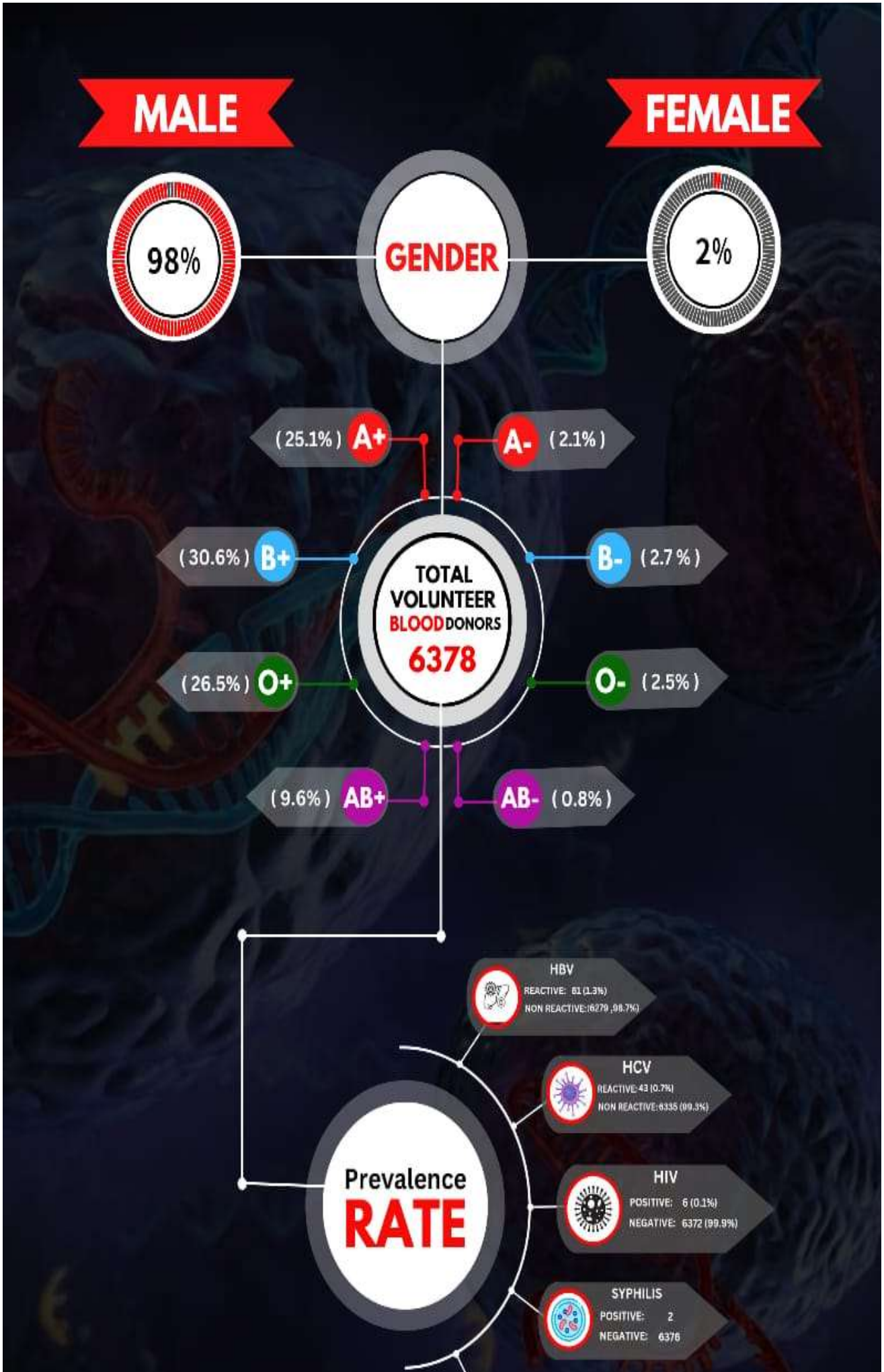
MALE
FEMALE
98%
GENDER
2%
(25.1%) A+
A- (2.1%)
(30.6%) B+
B- (2.7%)
TOTAL VOLUNTEER BLOOD DONORS 6378
(26.5%) O+
O- (2.5%)
(9.6%) AB+
AB- (0.8%)
HBV
REACTIVE: 81 (1.3%)
NON REACTIVE:6279 ,98.7%)
HCV
REACTIVE:43 (0.7%)
NON REACTIVE:6335 (99.3%)
Prevalence RATE
HIV
POSITIVE: 6 (0.1%)
NEGATIVE: 6372 (99.9%)
SYPHILIS
POSITIVE: 2
NEGATIVE: 6376

Figure 3. It shows flowchart of Prevalence of Transfusion Transmissible Infections among Volunteer Blood Donors

Discussion

One pint of blood can save three lives. According to World Health Organization blood transfusion is a fundamental human right (3). But there is also risk associated with transfusion like blood borne diseases. Prevalence rate of these infection is different in different region. In Pakistan the Hepatitis B Virus is the highest prevalence rate, then Hepatitis C Virus and Human Immunodeficiency Virus. The prevalence rate of malaria is very less as compare to syphilis. These infections can cause severe condition and may cause life threating situation.

The prevalence rate of Transfusion Transmissible Infections are lower in volunteer blood donors compare to replacement donor and professional donors. In this study we find different blood groups of blood donors. From data analysis we find that majority of blood donors are B^+ follow by O^+ and A+. 2.1% are A Negative blood donor, 25.1% A positive, 8.0%AB negative, 9.6% AB positive, 2.7% B negative, 30.6% B Positive, 2.5% O negative, and 26.5% O positive blood donors. This shows us that Rh Negative blood groups are rare, only 15.3% blood donors are Rh negative and 84.7% are Rh positive.

This current study shows prevalence of Transfusion Transmissible Infections among volunteer blood donors in Peshawar, KhyberPakhtunkhwa, Pakistan. It shows prevalence rate 2.15%. this result is higher than the record from Iran reported 0.02% (39) and reported from china 1.43% (6). However, this result is lower than India which is reported 4.36%(37), Saudi Arabia which is reported 10.98% (42) and Bangladesh which is 14.9% (43). Tertiary care hospital Islamabad (5) and Regional blood center, Peshawar (44) in Pakistan prevalence rate reported 3.7% and 3.8% which is higher than this study.

Total of 81 donors have positive for Hepatitis B Virus which is 1.3% prevalence rate. This prevalence is lower in north Ethiopia which is 2.5% (38), Congo which is 30.2% (40), Malawi which is 4.7% (41) and Bangladesh which is 6.8% (43). This prevalence rate of Hepatitis B Virus is higher than India which is 1.6% (37), Iran which is 0.13% (39), china which is 0.5%(6), and Saudi Arabia which is 0.47% (42). Compare with Islamabad (1.29%) (5) and Regional blood center, Peshawar (1.77%) (44) the prevalence rate is higher.

A total of 43 Hepatitis C Virus cases in 6378 blood donors which is 0.7% of total 100%. Comparing this result with India (1.62%) (37), North Ethiopia (1.6%)(38), Congo (11.5%)(40), Malawi (2.4%)(41), Bangladesh (0.8%) (43), Islamabad (1.77%)(5) and Regional Blood Centre Peshawar (1.13%) (44) this result is quite low. But higher than Saudi Arabia (0.01%) (42), Iran (0.06%) (39) and china (0.15%) (6).

The prevalence rate of Human Immunodeficiency Virus is 0.1% only 6 positive donor come out of 6378 donors. Only Iran and Saudi Arabia have lower prevalence then this result. All other countries mention have higher prevalence rate (39) (42).

The positive rate of syphilis is 0.03%. This result is lowest in over all previous and current study. Other countries like Pakistan, Islamabad and Regional Blood Centre , Peshawar have high prevalence rate (44) (5).

In this study 0.0% prevalence rate for malaria which is lower as compare to other studies in volunteer blood donors.

This study is lower prevalence then Africa. Compare to Asian countries Iran and china have low prevalence rate than this study but India, Bangladesh and Saudi Arabia have higher prevalence rate. As compare this study with Tertiary Care Hospital, Islamabad and Regional Blood Centre, Peshawar the overall prevalence rate is higher. This study has high prevalence of Hepatitis B Virus then Tertiary Care Hospital Islamabad and Regional Blood Centre Peshawar, but lower prevalence rate of Hepatitis C Virus, Human Immunodeficiency Virus, Syphilis and Malaria.

Conclusion

From this study we concluded that prevalence of Transfusion Transmissible Infections was 2.1%. Hepatitis B Virus infection is high which is 1.3% of total 2.1%, which show that Hepatitis B Virus is still high as compare to Hepatitis C Virus and Human Immunodeficiency Virus. Use of standard methods for screening of blood donors for Hepatitis B Virus, Hepatitis C Virus, Human Immunodeficiency Virus, Syphilis and Malaria should be followed. Peoples need to vaccinate against Hepatitis B Virus to overcome this. This Study is step for moving onward to determine risk of transmissible infections among Blood donors. But this study is limited up to district level, and need attention to proceed this study through Provincial and National level.

To summarize, we suggest that strong regulations governing safe blood transfusion practices and donor screening under universally quality-assured methods be implemented at the regional and national levels. This may help reduce the incidence of Transfusion Transmissible Infections in the future.

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Contributions: Wasim Muhammad supervised, wrote the manuscript and is guarantor. Also done basic amendment of the original copy for significant scholarly content. Muhammad Zeeshan and Ahmad Umar abstracted, drafting and analyzed data. Abid Rahman, Nasar Khan and Ashfaq Ahmad developed the original idea and the protocol.

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