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ORIGINAL ARTICLE

Impact of Universal Donor History Questionnaire in Pre-Donation Deferrals a Tertiary Care Hospital Experience

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ABSTRACT

Objective: The purpose of this research was to better understand the factors that lead to pre-donation deferral at a tertiary care hospital's Blood bank. Understanding the factors that lead donors to decline can inform more effective selection criteria.

Study Design: Cross-sectional/Descriptive study

Place and Duration: Diagnostic and research laboratory Liaquat university of Medical and Health Sciences Jamshoro Hyderabad. January 2022-December 2022

Methods: This study comprised of 2200 donors at blood bank of LUMHS. The UDHQ included 25 questions to assess donors' backgrounds in regards to things like injections, medicines, time since last donation, tattoos, general health, dental work, sexual relationships, malaria/T.B., surgery, jaundice, vaccination, positive viral markers, etc. Haemoglobin (Hemacue 50/Diaspect Hb with daily quality control), Heart rate/rhythm, Blood pressure, Body temperature, Weight/Height, and Jaundice were all part of the physical exam.

Results: There were majority 1578 (71.7%) males and 622 (28.3%) female donors among all cases. Donors mean age was 26.12±9.88 years and mean weight was 61.3±8.49 kg. 1435 (65.2%) cases were from urban areas. Among all, 1650 (75%) donors were accepted and 550 (25%) donors were deferral. Most common cause of deferral was low hemoglobin followed by anemia, HCV, HBV, inappropriate pulse rate, low BP, jaundice, active infection, malaria, syphilis, allergy, aspirin intake, drugs, last donation, skin/eye colour and sexual relationship. There were 1870 (85%) cases of replacement donors among all cases.

Conclusion: The selection of healthy blood and the reduction of donor injury will be made possible by a thorough pre-donation screening interview and physical examination. Our setup has a somewhat higher blood donor deferral rate because to stringent donor sector requirements and extra attention paid to donor selection processes. The increased replacement donor deferral rate is a result of refusals for past injection history and poor hemoglobin levels.

Keywords: Donors, Deferrals, Hemoglobin, Infection, HCV

INTRODUCTION

Blood safety is a big problem everywhere in the globe, and one of the most crucial measures taken to assure blood safety is the selection and screening of blood donors.[1,2] Although preoperative blood management is causing the demand for blood in many countries to decline, the demand for blood is constantly rising in the United Arab Emirates (UAE) as a result of the country's remarkable population growth and high prevalence of hemoglobinopathies; this necessitates the recruitment of safe donors and the prohibition of high-risk donors from donation. Although selecting blood donors is crucial for blood safety, we also need to take into account that selection procedures may have a detrimental influence on the blood supply as many postponed donors may decide not to give blood again as a result of the bad sentiments associated with their deferral.[3,4] As a result, it is critical to establish a logical, evidence-based donor selection process and do away with procedures that result in the unjustified deferral of willing donors.[5,6]

But before donating blood, donors must complete a questionnaire, have a medical checkup, and have their hemoglobin levels checked by the transfusion services. Only those who satisfy the criteria are allowed to donate blood. Regulations are in place to safeguard both blood donors and receivers from injury and are based on research, expert medical opinion, and blood donor eligibility requirements. In order to prevent receivers from contracting illnesses transmitted through transfusions, blood donors must be deferred. The requirements are crucial for blood safety (microbiological safety of the blood). The Standards for Blood Banks and Blood Transfusion Services, in addition to the Drugs and Cosmetic Act of 1940 (and rules thereunder), define the criteria for prospective blood donors' selection and deferral in India.[7,8] Prior to the donation, the procedure of selecting the donor is a crucial, efficient, and cost-effective technique for assuring blood safety. The procedure takes into account moral, political, ethical, and psychological issues, affects donor demographics, and results in particular deferral patterns.

Blood donors might be personal friends or family members of the patients who are receiving treatment [9], as well as paid or substitute donors. A complete clinical and analytical screening is performed for the welfare and safety of donors and recipients. Some of the donations may be postponed temporarily or permanently in light of these findings. Donors, healthcare professionals, and organizations involved in blood collection are all frustrated by this, as well as the donors themselves. Low hemoglobin, illnesses like malaria, and a short time since the last donation are some of the typical reasons for temporary deferral. Because of underlying chronic illnesses, the donors can be permanently put on hold [10].

The rates of blood deferral and its prevalent causes are the subject of several research being undertaken across the world. Our study aims to thoroughly examine the deferral rates, the various reasons for deferral, and individual donor characteristics.

MATERIAL AND METHODS

This Cross-sectional/Descriptive study was conducted at Diagnostic and research laboratory Liaquat university of Medical and Health Sciences Jamshoro Hyderabad. Total 2200 donors of age 18-55 years were included in this study.

Before donating blood, all visitors were given advice on the procedure by qualified medical personnel. The socio-demographic details of the participants, including their age, gender, marital status, and address, were then recorded using a standardized

questionnaire. All people were questioned on previous illnesses. Both blood pressure and weight were measured. The next step was to perform a full blood analysis.

Human immunodeficiency virus (HIV), hepatitis B and C viruses (HBV and HCV), malaria, and syphilis were all tested for. According to the reason for the delay, participants who do not meet the donation selection criteria were subsequently either temporarily or permanently removed from the program. The data was examined using SPSS version 22 to ascertain the frequency and reasons for deferral.

RESULTS

There were majority 1578 (71.7%) males and 622 (28.3%) female donors among all cases. Donors mean age was 26.12±9.88 years and mean weight was 61.3±8.49 kg. 1435 (65.2%) cases were from urban areas. 1230 (55.9%) cases were married.(table 1)

Table-1: Included donors with detailed demographics

Variables	Frequency (n=2200)	Percentage
Gender		
Male	1578	71.7
Female	622	28.3
Mean age (years)	26.12±9.88	
Mean weight (kg)	61.3±8.49	
Residence		
Rural	1435	65.2
Urban	765	34.8
Marital Status		
Married	1230	55.9
Unmarried	970	44.1

Among all, 1650 (75%) donors were accepted and 550 (25%) donors were deferral. (figure 1)

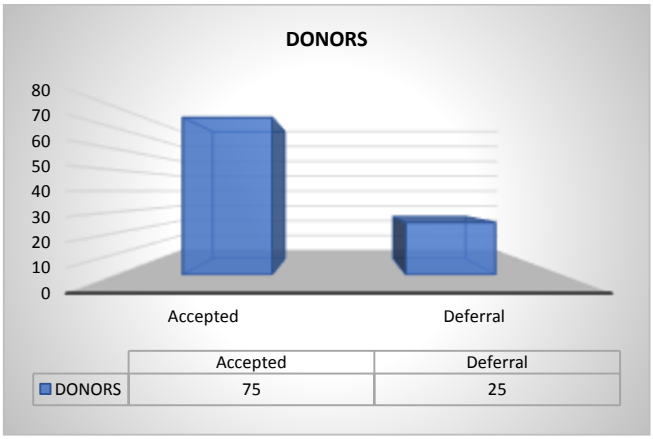

Figure-1: Frequency of donors deferral among all cases

Table 2: Causes of donors deferral among all cases

Variables	Frequency (n=550)	Percentage
low hemoglobin	240	43.6
anemia	90	16.4
HCV	50	9.1
HBV	40	7.3
inappropriate pulse rate	20	3.6
low BP	15	2.7
jaundice	15	2.7
active infection	13	2.4
malaria	12	2.2
syphilis	10	1.8
Allergy	8	1.5
aspirin intake	7	1.3
Drugs	6	1.1
last donation	10	1.8
skin/eye colour	9	1.6
sexual relationship	5	0.9

Most common cause of deferral was low hemoglobin followed by anemia, HCV, HBV, inappropriate pulse rate, low BP, jaundice, active infection, malaria, syphilis, allergy, aspirin intake, drugs, last donation, skin/eye colour and sexual relationship.(table 2)

There were 1870 (85%) cases of replacement donors among all cases.(table 3)

Table-3: Frequency of voluntary and replacement donors

Variables	Frequency	Percentage
Types of Donors		
Replacement	1870	85
Voluntary	330	15

DISCUSSION

A crucial phase in the transfusion process, choosing a blood donor typically involves going through a number of checks to assure the safety of both the donors and the recipients. Typically, there are four steps in this process. Knowledge-sharing about common illnesses that might spread during transfusions and other dangers to a donor are part of the initial stage. A permitted health professional (HP) interview comes next, followed by a donor health questionnaire that must be filled out by the donor. Last but not least, the donor's health is assessed based on the results of physical and laboratory tests, which determines whether or not the donor will be accepted. Depending on the underlying disease, the delay might only be temporary. We sought to determine the prevalence and prevalent reasons for deferrals among blood donors in our study.[11,12]

In current study 2200 donors were evaluated. There were majority 1578 (71.7%) males and 622 (28.3%) female donors among all cases. Donors mean age was 26.12±9.88 years and mean weight was 61.3±8.49 kg. 1435 (65.2%) cases were from urban areas. These findings were comparable to the studies conducted in past.[13,14] A 15% deferral rate was found in our study. This resembles a research carried out by Valerian et al. in northern Tanzania (12.7%) quite a bit [15]. The deferral percentage (12.8%) was comparable in another study [16] that examined contribution data from the American Red Cross. However, this is rather high when compared to several studies carried out in Malaysia, Western India, and the South of Pakistan, which showed deferral rates of 8.39%, 11.6%, and 5.6%, respectively [17-19]. This gap can be explained by variations in sample size, population makeup, and study methods.

The most typical reason for postponement was shown to be low hemoglobin (43.6.3%). This study is comparable to others. Anemia was identified as the primary reason for deferral (41%) in a research that was conducted using a structured questionnaire in 19 Pakistani blood banks that were licensed to accept donations [20]. Anemia was also shown by Valerian et al. to be a prevalent reason for brief deferrals, albeit the prevalence was relatively lower (21.1%).

To evaluate the deferral pattern based on the peripheral count, a fascinating research was carried out in South Pakistan. Although polycythemia rates were greater (3.3%) than they were in our study (0.5%), anemia was still the main reason. In contrast, our study's thrombocytopenia rates (3.5% vs. 1.0%) were greater.[17] Although it was first on the list of illnesses, hepatitis C infection was second among the common reasons for a donor denial (16.4%). Following this came hepatitis B virus infection (9.1%). Pakistan has a high prevalence of hepatitis B and C. Numerous investigations revealed that blood donors were more likely to get these illnesses.[21,22]

According to the proposed 12.5 g/dl cut-off for blood donation deferral, all donors with hemoglobin levels below this threshold will be rejected, regardless of their demographic characteristics [23]. The relationship between demographics and low hemoglobin in blood donor deferrals was investigated in depth in the United States. It was shown that African Americans, older

age in men, and female gender were all strongly linked variables [24].

CONCLUSION

Selecting healthy blood and reducing donor damage will be made possible by careful pre-donation screening, including a physical examination and extensive pre-donation interview. Our system's somewhat higher blood donor deferral rate is a result of paying close attention to the selection processes and stringent donor sector requirements. Deferrals for past injection history and poor hemoglobin cause replacement donor deferral rates to be greater. According to the reference range found for the specific demographic, we advise establishing new hemoglobin standards for donor deferral. Most other deferrals are done in accordance with the reference range found for the particular demographic. Proper health care education and awareness might have prevented the majority of the other deferrals.

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