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ORIGINAL ARTICLE

DONOR DEFERRAL PATTERN AMONG BLOOD DONORS IN BLOOD BANK OF A MEDICAL COLLEGE HOSPITAL OF CHHATTISGARH

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ABSTRACT: A 3 Years retrospective study conducted on "Donor Deferral Pattern among Blood Donors in Blood Bank'' of a Medical College Hospital of Chhattisgarh. This study shows the major possible causes of deferrals for donation of blood in northern Chhattisgarh. Donor's detail information on the donor deferral including the cause of deferral was recorded in deferral register. Donors deferred were analyzed and computed for study on the basic of medical examination. In the study done from August 2012 to July 2015 a total of 18773 donors were registered and the screened. Out of these 18153 were male and 620 were female. Among the male, 1486 were deferred which makes 8.18% of the total registered. Among female, 339 were deferred which makes 54.67% of the total registered. The maximum numbers of deferrals were due to low Hb (17.97%) the second most important cause for deferral in this region happens to be alcohol/ganja intake (11.61%). The third leading cause is skin puncture or ear piercing (10.57%). This figure is mainly due to professional donors who frequent around the hospital very often. Interestingly forth cause is deferral is medication (7.39%) mostly over the counter drugs. Other major cause for deferrals in descending order are low BP (6.68%), fever and cold (6.30%), hypertension (5.64%), underweight (4.54%), Typhoid (4.05%), menstrual cycle (3.39%) and donated <3 month (2.41%). The least percentage of cause of deferral was due to breast feeding (0.10%). It is because of very low percentage of female donation. Strict screening of donor is compulsory to achieve safe blood equally important is to increase the number of voluntary donations with minimum deferral. To achieve this it is necessary to study and analyze various causes for donor deferral & categorize them under temporary & Permanent, so that temporary deferral can be converted to donations. Proper medical examination and Strict deferral system of the blood donors in blood banks reduces the risk of transfusion transmissible infections.

KEYWORDS: Blood transfusion, Blood Donor, Deferral, NACO, Red Cross.

INTRODUCTION: Blood transfusion as an emergency procedure is one of the most important life saving procedure in today's times with unlimited dramatic element in all its stage. From blood requirement, to donor selection to transfusion, safety of blood is of utmost importance. According to NACO statistic the annual requirement of blood is 10 million units in India against donation of only 7.4 million units by voluntary replacement donation.[1]

A voluntary donor is one who donates without any reward or compulsion whenever a replacement donor is one who donate against his/her own need for blood of their patient. However these potential donor/willing donors are not able to donate for several reasons as they fall under deferred category during recovery procedure. It leads to an unpleasant situation both for the donor & staff involved in donation procedure these are a number of reason for deferral which may be due to temporary cause or permanent cause deferral leads to demotivation of 1st time donors.

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Individuals disqualified from donating blood are known as "deferred" donors. The rate and reasons at deferral differ from region to region and center to center. A voluntary donor is one who donates without any rewards or compulsion whereas a replacement donor is one who donates blood upon request of specific patient. Donor selection policies are an important element in safe guarding the Indian blood supply blood donors are deferred form donating blood for several reasons either permanently or temporally.

Blood donor suitability criteria are based on science, informed medical opinion and regulatory rules.[2] the timely availability of save blood and blood products is essential in all health facilities in which transfusion is performed but in many developing and transitional countries there is a widespread shortfall between blood requirements and blood supplies.[3] Blood deferral is an uncomfortable and sad experience for the blood donor as well as the blood bank where screening is done. Moreover a deferral of a prospective donor often leaves them with negative feeling about themselves as well as the blood donation process.[4]

However strict screening of donor is compulsory to achieve safe blood equally important is to increase the number of voluntary donations with minimum deferral. To achieve this it is necessary to study and analyze various causes for donor deferral & categorize them under temporary & Permanent, so that temporary deferral can be converted to donations. This study "Donor Deferral Pattern among Blood Donors in Blood Bank of A Medical College Hospital of Chhattisgarh." is done at zonal blood transfusion center of Chhattisgarh state in the blood bank CIMS under the department of Pathology. This study shows the major possible causes of deferrals for donation of blood in northern Chhattisgarh.

METHODS: This is a retrospective study conducted at blood bank of Chhattisgarh Institute of medical science Bilaspur C.G. for the period of 3year i.e. August 2012 to July 2015. Deferment records of the total 18773 voluntary blood donors of said period were analyzed & examined on the basis of pre-screening criteria involving questionnaire having personal detail, medical details, Physical examination, Hb estimation, blood pressure and temperature. Criteria for blood donation is laid down by Director General Health Services and Drugs Controller of India were followed before phlebotomy for blood donation.(5) Detail information on the donor deferral including the cause of deferral was recorded in deferral register. Donors deferred were analyzed and computed for study on the basic of medical examination, low hemoglobin, low weight, high or low blood pressure, any acute or chronic medical problems, duration of previous blood donation, any surgery within a year, tattoo marks, vaccination, immunization, history of medication and multiple punchers or scar on forearm.

OBSERVATION:

Deferral Cause (n= 1825)	**Percentage of Deferral**	**<18 year**		**18-20 year**		**21-30 year**		**31-40 year**		**41-50 year**		**51-55 year**		**>55 year**	
Male / Female		**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**
Low Hb%	17.97%	00	00	17	04	97	56	68	70	07	02	07	00	00	00
Alcoholism/Ganja in recent	11.61%	00	00	26	00	98	00	74	00	12	00	02	00	00	00
Skin puncture/Ear piercing	10.57%	00	00	19	04	87	00	65	00	18	00	00	00	00	00

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Medication	7.39%	00	00	07	02	42	15	41	07	13	01	07	00	00	00
Low B.P.	6.68%	00	00	02	01	18	09	50	14	19	02	06	01	00	00
Fever cold	6.30%	00	00	12	02	46	11	35	02	04	00	03	00	00	00
Hypertension	5.64%	00	00	00	00	12	02	39	10	26	07	05	02	00	00
Under weight	4.54%	00	00	09	05	37	05	09	10	04	02	01	01	00	00
Typhoid	4.05%	00	00	10	01	31	00	27	02	03	00	00	00	00	00
Menstrual cycle	3.39%	00	00	00	17	00	43	00	02	00	00	00	00	00	00
Donated<3month	2.41%	00	00	05	00	25	02	08	00	04	00	00	00	00	00
Tattoo marks	2.41%	00	00	08	01	26	02	06	00	01	00	00	00	00	00
Tetanus	2.41%	00	00	08	01	21	00	11	01	02	00	00	00	00	00
Skin lesions	2.24%	00	00	02	00	23	03	10	00	03	00	00	00	00	00
Above/under age	2.13%	34	03	00	00	00	00	00	00	00	00	00	00	02	00
Allergy	1.53%	00	00	00	00	10	01	13	02	01	00	01	00	00	00
VDRL	1.09%	00	00	02	00	14	00	04	00	00	00	00	00	00	00
Surgery	1.04%	00	00	00	00	07	01	09	00	02	00	00	00	00	00
Heart disease	0.98%	00	00	00	00	05	00	04	00	06	01	02	00	00	00
Fasting	0.76%	00	00	03	01	07	02	01	00	00	00	00	00	00	00
HBsAg	0.60%	00	00	01	00	06	00	03	01	00	00	00	00	00	00
Chronic smoker	0.60%	00	00	01	00	02	00	04	00	03	00	01	00	00	00
Rabies	0.54%	00	00	00	00	06	00	03	00	01	00	00	00	00	00
Asthmatic	0.49%	00	00	00	00	03	00	03	01	02	00	00	00	00	00
Polio	0.49%	00	00	01	00	03	00	05	00	00	00	00	00	00	00
HCV	0.32%	00	00	00	00	01	01	03	00	01	00	00	00	00	00
Tuberculosis	0.27%	00	00	01	00	02	00	02	00	00	00	00	00	00	00
Mental	0.27%	00	00	01	00	01	00	02	00	01	00	00	00	00	00
Malaria	0.21%	00	00	01	00	02	00	01	00	00	00	00	00	00	00
Diabetes	0.21%	00	00	00	00	00	00	02	01	01	00	00	00	00	00
Chicken pox	0.21%	00	00	00	00	01	00	02	00	00	00	01	00	00	00
Jaundice	0.21%	00	00	01	00	01	00	02	00	00	00	00	00	00	00
Thalassemia trait	0.16%	00	00	01	00	02	00	00	00	00	00	00	00	00	00
Breast Feeding	0.10%	00	00	00	01	00	01	00	00	00	00	00	00	00	00

Table 1: Comparison of age Groups with various Deferral causes among voluntary Blood donors

	No. of Registered	No. of Deferred	% of Deferral of Total Registration
Male	18153	1486	8.18%
Female	620	339	54.67%
Total	18773	1825	9.72%

Table 2: Demographic Pattern of Donors

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	Male	Female	Total	% Temporary Deferral	% of Total Deferral
Low Hb%	196	132	328	23.27%	17.97%
Skin puncture/Ear piercing	189	04	193	13.69%	10.57%
Medication	110	25	135	9.58%	7.39%
Fever cold	100	15	115	8.16%	6.30%
Low B.P.	95	27	122	8.65%	6.68%
Typhoid	71	03	74	5.25%	4.05%
Under weight	60	23	83	5.89%	4.54%
Donated<3month	42	02	44	3.12%	2.41%
Tetanus	42	02	44	3.12%	2.41%
Tattoo marks	41	03	44	3.12%	2.41%
Skin lesions	38	03	41	2.90%	2.24%
Above/under age	36	03	39	2.76%	2.13%
Allergy	25	03	28	1.98%	1.53%
Surgery	18	01	19	1.34%	1.04%
Fasting	11	03	14	0.99%	0.76%
Rabies	10	00	10	0.70%	0.54%
Malaria	04	00	04	0.28%	0.21%
Chicken pox	04	00	04	0.28%	0.21%
Jaundice	04	00	04	0.28%	0.21%
Breast Feeding	00	02	02	0.14%	0.10%
Menstrual cycle	00	62	62	4.40%	3.39%
	1096	**313**	**1409**	**100%**	**77.09%**

Table 3: Causes of Temporary Deferrals and There Proportions

	Male	Female	Total	% Temporary Deferral	% of Total Deferral
Alcoholism/Ganja in recent	212	00	212	50.96%	11.61%
Hypertension	82	21	103	24.75%	5.64%
VDRL	20	00	20	4.80%	1.09%
Heart deices	17	01	18	4.32%	0.98%
Chronic smoker	11	00	11	2.64%	0.60%
HBsAg	10	01	11	2.64%	0.60%
Polio	09	00	09	2.16%	0.49%
Asthmatic	08	01	09	2.16%	0.49%
HCV	05	01	06	1.44%	0.32%

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Tuberculosis	05	00	05	1.20%	0.27%
Mantel	05	00	05	1.20%	0.27%
Diabetes	03	01	04	0.96%	0.21%
Thalassemia treat	03	00	03	0.72%	0.16%
Total	**390**	**26**	**416**	**100%**	**22.89%**

Table 4: Causes of Permanent Deferrals and There Proportions

	No. Deferred	% of Total Deferred
VDRL	20	1.09%
HbsAg	11	0.60%
HCV	06	0.32%
Malaria	04	0.21%
Total	**41**	**2.22%**

Table 5: Distribution Based on Transfusion Transmissible Infection among Deferred Donors

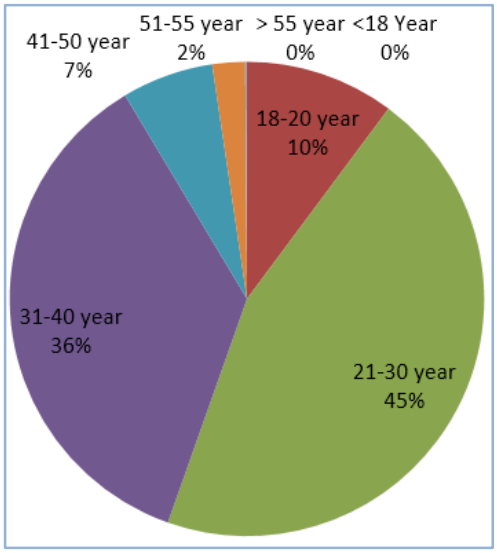

Table 6: Distribution of Age among Deferral Voluntary Donors

RESULT: In the study done form August 2012 to July 2015 a total of 18773 donors were registered and the screened. Out of these 18153 were male and 620 were female. Among the male, 1486 were deferred which makes 8.18% of the total registered. Among female, 339 were deferred which makes 54.67% of the total registered (Table no.1)

Table no. 2 shows maximum percentage of deferral in the age group 21-30 years, which is 43.28%/790, after that in decreasing order 21-30(43.28%) >31-40(34.46%) >18-20(9.75%) >41-50(8.16%) as shown is the age group of deferrals. Deferral in under age and over age groups is minimal.

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The maximum numbers of deferrals were due to low Hb (17.97%) the second most important cause for deferral in this region happens to be alcohol / ganja intake (11.61%). The third leading cause is skin puncture or ear piercing (10.57%). This figure is mainly due to professional donors who frequent around the hospital very often. Interestingly forth cause is deferral is medication (7.39%) mostly over the counter drugs. Other major cause for deferrals in descending order are low BP (6.68%), fever and cold (6.30%), hypertension (5.64%), underweight (4.54%), Typhoid (4.05%), menstrual cycle (3.39%) and donated <3 month (2.41%). The least percentage of cause of deferral was due to breast feeding (0.10%). It is because of very low percentage of female donation.

After the comparison of the various cause of deferral, we divided them into temporary and permanent. As discussed earlier cause of temporary deferral is important as we want to convert them into donation. The maximum number of deferral were again due to low Hb (23.27%)/328, second most important cause appears to be skin puncture and ear piercing (13.69%)/193. The third leading cause is medication (9.58%)/135, fourth and fifth cause are low BP (8.65%) and fever cold (8.16%)/115.

As it can be seen (Table-3 & 4) that permanent donor's deferral is 22.89% and temporary donors deferral is 77.09%. It can be also seen that permanent deferral is very less in females (0.062% vs. 22.21%). The commonest permanent deferral cause was alcoholism/Ganja in recent (50.96%). Three donors were deferred due to Thalassemia trait (0.72%) of the permanent deferred donor.

DISCUSSION: The International Federation of Red Cross and Red Crescent Societies the council of Europe and a number of other International and National organizations have defined voluntary donation as a founding and guiding principle. They recommend that all Blood donations should be voluntary and non-remunerated and that no coercion should be brought to bear upon the donor to donate.[6] The total donor deferral was categorized into temporary and permanent deferrals for optimizing donor recruitment and retention in the long run. Deferral rate among voluntary blood donors was ranged from 5.6-35.6% across the world in previous studies.[7] Total of 18773 donors who came forward for Blood donation, of which about 1825 cases 9.72% were deferred due to various reasons. Several studies have reported a similar deferral rate (5.20%) by Unnikrishnan et al.[8] (6%) by Sunder et al.[9] and (5.6%) by Rabeya et al.[10] Some studies have even had a higher deferral rate of (16.4%) Chaudhary et al.[11] (35.6%) Charles et al.[12]

The major temporary deferral cause was low Hb% (23.27%) in our study which was similar with other previous studies. High prevalence of anemia could be due to poor nutritional status and ill health, it is due to most of the population in this region are used to eat rice and tomato chatni only. This is in accordance with the prevalence rate of anemia (2.5%) reported by Elhence et al. in their study, where also males constituted majority of donor population (Male-96%, Female-4%).[13] The prevalence of anemia in male donors was found to be 17.88%, whereas 42.17% of the female donors were anemic. Many studies showed that female donor population was very low similar to our study and the reason may be due to fear, lack of awareness among females. Information about how to increase the hemoglobin levels should be provided to donors.

Second most common temporary deferral cause was ear piercing/skin puncture. Ear piercing though a common phenomenon, it is a new fashion trend amongst youngsters. To rule out any chance of diseases, it's categorized as one of the temporary causes. Another fad with youngsters is to make hesitation cuts and marks over forearm, purely on impulse. This is usually seen with paid donors.

Lower age group donors were rejected mainly because of low Hb and underweight and higher age group were rejected mainly due to under medication and high pressure. People in the community should informed regarding some of common casus of temporary deferral like abstaining from smoking and alcohol, age limit breast feeding, menstruation, tetanus, tattoo marks that cannot be consumed prior to donation etc. may help prescreen them self. The major problem faced is that, most of the deferred donors are less likely to return in future for donation thinking they have been deferred for life time. Therefore all deferred donors must inform about that the cause and period deferral and proper counseling to help them overcome the problem before the next visit.

CONCLUSION: Proper medical examination and Strict deferral system of the blood donors in blood banks reduces the risk of transfusion transmissible infections.

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