



DEMAND AND SUPPLY DEFICITS IN A DISTRICT HOSPITAL BLOOD BANK: PROBLEMS AND CHALLENGES: 4 YEAR RETROSPECTIVE STUDY

Pathology

Purnima Bharti Assistant Professor Pathology SBMCH.

Shaoor Nazish* Tutor Pathology, SBMCH. *Corresponding Author

Binod Kumar Associate Professor Sbmch, Hazaribag.

ABSTRACT

Blood donation is a major concern in a society as the donated blood is life saving for patients who need it. Globally, approximately 80million units of blood are donated each year. One of the biggest challenges to blood safety is assessing safe and adequate quantities of blood and blood products.

Aim: This study was conducted to determine and compare the deficits in demand and supply of various blood groups from years 2017-2020

Settings and Design: It was a retrospective study carried out at Blood Bank. **Materials and Methods:** A study was conducted at Blood bank, District hospital now SBMCH Hazaribag, Jharkhand, over a period of 4 years from January 1, 2017, to December 30, 2020. Deficits of individual blood groups were calculated and compared. **Results:** There is an absolute minor deficit of A positive and AB negative blood group in all the three years under study

KEYWORDS

INTRODUCTION

Voluntary blood donors are the cornerstone of a safe and sufficient supply of blood products. The safest blood donors are voluntary, non-remunerated blood donors from low-risk populations¹. In India, the collection of most of the blood from voluntary, nonremunerated blood donors from low-risk population happens in voluntary blood donation camps (VBDC)^{2,3}. Still, most of the blood banks frequently suffer from scarcity of blood. Unlike countries where structured and robust vigilance and surveillance systems exist as part of national entities, in India no such system is in place to assess the adherence to the laid out guidelines for blood collection⁴. And even though it seems there is surplus of blood supply in a blood bank, the real scenario is very different as some particular blood groups are in excess, while some fall short. Objectives This study was conducted to determine the lag of demand and supply of various blood groups in the blood bank of Government District hospital now SBMCH Hazaribag Jharkhand.

Table1: Blood issued in 4 different years

	2017	2018	2019	2020
JAN	444	603	833	966
FEB	419	632	852	994
MARCH	491	648	879	906
APRIL	440	699	927	441
MAY	548	1208	985	660
JUNE	504	802	1042	944

JULY	524	808	1091	577
AUG	615	844	1087	711
SEPT	660	910	1149	812
OCT	613	938	1150	893
NOV	634	826	924	704
DEC	624	790	905	729
TOTAL	6516	9708	11824	9337

Table2: Replacement collection and blood issued in 2020

2020	REPLACEMENT COLLECTION	ISSUE
JANUARY	1013	966
FEB	986	994
MARCH	893	906
APRIL	450	441
MAY	663	660
JUNE	896	944
JULY	575	577
AUG	720	711
SEPT	819	812
OCT	927	893
NOV	709	704
DEC	733	729
TOTAL	9384	9337

Table 3: Demand and supply of blood in 3 years

2017			2018		2019		2020	
	DEMAND	SUPPLY	DEMAND	SUPPLY	DEMAND	SUPPLY	DEMAND	SUPPLY
A+	1428 (22.35)	1257 (19.29)	2125 (22.24%)	1918 (19.7%)	2624 (22.5%)	2328 (19.66%)	2044 (22.13%)	1816 (19.44%)
A-	36(0.56)	41 (0.62%)	73 (0.76%)	64 (0.66%)	68 (0.58%)	71 (0.60%)	49 (0.53%)	53 (0.56%)
B+	1856 (29.04)	2054 (31.5%)	2754 (28.82%)	3025 (31.15%)	3465 (29.78%)	3759 (31.79)	2784 (30.14%)	2975 (31.86)
B-	43 (0.67)	46 (0.7%)	98 (1.02%)	97 (0.99%)	108 (0.93%)	104 (0.88%)	79 (0.85)	78 (0.83%)
AB+	264 (4.13)	299 (4.58)	472 (4.94%)	484 (4.98%)	502 (4.31%)	535 (4.52)	421 (4.55%)	442 (4.73%)
AB-	16 (0.25%)	13 (0.19%)	31 (0.32%)	27 (0.28%)	38 (0.32%)	31 (0.26%)	24 (0.26%)	18 (0.19%)
O+	2695 (42.18%)	2746 (42.14%)	3916 (40.98%)	3996 (41.16%)	4726 (40.61%)	4877 (41.24%)	3753 (40.63%)	3869 (41.43%)
O-	51 (0.79%)	60 (0.82)	85 (0.88%)	97 (0.99%)	104 (0.89%)	119 (1.00%)	81 (0.87%)	86 (0.92%)
TOTAL	6389	6516	9554	9708	11635	11824	9235	9337

Results and analysis

Total collection from blood donation camps and replacement collection from Jan 2017 to dec 2020 is 37385. While the demand for all blood groups in these 4 years was 36813. There is an overall increase in the demand of blood in these three years followed by decrease in 2020 due to Covid 19 Pandemic, and the rising trends have been met with organizing more blood donation camps. Though it seems that a surplus of overall supply is there, some blood groups always fall short, while some are wasted due to excess. Overall collection excess is present in all the four years, on an average by 2%. In considering the less prevalent blood groups, A positive blood group has always been short in all the four years, by 3.06% in 2017, 2.54% in 2018, by 2.84% in 2019 and 2.69% in 2020. There is also marginal deficit of B negative and AB negative blood group.

DISCUSSION

The motive of the study is to know demand and supplies of the four blood groups so that no patient dies due to lack of a particular blood group. Furthermore, knowledge of the lacking groups helps in facilitating collection from those blood groups especially from blood camps. A study on the knowledge, attitude and the practice of the donors may prove to be useful in the successful implementation of the blood donation programme². This study was specifically conducted on all blood collections in the blood bank including the replacement donors of the admitted patients. In our area, there is a relative deficit of Blood group "A" supply compared to the demand in all the four years. Similar finding has been obtained in previous study conducted here on voluntary blood donors. This may be attributed to the point that there are more A positive patients requiring blood donation, which is likely a chance effect. But the deficit amount can be managed effectively by encouraging healthy donors of A positive blood group to donate blood more frequently. The same principle can also be applied for rarer subgroups. Various other factors like shelf life of stored blood, rejection during screening process and replacement donation also affect the supply of the blood of a particular subgroup.

CONCLUSION

A beforehand knowledge of the deficient blood groups helps to prioritize the patients before giving blood transfusion. There is an absolute minor deficit of A positive, B negative and AB negative blood group in the blood bank, and this should be managed by luring more positive healthy people to donate blood at voluntary blood donation camps.

REFERENCES

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