AUTOLOGOUS TRANSFUSION AFMC EXPERIENCE (1992-1996)

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ABSTRACT

In this era of Acquired Immune Deficiency Syndrome (AIDS) and other infectious diseases - complications of homologous blood transfusion, autologous transfusion is the safest possible blood for transfusion. The present study was conducted from January 1992 to August 1996 to analyse the programme of autologous transfusion. A total of 471 pre-operative autologous collections were undertaken out of a total of 27,542 blood collections during this period. The present study shows a significant increase in autologous collections from 0.44 per cent in 1992 to 3.94 per cent till August 1996. 37.1 per cent autologous donors were from the urosurgery ward. Of the total 471 autologous blood units collected, 171 were transfused to the autologous donors (27.5%).

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KEYWORDS : Autologous transfusion; Pre-operative; Safe blood.

Introduction

Autologous transfusion was followed in the form of blood salvage from second decade of this century, but it came into limelight in the early 1980s because of increasing awareness and concern over the risk of transfusion transmitted diseases. The intense media coverage on AIDS in recent years has given autologous transfusion a dramatic lift. In fact, in 1990, approximately 6 per cent of all blood collected by American Association of Blood Banks (AABB) member institutions was for autologous use [1]. Autologous transfusion is the process of collection, storage and reinfusion of patient's own blood. Pre-operative autologous donation (Predeposit) is the most widely available form of autologous transfusion [2,3].

The present study was undertaken to put forward and analyse the programme of pre-operative autologous transfusion undertaken in the Armed Forces Medical College, Pune.

Material and Methods

The study was conducted for the period from January 1992 to August 1996 in the Dept of Blood Transfusion, Armed Forces Medical College, Pune. Blood donors for autologous transfusion were screened as per the guidelines of Directorate General of Health Services [4]. Blood was taken atleast 72 hours prior to the date of surgery. The name, age, sex and diagnosis of patient was recorded and if there was no risk factor he was accepted for autologous transfusion. The blood was marked clearly as 'Autologous Blood' and stored separately at 4-6° C.

Results

A total of 471 pre-operative autologous collections were undertaken out of a total of 27,542 blood collections from January 1992 till August 1996. The year wise total number and percentages of autologous collections are as shown in Table 1. Sexwise distribution shows that 73 per cent were males and 27 per cent females in 1996. Table 2 shows the agewise distribution of autologous collection. The maximum donations were in the age group of 41-50 years (35.9%). The oldest donor was 80 years and the youngest donor was 11 years. The maximum donors were from urosurgery ward (37.15%) and the wardwise distribution is shown in Table 3. Of the 471 autologous blood units collected, 171 were transfused to the autologous donors.

Five units of blood were collected from one donor, 2 units of blood were collected from 3 donor patients in 1996 and from one donor patient from 1992 to 1995. Blood group B Rh Positive was the commonest group amongst autologous blood donors (150/471) (Table 4). HIV, HbsAg and VDRL status of autologous donors is shown in Table 5. Three donors were positive for HIV antibody in 1996 (3/175). No adverse reactions were noted during the transfusion of autologous blood.

TABLE 1

Yearwise distribution of total blood transfusion and autologous transfusion

Year	Total blood transfusion	No. of autologous transfusion (%)	Male	Female
1992	6087	27 (0.44)	25	2
1993	5762	36 (0.62)	17	19
1994	5592	94 (1.69)	52	42
1995	5669	139 (2.49)	71	68
1996 (upto Aug 96)	4432	175 (3.94)	128	47

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TABLE 2

Age wise distribution of autologous transfusion

Year	Age 11-20	%	Age 21-30	%	Age 31-40	%	Age 41-50	%	Age 51-60	%	Age 61-70	%	Age 71-80	%
1992	4	14.8	7	25.9	9	33.3	4	14.8	2	7.4	1	3.7	—	—
1993	4	11.1	10	27.8	10	27.8	7	19.4	4	11.1	1	2.7	—	—
1994	8	8.5	22	23.4	33	35.1	22	23.4	8	8.5	1	1.0	—	—
1995	6	4.3	30	21.5	36	25.8	50	35.9	9	6.4	6	4.3	2	1.4
1996 (upto Aug 96)	18	10.2	53	30.2	45	25.7	39	22.2	11	6.2	6	3.4	3	1.7

TABLE 3

Speciality wise distribution of autologous transfusion

Speciality	Total number of autologous Transfusion	%
General surgery	98	20.8
Urosurgery	175	37.1
Obstetrics and Gynaecology	114	24.2
Orthopaedics	48	10.2
Dental surgery	36	7.6

TABLE 4

Blood groupwise distribution of autologous blood donor

Year	A		B		O		AB		Total
	+ve	-ve	+ve	-ve	+ve	-ve	+ve	-ve	
1992	7	1	7	—	5	6	—	1	27
1993	6	1	13	3	8	1	2	2	36
1994	18	2	30	8	30	2	3	1	94
1995	30	5	43	4	37	4	14	2	139
1996 (up to Aug 96)	29	2	57	8	60	2	17	—	175
Total	90	11	150	23	140	15	36	6	471

TABLE 5

HIV, HBsAg and VDRL status of autologous donors (n=471)

Year	HIV	HBsAg	VDRL
1992	—	1	2
1993	—	1	—
1994	—	3	2
1995	3	5	1
1996 (up to Aug 96)	3	4	2

Discussion

Pre-operative autologous donation which was always in the shadow of the more traditional homologous blood transfusion, has clearly moved to the centre stage. It was first described by Grant in 1921 and gradually increased in popularity during the 1970s [5].

Since the recognition of AIDS epidemic in 1981, the increase in autologous collection has been phenomenal [6].

The present study shows a marked increase in autologous collection from 0.44 per cent in 1992 to 3.94 per cent till August 1996. This can be attributed to increasing awareness amongst the medical/paramedical personnel to use autologous transfusion as a safer alternative to homologous blood and further efforts are being taken to improve it. This trend is similar to programmes elsewhere where a 2 to 10 fold increase has been noted. A male preponderance is seen in autologous transfusion which is because of more males undergoing surgical procedures as compared to females. In the present study, the maximum number of autologous transfusion, 31.1 per cent were by the urosurgery patient. This is possible due to the good general condition of the patients and awareness of the surgeons regarding safety of the procedure.

Of the total 471 pre-operative autologous blood units collected, 171 were transfused to the autologous donors (27.5%). Wallace et al reported that 54 per cent of units were transfused into the patients who preoperatively deposited them [3].

Autologous transfusion is the safest possible blood for transfusion, in this era of AIDS and other potential infectious disease complications of homologous blood transfusion [7]. With its numerous advantages, like elimination of risk of disease transmission, alloimmunisation and virtually no risk of haemolytic, allergic and febrile reactions [8], autologous transfusion will become more common and popular. The onus of disseminating information about safety and advantages of autologous transfusion lies on medical community. There is still large scope for further improvement. Through discussions and consultations the programme can be made more popular and increase in its usage. As the autologous blood units are also tested for HIV antibody, HbsAg and Syphilis, this gives an additional information regarding HIV and HbsAg status of the

patients so that the clinician can take adequate precautions while handling the patients.

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