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Activities of the Korean Red Cross Blood Programme (1990-1993)

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Introduction

In Korea, the blood programme was started by the Korean Red Cross in 1958. The Korean government has entrusted the Korean Red Cross with the whole national blood programme since July, 1981. Presently, there are 15 Red Cross Blood Centers and 123 college and general hospital blood banks in Korea.

This is a summary of the activities of the Korean Red Cross with the blood programme in Korea during the recent 4 years.

Donor Distribution by Province

The annual numbers of blood collections by 15 regional Red Cross Blood Centers are shown in table 1. The total number of annual blood donation has about 1.1 million in 1990 to about 1.5 million in 1993. Blood Centers in Seoul, capital of Korea, occupy about 40% of the collection by Korean Red Cross Blood Centers. The numbers in Table 1 say that the blood collection in 1993 shows a 40% increase over 1990.

Annual Number of Blood Collections

The total annual collection of blood by Red Cross Blood Centers and Hospitals are shown in Table 2. The collection by Red Cross is about 97.5%, otherwise hospitals blood centers are 2.5% in 1993.

Age Distribution of Blood Donors

The young in their teenage and twenties consist of 90% blood donors in Korea. The 22.7% of

Table 1. Donor Distribution by Province (unit)

Area/Yr	1990	1991	1992	1993
No. Donor	1,100,541	1,161,314	1,305,766	1,540,016
Seoul	447,194	439,420	497,719	613,968
Pusan	110,306	100,238	101,542	117,349
Incheon	49,657	56,858	66,493	86,169
Kyunggi	44,004	49,237	56,808	71,101
Kangwon	60,935	67,157	69,010	76,863
Choongbuk	34,410	41,619	49,909	58,904
Daejeon	76,164	75,414	89,786	96,863
Jeonbuk	44,664	50,545	50,971	62,776
Kwanju	57,341	77,220	79,410	90,159
Daegu	126,070	131,052	152,908	155,670
Kyungnam	41,838	47,773	56,055	63,518
Ulsan	—	13,841	23,785	34,696
Jeju	7,958	10,940	11,370	11,980

Table 2. Annul Number of Blood Collections (unit)

Year	Number	Korean Red Cross		Hospital B/C	
		No.	%	No.	%
1990	1,154,241	1,100,541	95.3	53,700	4.7
1991	1,215,199	1,161,314	95.6	53,885	4.4
1992	1,356,796	1,305,766	96.2	51,030	3.8
1993	1,580,068	1,540,016	97.5	40,052	2.5

Table 3. Age Distribution of Blood Donors (%)

Year/Age	16-19	20-29	30-39	40<	Total
1990	28.0	59.3	10.0	2.7	100
1991	27.3	61.2	8.8	2.7	100
1992	23.3	65.6	7.9	3.2	100
1993	22.7	67.4	7.1	2.8	100

Table 4. Sex Distribution of Blood Donors

Year	Donor No.	Male		Female	
		No.	%	No.	%
1990	1,154,241	1,046,737	90.7	107,504	9.3
1991	1,215,199	1,091,285	89.8	123,914	10.2
1992	1,356,796	1,234,488	91.0	122,308	9.0
1993	1,580,068	1,448,385	91.7	131,683	8.3

donors are teenagers and 67.4% of donors are in their twenties in 1993.

Sex Distribution of Blood Donors

The donor distribution by sex is shown in Table 4.

The male donors increased very much each year, but female donors did not. The 91.7% of blood donors in Korea are male, and 8.3% of blood donors are female in 1993. Because most of female are afraid of blood donation, they are less than male donors.

Status of Blood Component Transfusion

Not only the total number of blood transfusion has been increasing in the country, but also the proportion of the blood component therapy also increasing markedly since its introduction in the mid-80's. Blood components transfusions accounted for 95.0% of all transfusion in 1993.

54.2% of component the transfusion was PRC, 24.5% was plasma, and 20.7% was platelet last year. We can see the increase of component transfusion, otherwise markedly the decrease of whole blood transfusion.

Distribution of ABO, Rh Blood Group

Blood types of the donors were determined using anti-A and anti-B antisera supplied by the Green Cross Company Limited, Korea. Among donors in Korea last year, A, B, O and AB groups accounted for 34.3%, 27.2%, 27.1% and 11.4% respectively. Rh(D) negative donors were only 0.3% of the whole

Table 5. Distribution by supply

Year	Donors	Whole Blood (%)	Components (%)
1990	1,154,241	19.5	80.5
1991	1,215,199	9.2	90.8
1992	1,356,796	6.7	93.3
1993	1,580,068	5.0	95.0

Table 6. Distribution by blood components

Year	PRC (%)	Leucocyte (%)	Platelet (%)	Plasma (%)	Cryo (%)
1990	57.6	0.4	17.8	23.3	1.0
1991	61.0	0.3	15.1	23.8	0.4
1992	57.7	0.2	17.5	24.3	0.3
1993	54.2	0.1	20.7	24.5	0.3

Table 7. Distribution of ABO, Rh Blood Group (%)

Year	Total	A	B	O	AB	Rho (D) Negative
1990	1,154,241	34.2	27.0	27.4	11.4	0.3
1991	1,215,199	34.2	27.1	27.4	11.4	0.3
1992	1,356,796	34.3	27.1	27.3	11.3	0.3
1993	1,580,068	34.3	27.2	27.1	11.4	0.3

Table 8. Sero-positive Rate of HBsAg and Syphilis Test in Blood Donors (%)

Year	Tested No.	HBsAg		VDRL	
		No.	%	No.	%
1990	1,100,541	64,774	5.89	1,277	0.12
1991	1,161,314	64,137	5.52	1,433	0.12
1992	1,305,766	67,197	5.15	1,640	0.13
1993	1,540,016	69,287	4.50	2,010	0.13

Table 9. Sero-Positive Rate of Anti-HIV in Blood Donors (%)

Year	Tested No.	EIA Initially Reac.		EIA Repeatedly Reac.		Confirmed Positive (W/B)	
		No.	%	No.	%	No.	%
1990	458,989	870	0.19	308	0.07	1	0.0002
1991	1,161,314	2,986	0.26	1,687	0.15	3	0.0003
1992	1,305,766	3,559	0.27	1,752	0.13	18	0.0014
1993	1,540,016	2,739	0.18	1,171	0.76	14	0.0009

* HIV has been screened by a EIA since July, 1987

Table 10. The Sero-Positive Rate of Anti-HCV of Blood Donors (%)

Year	Tested Number	Anti-HCV (+)	
		No.	%
1990	—	—	—
1991	798,086	4,578	0.57
1992	1,305,766	6,855	0.52
1993	1,540,016	7,421	0.48

* HCV has been screened by a EIA since May, 1991

Table 11. Price of Blood Products (\$)

Item	price of blood unit (\$)	
	320 ml	400 ml
Whole Blood	21	26
Packed Red Cell	21	26
Washed Red Cell	30	40
Leukocyte Poor Red Cell	30	40
Leukocyte Concentrate	30	40
Platelet Concentrate	30	40
Fresh Frozen Plasma	21	26
Cryoprecipitate	11	14

blood donors in 1993.

Sero-Positive Rate of HBsAg and Syphilis Test in Blood Donors

The sero-positive rates of HBsAg and syphilis test to blood donors are shown in Table 8. HBsAg was determined with Behring Enzignost-HBsAg micro-EIA Test. The sero-positive rate of HBsAg was 4.50% and syphilis antibody was determined with VDRL method, syphilis reactive was 0.13% in 1993.

Sero-Positive Rate of Anti-HIV in Blood Donors

In Korea, screening of the anti-HIV for blood donor was begun July 1987. The anti-HIV screening was done by EIA using the domestic reagent. In 1993, 2,739 donors reacted at the EIA Initial Test. 1,171 reacted at EIA Repeated Test, and 14 was confirmed HIV positive. When the repeated EIA reactive case in blood center send to the NIH for confirmation with W/B. HIV reactive case is controlled in NIH.

The Sero-Positive Rate of Anti-HCV of Blood Donors

In Korea, HCV has been screened by EIA since May 1991. The sero-positive rate of anti-HCV of blood donors in 1993 was 0.48%.

Donor Criteria

Donor criteria is varous by donation type. The interval between whole blood donations is two month and that between component donations is 72 hours. 400 ml whole blood donors should be older than 16 years and be younger than 66 years, and other types of donors can donate their blood one year early.

Table 12. Price of Blood Products Collected by Apheresis

Item	price of blood unit (\$)
Plasmapheresis	153
Thrombocytophoresis	157
Leukapheresis	236
Combined Apheresis	236

Screening Test for Blood Donor

1. ABO and Rh blood group
2. Syphilis serological test
3. HBs antigen test
4. HCV antibody test
5. HIV antibody test
6. Biochemical test
 - 1) Serum transaminase (ALT)
 - 2) Total protein
 - 3) Albumin
 - 4) Albumin-globulin ratio
 - 5) Urea nitrogen
 - 6) Cholesterol

Screening Tests for Apheresis Donors

There are additional tests for apheresis Donors to that of whole blood tests. The additional tests can be red cell count, white cell count, platelet count, hemoglobin level, hematocrit value, mean corpuscular volume and mean corpuscular hemoglobin concentrations.

1. Including the screening list for blood donor
2. Red cell count
3. White cell count
4. Platelet count
5. Hemoglobin level
6. Hematocrit value
7. Mean corpuscular volume
8. Mean corpuscular hemoglobin concentrations

Price of Blood Products

A 400 ml unit of WB, PRC or FFP is \$26, that of Cryoprecipitate is \$14, and others are \$40.

Price of Blood Products Collected by Apheresis

A unit of plasma collected by apheresis is \$153. Thrombocyte is \$157, Leukocyte and Combined Product are \$236.

Trend of Apheresis Blood Donors

The collection of blood by Apheresis are 2,785 units in 1993, and 3,264 units until 1994. 4. The Korean Red Cross will focus on the recruitment of apheresis donors in 1994. The Society plans to recruit 50,000 apheresis donors in 1994.