

CHAPTER 4

LIVER TRANSPLANTATION

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Contents

1.0 Introduction

1.1 Stock and Flow of Liver Transplantation

1.2 Recipients' Characteristics

- Demographics
- Primary diagnosis

1.3 Transplant Practices

- Type of transplant
- Immunosuppressive therapy

1.4 Transplant Outcomes

- Patient survival
- Causes of death

List of Tables

Table 4.1.1: Stock and Flow of Liver Transplantation, 1993-2005	80
Table 4.1.2: Place of Transplant, 1993-2005	81
Table 4.1.3: Centres for Liver transplantation, 1993-2005	81
Table 4.1.4: Distribution of Centres of Follow-up of Transplant Recipients, 2005	81
Table 4.2.1: Gender distribution, 1993-2005	82
Table 4.2.2: Ethnic group distribution, 1993-2005	83
Table 4.2.3: Age distribution, 1993-2005	84
Table 4.2.4: Primary diagnosis, 1993-2005 (N=80)	85
Table 4.2.5: Indication for Transplantation, 1993-2005 (N=80)	85
Table 4.2.6: Recipient blood group, 1993-2005 (N=80).....	86
Table 4.3.1: Type of transplant, 1993-2005 (N=80)	87
Table 4.3.2: Immunosuppressive drug treatment at transplantation, 1993-2005 (N=80)	87
Table 4.4.1: Patient survival by year of transplant, 1993-2005 (N=80)	88
Table 4.4.2: Patient survival by gender, 1993-2005 (N=80)	89
Table 4.4.3: Patient survival by age group, 1993-2005 (N=80)	90
Table 4.4.4: Causes of death, 1993-2005 (N=80).....	91

List of Figures

Figure 4.1.1: Stock and Flow of Liver Transplantation, 1993-2005.....	80
Figure 4.2.1: Gender distribution, 1993-2005.....	82
Figure 4.2.2: Ethnic group distribution, 1993-2005.....	83
Figure 4.4.1: Patient survival by year of transplant, 1993-2005	88
Figure 4.4.2: Patient survival by gender, 1993-2005	89
Figure 4.4.3: Patient survival by age group, 1993-2005	90

4.0 INTRODUCTION

The year 2005 saw only 5 liver transplants being carried out at Selayang Hospital. The dismal donor rates continue to plague the programme and live donors remain the main source of this precious 'commodity'. Until and unless the rate of cadaveric donation can be increased, the future of the liver transplant programme hinges on the balance.

Liver transplant data was collected from Selayang Hospital and two follow-up centres which are Hospital Kuala Lumpur and UMMC.

4.1 STOCK AND FLOW

Five transplants were performed in 2005 and there were 4 deaths in the same period.

Table 4.1.1: Stock and Flow of Liver Transplantation, 1993-2005

Year	93	94	95	96	*97	98	99	00	01	02	**03	04	05
New transplant patients	1	1	8	13	3	2	8	3	5	10	5	16	5
Deaths	0	0	3	4	1	0	4	1	2	5	1	4	4
Re-transplant	0	0	0	0	0	0	0	0	0	0	0	0	0
Lost to follow up	0	0	0	0	0	0	0	1	0	1	0	1	1
Functioning graft at 31 st December	1	2	7	16	17	19	23	24	27	31	34	45	45

* 1 patient who was alive until 05/12/1997 is recorded died with missing date of death

** 1 patient who had transplanted in 2003 is recorded as death with missing date of death

Figure 4.1.1: Stock and Flow of Liver Transplantation, 1993-2005

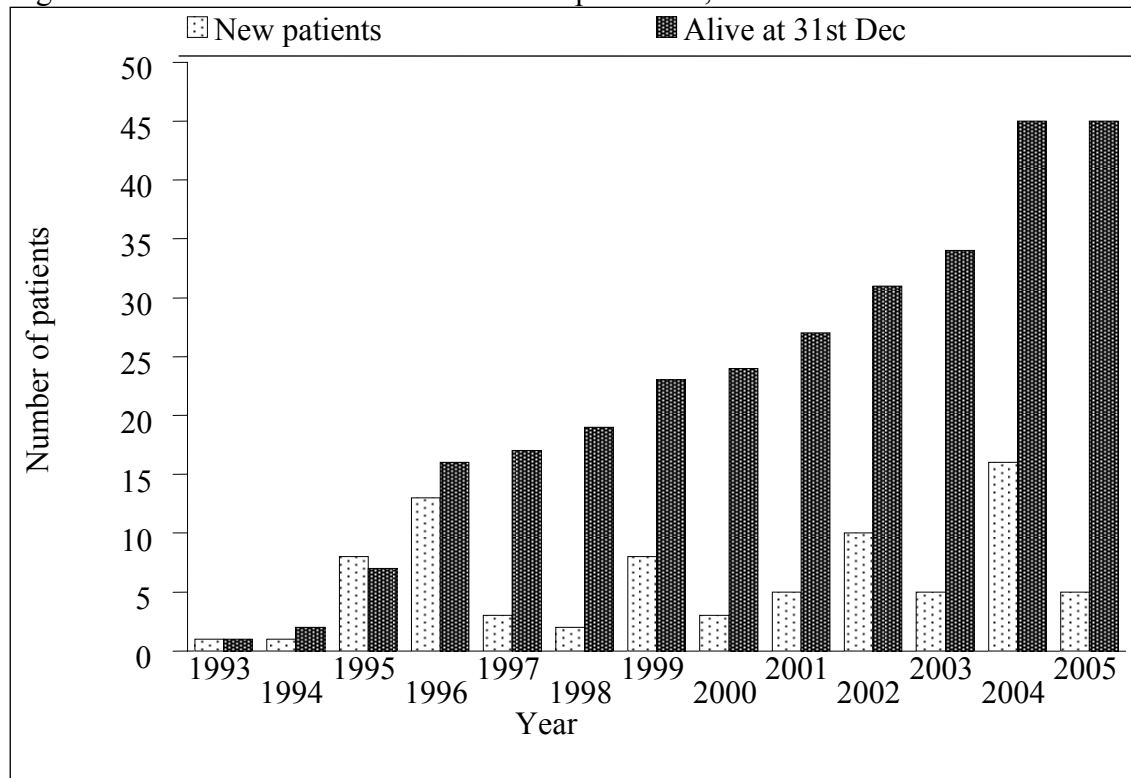


Table 4.1.2: Place of Transplant, 1993-2005

Year	93	94	95	96	97	98	99	00	01	02	03	04	05	TOTAL
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Local	0	0	8	10	1	1	8	3	5	9	2	14	5	66
Overseas	1	1	0	3	2	1	0	0	0	1	3	2	0	14
TOTAL	1	1	8	13	3	2	8	3	5	10	5	16	5	80

Table 4.1.3: Centres for Liver transplantation, 1993-2005

Year	93	94	95	96	97	98	99	00	01	02	03	04	05	TOTAL
Centre	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Subang Jaya Medical Centre	0	0	8	10	1	1	8	3	5	6	2	7	0	51
Hospital Selayang	0	0	0	0	0	0	0	0	0	3	0	7	5	15
Australia	1	0	0	3	1	0	0	0	0	0	0	0	0	5
National University Hospital, Singapore	0	0	0	0	1	1	0	0	0	0	0	0	0	2
Kings College Hospital, UK	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Tianjin, China	0	0	0	0	0	0	0	0	0	0	1	1	0	2
Asian Centre for Liver Disease & Transplantation, Singapore	0	0	0	0	0	0	0	0	0	1	2	1	0*	4
TOTAL	1	1	8	13	3	2	8	3	5	10	5	16	5	80

* Data was not reported.

Table 4.1.4: Distribution of Centres of Follow-up of Transplant Recipients, 2005

Centre	No.	%
Number of patient with functioning graft at 31 st December 2005	45	100
Kuala Lumpur Hospital	2	4
SJMC	27*	60
Selayang Hospital	12	27
Singapore	1*	2
UMMC	3	7

* Follow-up data was not reported.

4.2 RECIPIENTS' CHARACTERISTICS

Table 4.2.1: Gender distribution, 1993-2005

Year	93	94	95	96	97	98	99	00	01	02	03	04	05	TOTAL
Gender	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Male	0	0	6	5	2	1	3	1	2	7	5	10	2	44
Female	1	1	2	8	1	1	5	2	3	3	0	6	3	33
TOTAL	1	1	8	13	3	2	8	3	5	10	5	16	5	80

Figure 4.2.1: Gender distribution, 1993-2005

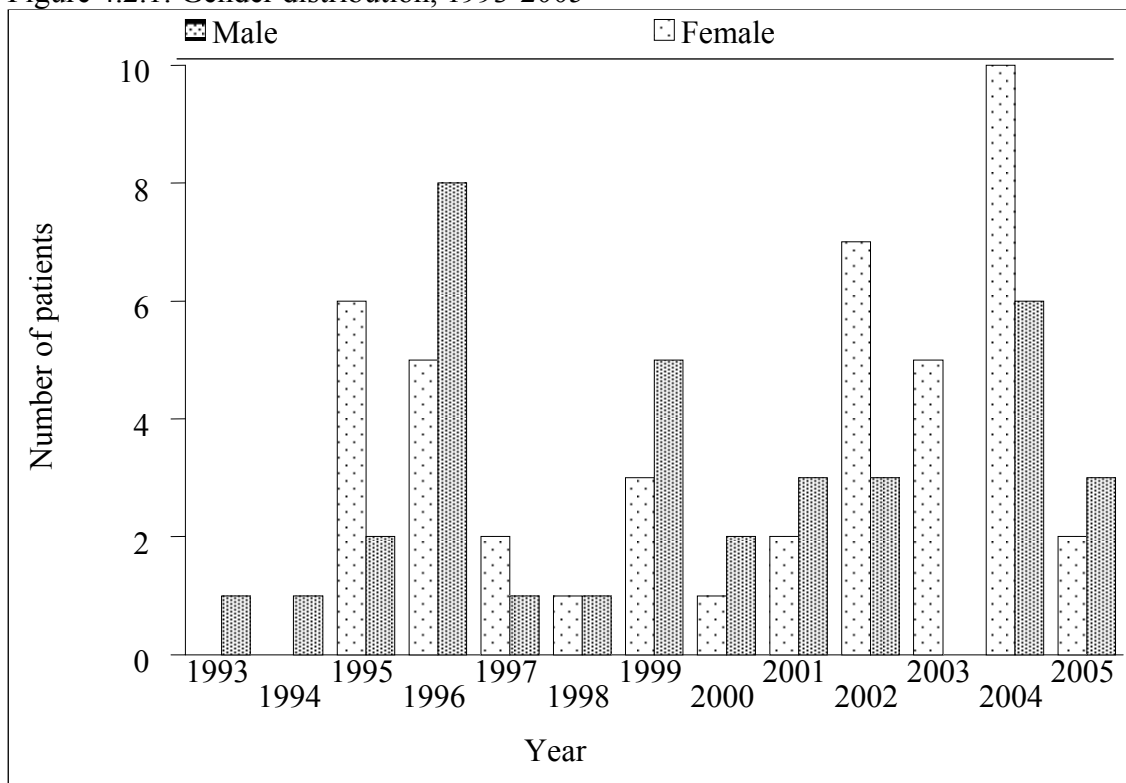


Table 4.2.2: Ethnic group distribution, 1993-2005

Year	93	94	95	96	97	98	99	00	01	02	03	04	05	TOTAL
Ethnic group	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Malay	0	1	2	3	1	0	4	1	2	3	1	11	3	32
Chinese	1	0	6	8	2	1	2	2	3	6	4	5	1	41
Indian	0	0	0	2	0	1	1	0	0	0	0	0	1	5
Others	0	0	0	0	0	0	1	0	0	1	0	0	0	2
TOTAL	1	1	8	13	3	2	8	3	5	10	5	16	5	80

Figure 4.2.2: Ethnic group distribution, 1993-2005

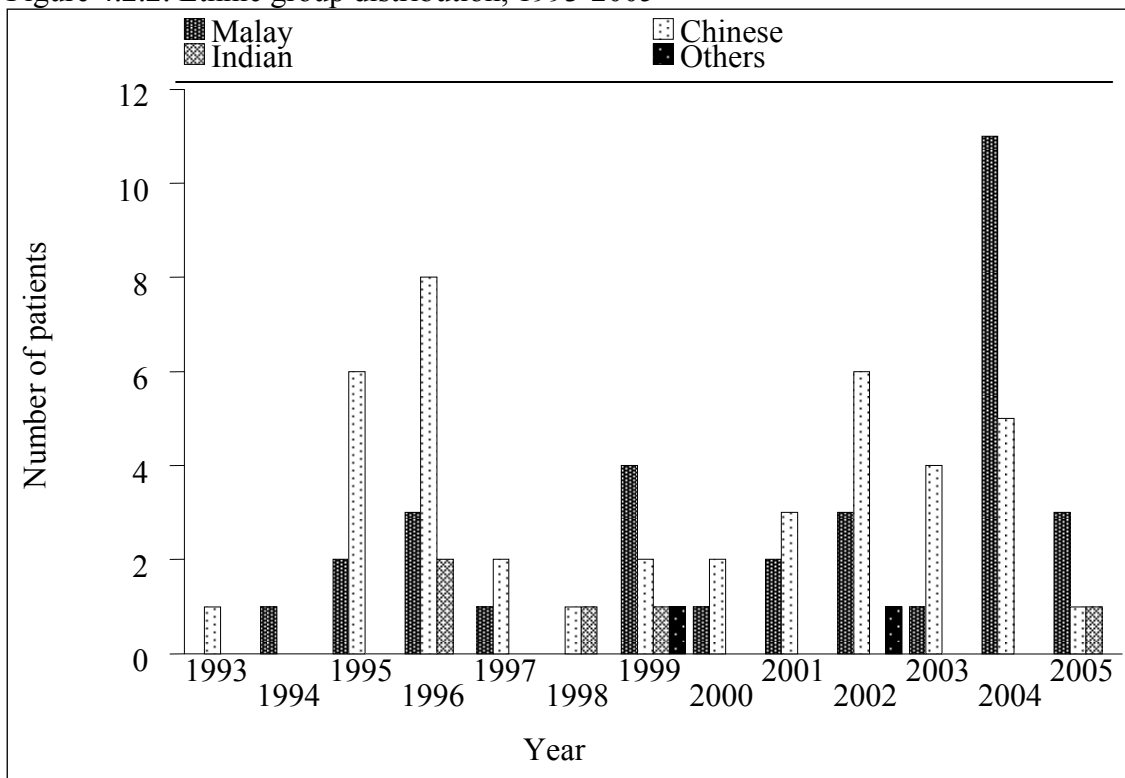


Table 4.2.3: Age distribution, 1993-2005

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
Age, years	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
<1	0	0	0	0	0	1	0	0	0	1	0	0	0	2
1-4	1	1	3	11	3	1	5	3	4	4	2	9	2	49
5-9	0	0	3	1	0	0	2	0	1	4	2	3	3	19
10-14	0	0	1	1	0	0	0	0	0	0	0	1	0	3
15-19	0	0	0	0	0	0	1	0	0	0	0	1	0	2
20-39	0	0	1	0	0	0	0	0	0	1	0	0	0	2
40-59	0	0	0	0	0	0	0	0	0	0	0	1	0	1
>=60	0	0	0	0	0	0	0	0	0	0	1	1	0	2
TOTAL	1	1	8	13	3	2	8	3	5	10	5	16	5	80
Mean	2	4	9	4	2	1	4	1	2	6	25	12	4	7
SD	-	-	9	4	1	1	5	1	2	7	42	22	3	13
Median	2	4	6	2	2	1	3	1	2	4	1	3	5	2
Minimum	2	4	2	2	1	3 months	1	1	1	4 months	1	1	1	3 months
Maximum	2	4	30	14	2	1	15	2	5	24	73	74	8	74

* Age=date of transplant – date of birth

Table 4.2.4: Primary diagnosis, 1993-2005 (N=80)

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
Primary Diagnosis	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Biliary atresia	1	1	7	12	3	1	7	2	5	6	2	10	4	61
Metabolic liver disease	0	0	1	1	0	0	0	0	0	2	0	2	0	6
Cholestatic liver disease	0	0	0	0	0	1	0	1	0	0	0	0	1	3
Primary biliary cirrhosis	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Primary sclerosing cholangitis	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Autoimmune hepatitis	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Chronic hepatitis B	0	0	0	0	0	0	0	0	0	0	3	2	0	5
Chronic hepatitis C	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alcoholic liver disease	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Malignancies	0	0	0	0	0	0	0	0	0	1	2	1	0	4
Acute liver failure	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Idiopathic / Cryptogenic	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0	0	2	0	1	1	4

*5 patients have more than one primary disease

Table 4.2.5: Indication for Transplantation, 1993-2005 (N=80)

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
Indication for Transplantation	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Indication for Transplantation	0	0	1	0	0	0	1	0	0	1	0	0	0	3
Recurrent encephalopathy	0	0	0	0	7	1	0	4	1	1	0	2	0	16
Uncontrolled bleeding varices	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intractable ascites	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spontaneous bacterial peritonitis	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Poor liver function	1	1	7	11	3	1	8	3	5	9	3	11	4	67
Malignancy	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Unacceptable quality of life	0	0	0	0	0	0	0	0	0	1	0	0	1	2
Failure to thrive, growth retardation in paediatric patients	0	0	6	10	3	2	6	3	5	7	2	10	3	57
Others	0	0	0	0	0	0	0	0	0	0	0	1	2	3
No data	0	0	0	0	0	0	0	0	0	1	1	2	0	4

*15 patients had 1 indication for transplantation, 61 had more than 1 indication for transplantation

Table 4.2.6: Recipient blood group, 1993-2005 (N=80)

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
Blood group	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
A	0	1	2	0	0	0	3	0	1	3	1	4	1	16
B	0	0	1	2	0	1	2	0	1	1	0	1	1	10
AB	0	0	0	1	0	1	0	0	0	0	0	1	1	4
O	0	0	2	5	1	0	3	3	3	5	1	8	2	33
No data	1	0	3	5	2	0	0	0	0	1	3	2	0	17
TOTAL	1	1	8	13	3	2	8	3	5	10	5	16	5	80

4.3 TRANSPLANT PRACTICES

There were 2 cadaveric transplants and three living related transplants performed. Tacrolimus was the main immunosuppressant used.

Table 4.3.1: Type of transplant, 1993-2005 (N=80)

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
Type of Transplant	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Cadaveric	1	0	0	3	1	0	0	0	0	1	1	4	2	13
Living related - Mother	0	1	5	2	1	2	5	2	2	2	2	7	1	32
Living related - Father	0	0	2	7	1	0	2	0	2	3	0	1	2	19
Living related - Son	0	0	0	0	0	0	0	0	0	0	1	1	0	2
Living related - Brother	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Living related - emotionally	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Living unrelated	0	0	1	1	0	0	1	1	1	3	0	3	0	11
TOTAL	1	1	8	13	3	2	8	3	5	10	5	16	5	79

* 1 patient is Living related - Other

Table 4.3.2: Immunosuppressive drug treatment at transplantation, 1993-2005 (N=80)

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
Immunosuppressive drugs	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Steroids	0	0	2	5	0	2	5	2	5	5	1	12	5	44
Azathioprine	0	0	0	0	0	0	0	0	0	0	0	4	5	9
Cyclosporin A	1	1	1	2	0	0	0	1	0	0	0	0	0	6
Tacrolimus (FK506)	0	0	3	7	2	2	8	2	5	9	5	13	5	61
Mycophenolate Mofetil (MMF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rapamycin	0	0	0	0	0	0	0	0	0	1	2	0	0	3
Monoclonal / Polyclonal antibody	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anti IL2R Antibodies	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No data	0	0	4	3	1	0	0	0	0	1	0	4	0	13
TOTAL patients	1	1	8	13	3	2	8	3	5	10	5	16	5	80

* 21 patients had 1 type of drug, 37 patients had 2 types, 9 patients had 3 types

4.4 TRANSPLANT OUTCOMES

Table 4.4.1: Patient survival by year of transplant, 1993-2005 (N=80)

Year of Transplant Interval (months)	1993 - 1998		1999 - 2005	
	% Survival	SE	% Survival	SE
1	82	7	80	6
6	71	9	66	7
12	71	9	66	7

SE=standard error

Figure 4.4.1: Patient survival by year of transplant, 1993-2005

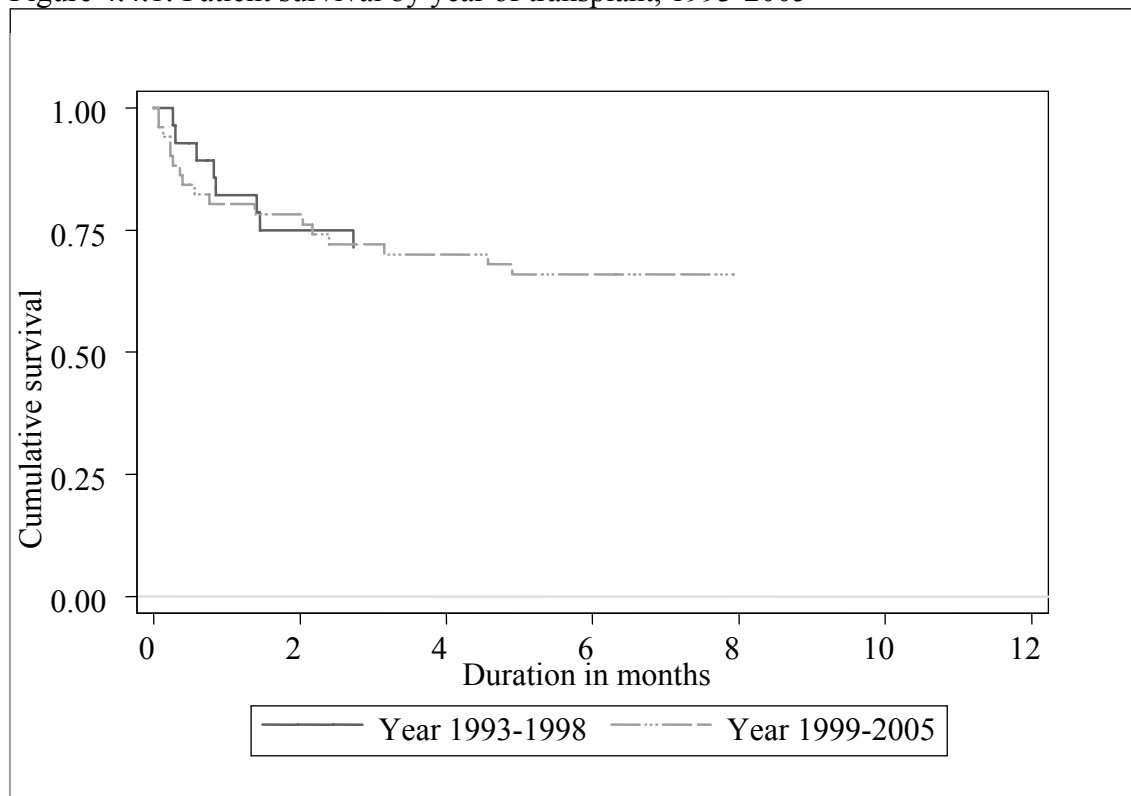


Table 4.4.2: Patient survival by gender, 1993-2005 (N=80)

Gender	Male		Female	
	Interval (months)	% Survival	SE	% Survival
1	80	6	83	6
6	68	7	69	8
12	68	7	69	8

SE=standard error

Figure 4.4.2: Patient survival by gender, 1993-2005

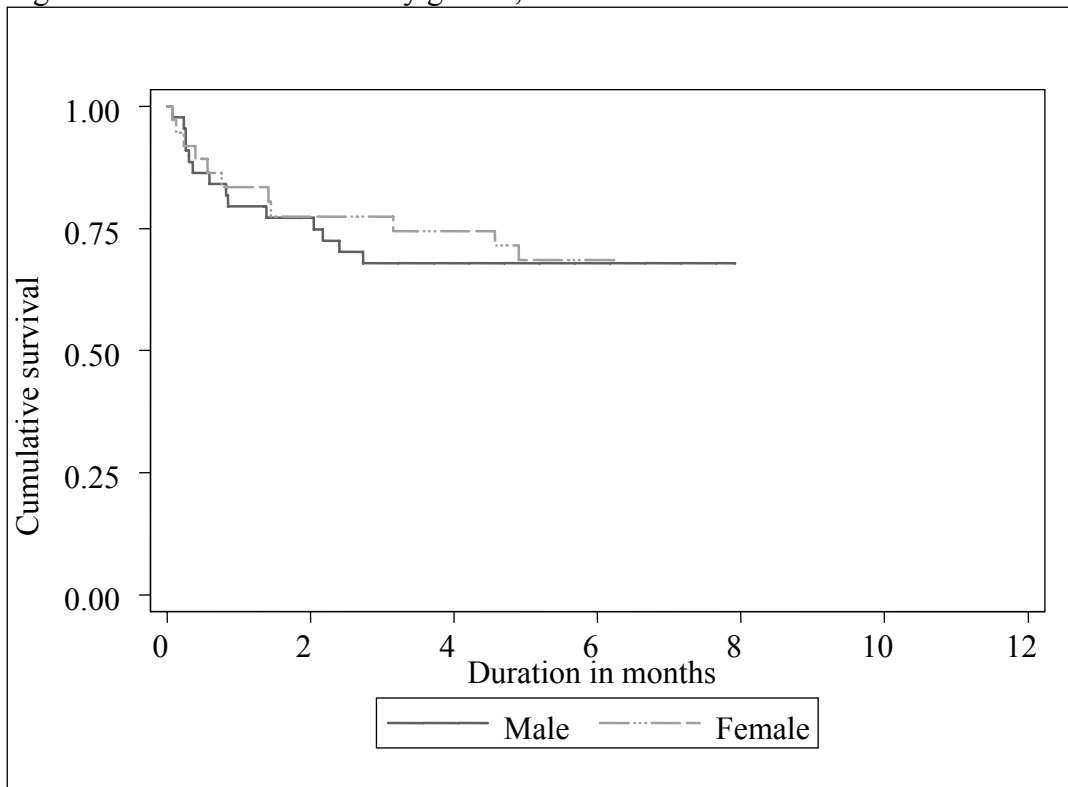


Table 4.4.3: Patient survival by age group, 1993-2005 (N=80)

Age group	0-9 years		≥10 years		
	Interval (months)	% Survival	SE	% Survival	SE
1		79	5	100	-
6		66	6	88	12
12		66	6	88	12

SE=standard error

Figure 4.4.3: Patient survival by age group, 1993-2005

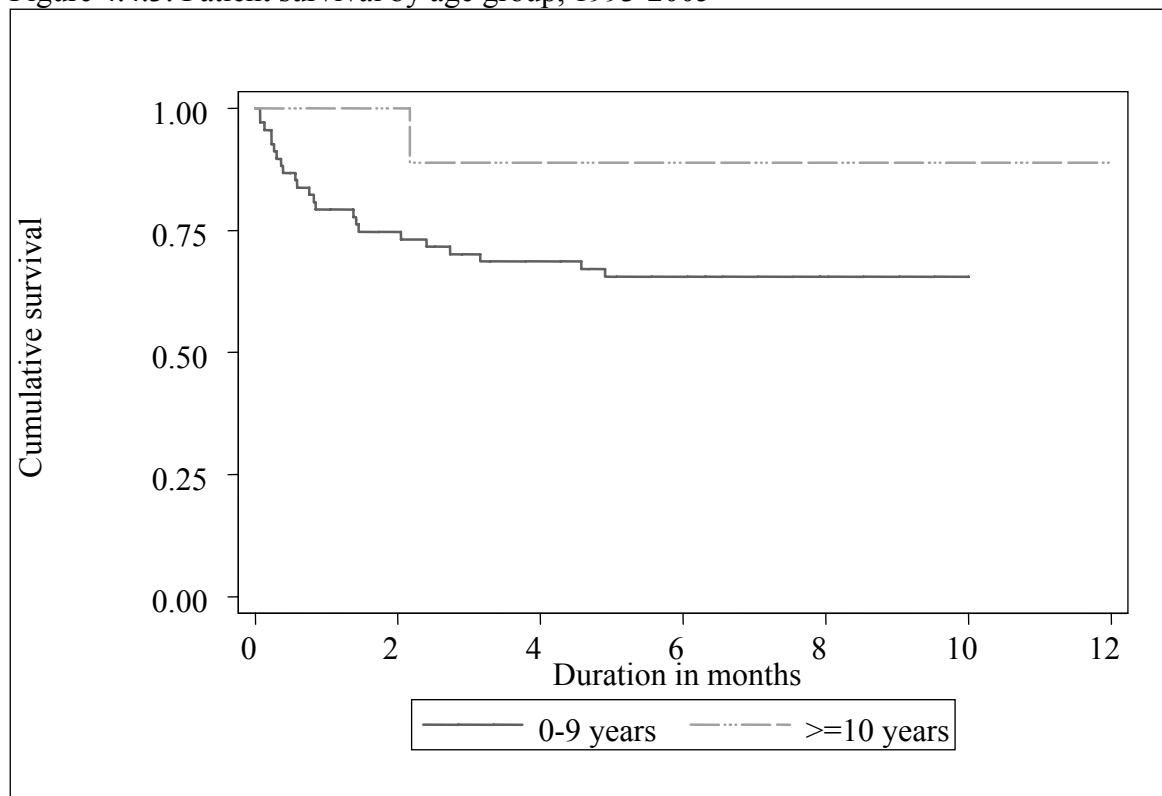


Table 4.4.4: Causes of death, 1993-2005 (N=80)

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Causes of death												
Died due to graft failure. Cause unknown. Recurrent histocytosis?	0	0	0	0	0	0	0	0	0	0	1	1
Portal vein thrombosis	0	0	0	0	0	0	0	0	0	1	0	1
Chronic graft rejection	0	0	0	0	0	0	1	0	0	0	0	1
Intra abdominal bleeding	0	0	0	0	0	0	0	0	1	0	0	1
Ischaemic liver necrosis	0	0	0	0	0	1	0	0	0	0	0	1
Peritonitis and Septicaemia	0	0	0	0	0	0	0	1	0	0	0	1
? Graft versus host reaction	0	0	0	0	0	0	0	0	0	0	1	1
CMV Pneumonia	0	0	0	0	1	0	0	0	0	0	0	1
Decompensated Liver cirrhosis post liver transplant with DIVC	0	0	0	0	0	0	0	1	0	0	0	1
Died at home	0	0	0	0	0	0	0	0	0	1	0	1
Intra-cerebral Haemorrhage	0	0	0	0	1	0	0	0	0	0	0	1
Intracranial Haemorrhage	0	1	0	0	0	0	0	0	0	0	0	1
Metastasis to scalp and chest.	0	0	0	0	0	0	0	0	0	0	1	1
NA	1	0	0	0	0	0	0	0	0	0	0	1
Not Available as notes disposed	1	0	0	0	0	0	0	0	0	0	0	1
Notes not available	1	0	0	0	0	0	0	0	0	0	0	1
Oesophageal Varices / Bleeding	0	0	0	0	1	0	0	0	0	0	0	1
Pneumonia and Respiratory Failure	0	1	0	0	0	0	0	0	0	0	0	1
Post Transplant Lymphoproliferative Disease and Septicaemia	0	0	0	0	0	0	1	0	0	0	0	1
Sepsis	0	0	0	0	0	0	0	1	0	0	0	1
Sepsis severe and multi-organ failure	0	1	0	0	0	0	0	0	0	0	0	1
Bleeding Oesophageal	0	0	1	0	1	0	0	0	0	0	0	2
Septicaemia	0	0	0	0	0	0	0	0	0	1	1	2
Septicaemia with DIVC	0	1	0	0	0	0	0	1	0	0	0	2
Unknown	0	0	0	0	0	0	0	1	0	1	0	2
TOTAL	3	4	1	0	4	1	2	5	1	4	4	29

* 2 patients with no date of death