

H. English
S. Pollard
C. Flamank
M. Belger
R. Calne

The use of ABO-compatible mismatched livers in the UK

H. English (✉) · S. Pollard · C. Flamank
M. Belger · R. Calne
United Kingdom Transplant Support
Service, Bristol, UK
Department of Surgery, Addenbrooke's
Hospital, Cambridge, UK

Abstract Elective blood group O liver recipients appear to wait longer than most other groups for matched donors. The aim of this study was to confirm the suspected differences in elective waiting times in the UK using data from the United Kingdom Transplant Support Service, and to determine some of the factors responsible for them. The findings were that potential group O recipients waited significantly longer than other groups for transplantation, and

that 22% of group O livers were going to non-O recipients. AB, the group with the shortest waiting time, was receiving 74.5% mismatched (but compatible) grafts, from all other groups.

Key words ABO blood group system · Liver transplantation
Blood group incompatibility
Waiting lists · Time factors
Human · United Kingdom
Medical ethics

Introduction

Elective blood group O liver recipients appear to wait longer than most other groups for matched donors. The aim of this study was to confirm the suspected differences in elective waiting times and to determine some of the factors responsible for them.

Materials and methods

A retrospective analysis of the outcome of all potential liver donors registered with the United Kingdom Transplant Support Service over a 2-year period from 1 January 1991 to 31 December 1992 was undertaken.

Of 1280 livers offered, 302 (24%) were declined. Two ABO-incompatible transplants and 144 (15.5%) ABO-compatible mismatched transplants were performed. Table 1 indicates the time in days from being placed on the waiting list to receiving a transplant. Table 2 shows the donor and recipient blood group distribution in 926 transplants as reported to UKTSS from 1 January 1991 to 31 December 1992.

Table 1 Distribution of time to transplantation by blood group for all recipients on the UKTSS liver waiting list awaiting a first graft from 1 January 1991 to 31 December 1992

Blood group	Time at which % indicated received transplant (days)			Number of recipients
	25%	50%	75%	
O	10	41	99	148
A	6	22	64	275
B	18	51	105	90
AB	3	18	36	42

Table 2 Donor and recipient blood groups in 926 liver transplants performed in the UK as reported to UKTSS 1 January 1991 to 31 December 1992

Donor blood group	Recipient blood group				Total	%
	O	A	B	AB		
O	406	65	38	13	522	56
A	2	298	—	19	319	34
B	—	—	62	9	71	8
AB	—	—	—	14	14	2
Total	408	363	100	55	926	
%	44	39	11	6		

Results

Analysis of Table 1 by a log-rank Chi-squared test for equality showed a significant difference between the waiting times for group O versus A and AB. Potential AB recipients waited on average less than half the time of O recipients for livers.

Table 2 demonstrates that 74.5% of AB recipients received ABO-mismatched (but compatible) grafts. It also demonstrates that 28.6% of O donor livers were used in non-O recipients.

Discussion

Potential group O recipients waited longer than those of other blood groups for suitable donors owing to pre-

ferential use by other groups. This would fit with their role as "universal donor".

ABO-compatible mismatched transplants are usually successful, but not without risk [1]. Even when the data are adjusted to remove very high-risk patients there remains a statistically significant advantage in survival for ABO-identical grafts [2].

The preferential use of group O livers is particularly inappropriate in AB recipients, who waited on average only half as long as O recipients.

Therefore we would suggest that ABO-compatible mismatched grafting in liver transplantation should be reserved for true emergency cases as it not only has less chance of success, but deprives elective cases with a potentially better outcome.

References

1. Gordon RD, Iwatsuki S, Esquivel CO, et al (1986) *Surgery* 100:342
2. Gordon RD, Iwatsuki S, Esquivel CO, et al (1987) *Transplant Proc* 19:6