

Relevance of blood group to waiting time for heart transplantation in the UK: implications for equity of access

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On behalf of the UK Transplant Cardiothoracic Advisory Group

Aims

- To examine waiting time to adult heart transplantation in the UK according to patient blood group.
- To investigate whether patients of particular blood groups were disadvantaged in terms of death rates on the heart transplant list.

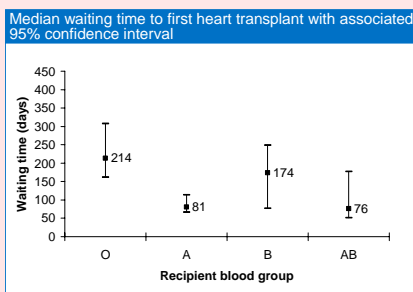
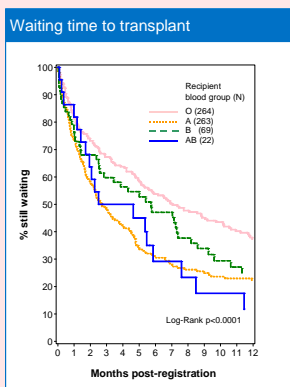
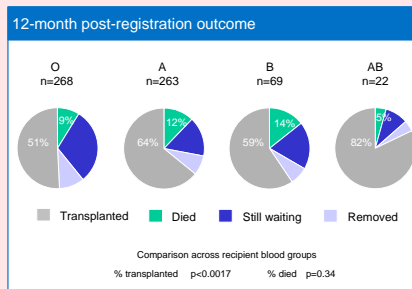
Methods

- UK data were obtained from the National Transplant Database.
- 622 new routine adult active heart only registrations from 1 April 1999 to 31 March 2003 (including 4 reregistrations).
 - Registration outcomes analysed to examine the proportion of deaths and transplants on the heart transplant list.
 - Proportions of patients transplanted and died assessed across different blood groups using Chi-squared tests.
- 618 first registrations for routine adult heart only transplant from 1 April 1999 to 31 March 2003.
 - Unadjusted waiting times summarised using Kaplan-Meier estimates of the survivor function.
- 626 routine and 93 urgent adult deceased heartbeating transplants performed 1 April 1999 to 31 March 2004.
 - Donor to recipient blood group distribution examined.

Results

Registration outcome

- A smaller proportion of blood group O patients were transplanted one year after being listed compared with the other blood groups.
- Death rates on the transplant list were relatively low.
- There was no statistically significant difference in the proportions of patients of different blood groups that died whilst waiting.



Waiting time to transplant

- In the first year on the list, there was a statistically significant difference in waiting time to heart transplant between patients of different blood groups.
- Blood group A and AB patients were generally transplanted sooner than blood group O and B patients.

ABO matching of transplants

- For routine transplants, 23% of blood group O donor hearts were used for non-O recipients.
- For urgent transplants, 46% of blood group O donor hearts were used in non-O recipients.

Donor blood group	Recipient blood group				Total
	O	A	B	AB	
O	77%	14%	8%	1%	326
A	-	96%	-	4%	230
B	-	-	93%	7%	60
AB	-	-	-	100%	10
TOTAL	250	267	81	28	626

Donor blood group	Recipient blood group				Total
	O	A	B	AB	
O	54%	32%	8%	6%	71
A	-	90%	-	10%	20
B	-	-	100%	0%	2
AB	-	-	-	0%	0
TOTAL	38	41	8	6	93

Conclusions

- No particular blood group was disadvantaged in terms of deaths on the heart transplant list.
- Blood group O and B adults waited significantly longer before heart transplantation.
- The difference may be partly due to a large proportion of blood group O donor hearts (over 20%) being used for non-O patients.

Modification to Allocation Protocol

- To address this imbalance, at the September 2004 CTAG meeting a change in allocation protocol was agreed:
 - 'Out of zone' offers of blood group O donor hearts for routine adult patients will be restricted to blood group O and B patients.
- Implemented 1 November 2004.