

NHS BLOOD AND TRANSPLANT

CARDIOTHORACIC ADVISORY GROUP

**GREAT ORMOND STREET HOSPITAL –
20 CM DONOR-RECIPIENT SIZE MATCH RULE**

SUMMARY

BACKGROUND

- 1 A new rule was implemented from April 2010 regarding a 20cm size matching limit for Great Ormond Street Hospital (GOSH) accepting adult donor hearts for use in non-urgent paediatric recipients. This paper analyses the impact of this rule and reviews transplant activity at GOSH using adult donor hearts during 2015.

DATA ANALYSIS

- 2 Data on 15 paediatric heart only transplants performed by GOSH between 1 January 2015 and 31 December 2015 were analysed. Of these 15 transplants, one involved an adult donor heart to a non-urgent paediatric recipient.
- 3 To explore the impact of the rule, data on 83 paediatric heart only transplants performed in the UK between 1 May 2013 and 31 December 2015 (post-protocol) were analysed, along with 89 transplants performed prior to the introduction of the rule (1 September 2007 to 30 April 2010 – pre-protocol). The number of paediatric transplants performed by GOSH has decreased by 22% between the two periods. During the same time periods, overall UK adult heart only transplant has increased by 64%.
- 4 The number of non-urgent paediatric transplants performed by GOSH utilising adult donor hearts has dropped from 16 to 3 since the rule was introduced. Previously GOSH performed an average of 6 non-urgent heart transplants using adult donor hearts each year, and this has dropped to an average of one per year. There were 3 transplants performed in the post-protocol period, 2 of which breached the size-matching rule. One breach occurred in 2013 and was raised at the April 2014 CTAG meeting. The second breach occurred in 2015 requires investigation.

RECOMMENDATIONS

- 5 There were two rule breaches: the first occurred in August 2013 and was raised at the April 2014 CTAG meeting. The second breach occurred in July requires investigation. The rule will continue to be monitored annually.

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April 2016

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BACKGROUND

- 1 From 29 April 2010, a new rule regarding the size matching limit for Great Ormond Street Hospital (GOSH) accepting adult donor hearts for use in non-urgent paediatric recipients, was introduced.
- 2 This rule is that hearts from adult donors taller than 1.5m can only be accepted for non-urgent paediatric recipients at GOSH if there is a ≤ 20 cm difference between the donor and recipient height.
- 3 This paper examines the impact of the rule and reviews heart transplant activity at GOSH using adult donor hearts between 1 January 2015 and 31 December 2015.

DATA

- 4 Data on paediatric heart transplants performed by GOSH between 1 January 2015 and 31 December 2015 using adult donor hearts from the UK and ROI were extracted from the UK Transplant Registry. Note that adult heart transplants performed by GOSH were excluded from the analysis.
- 5 To explore the impact of the rule, 32 months of data on all paediatric heart only transplants performed in the UK between 1 September 2007 and 30 April 2010 (pre-protocol change) were extracted from the UK Transplant Registry and also between 1 May 2013 and 31 December 2015 (post-protocol change).

RESULTS

- 6 Between 1 January 2015 and 31 December 2015, 15 paediatric heart only transplants were performed by GOSH, one of which involved an adult donor heart transplant to a non-urgent paediatric recipient.
- 7 **Table 1** shows that the number of paediatric transplants performed by GOSH has decreased from 49 prior to the introduction of the rule to 38 in the post-protocol period, a 22% drop in activity. Over the same time periods, UK adult heart only transplant activity has increased by 64%. The number of non-urgent paediatric transplants by GOSH utilising adult donor hearts has dropped from 16 before the protocol change to 3 in the post-protocol period. Previously GOSH performed an average of 6 non-urgent heart transplants using adult donor hearts each year, and this has now dropped to an average of one per year.

Table 1 Paediatric heart only transplants performed in the UK, 1 September 2007 to 30 April 2010 (pre-protocol change) and 1 May 2013 to 31 December 2015 (post-protocol change)

Centre		Paediatric donor		Adult donor						Total	
				Urgent		Non-urgent		Total			
		N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Great Ormond Street	Pre-protocol	16	(33)	17	(35)	16	(33)	33	(67)	49	(100)
	Post-protocol	18	(47)	17	(45)	3	(8)	20	(53)	38	(100)
Newcastle	Pre-protocol	26	(65)	10	(25)	4	(10)	14	(35)	40	(100)
	Post-protocol	33	(73)	11	(24)	1	(2)	12	(27)	45	(100)

- 8 **Table 2** shows the donor-recipient height difference for paediatric non-urgent heart transplants involving adult donors. The donor-recipient height difference for the two transplants that breached the rule in the post-protocol period (1 May 2013 to 31 December 2015), were 24cm and 22cm. The first occurred in August 2013 and was raised at the April 2014 CTAG meeting. The latter breach occurred in July 2015 and will be investigated further.

Table 2 Donor-recipient height difference for paediatric non-urgent heart only transplants performed in the UK involving adult donors, 1 September 2007 to 30 April 2010 (pre-protocol change) and 1 May 2013 to 31 December 2015 (post-protocol change)

		Donor-recipient height difference					
		≤20cm		>20cm		Total	
Great Ormond Street	Pre-protocol	5	(31%)	11	(69%)	16	(100%)
	Post-protocol	1	(33%)	2	(67%)	3	(100%)
Newcastle	Pre-protocol	2	(50%)	2	(50%)	4	(100%)
	Post-protocol	0	(0%)	1	(100%)	1	(100%)

- 9 Newcastle paediatric transplant activity is presented in **Table 1** and **Table 2** for information only, as the size-matching rule is not applicable for their transplants.

SUMMARY

- 10 15 paediatric heart only transplants were performed at GOSH during 2015, of which 7 involved paediatric donor hearts and 8 involved adult donor hearts. One of these adult donor hearts was transplanted into a non-urgent paediatric.
- 11 In comparing paediatric transplant activity between the pre-protocol change and post protocol change periods, activity at GOSH has dropped by 22% whilst adult heart-only transplant activity in the UK has increased by 64%. This rule has been effective in reducing the number of adult hearts transplanted in non-urgent paediatric patients to 3 in the 32-month post protocol change period. There were two rule breaches: the first breach occurred in August 2013 and was raised at the April 2014 CTAG meeting. The second breach occurred in July requires investigation.

RECOMMENDATIONS

- 12 There were two rule breaches: the first occurred in August 2013 and was raised at the April 2014 CTAG meeting. The second breach occurred in July requires investigation. The rule will continue to be monitored annually.

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