

**NHS BLOOD AND TRANSPLANT**

**CTAG HEART 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 2014.

**DATA ANALYSIS**

- 2 Data on 16 paediatric heart only transplants performed by GOSH between 1 January 2014 and 31 December 2014 were analysed. Of these 16 transplants, one involved an adult donor heart to a non-urgent paediatric recipient.
- 3 To explore the impact of the rule, data on 76 paediatric heart only transplants performed in the UK between 1 May 2012 and 31 December 2014 (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 29% between the two periods. During the same time periods, overall UK adult heart only transplant has increased by 54%.
- 4 The number of non-urgent paediatric transplants performed by GOSH utilising adult donor hearts has dropped from 16 to 2 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 2 transplants performed in the post-protocol period, 1 of which breached the size-matching rule. This breach occurred in 2013 and was raised at the April 2014 CTAG meeting.

**RECOMMENDATIONS**

- 5 There was one rule breach during 2013 which was raised at the April 2014 CTAG meeting, and the rule will continue to be monitored annually.

**Esther Wong**  
**Statistics and Clinical Studies**

**April 2015**

## NHS BLOOD AND TRANSPLANT

### CARDIOTHORACIC ADVISORY GROUP

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

#### 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  $\leq 20$  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 2014 and 31 December 2014.

#### DATA

- 4 Data on paediatric heart transplants performed by GOSH between 1 January 2014 and 31 December 2014 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 2012 and 31 December 2014 (post-protocol change).

#### RESULTS

- 6 Between 1 January 2014 and 31 December 2014, 16 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 35 in the post-protocol period, a 29% drop in activity. Over the same time periods, UK adult heart only transplant activity has increased by 54%. The number of non-urgent paediatric transplants by GOSH utilising adult donor hearts has dropped from 16 before the protocol change to 2 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.

<b>Table 1 Paediatric heart only transplants performed in the UK, 1 September 2007 – 30 April 2010 (pre-protocol change) and 1 May 2012 – 31 December 2014 (post-protocol change)</b>					
	<b>Paediatric donor</b>	<b>Urgent</b>	<b>Adult donor Non-urgent</b>	<b>Total</b>	<b>Total</b>
Great Ormond Street					
Pre-protocol change	16 (33)	17 (35)	16 (32)	<b>33 (67)</b>	<b>49 (100)</b>
Post-protocol change	20 (57)	13 (37)	2 (6)	<b>15 (43)</b>	<b>35 (100)</b>
Newcastle					
Pre-protocol change	26 (65)	10 (25)	4 (10)	<b>14 (35)</b>	<b>40 (100)</b>
Post-protocol change	35 (85)	5 (13)	1 (2)	<b>6 (14)</b>	<b>41 (100)</b>

- 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 transplant that breached the rule in the post-protocol period (1 May 2012 to 31 December 2014) was 24cm. This breach occurred in August 2013 and was raised at the April 2014 CTAG meeting.

<b>Table 2 Donor- recipient height difference for paediatric non-urgent heart only transplants performed in the UK involving adult donors, 1 September 2007 – 30 April 2010 (pre-protocol change) and 1 May 2012 – 31 December 2014 (post-protocol change)</b>			
	<b>Donor-recipient height difference</b>		
	<b>≤20cm</b>	<b>&gt; 20 cm</b>	<b>Total</b>
Great Ormond Street			
Pre-protocol change	5 (31%)	11 (69%)	<b>16 (100%)</b>
Post-protocol change	1 (50%)	1 (50%)	<b>2 (100%)</b>
Newcastle			
Pre-protocol change	2 (50%)	2 (50%)	<b>4 (100%)</b>
Post-protocol change	0 ( - )	1 (100%)	<b>1 (100%)</b>

- 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 16 paediatric heart only transplants were performed at GOSH during 2014, of which 8 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 29% whilst adult heart-only transplant activity in the UK has increased by 54%. This rule has been effective in reducing the number of adult hearts transplanted in non-urgent paediatric patients to 2 in the 32-month post protocol change period. There was one rule breach in 2013 which was raised at a previous meeting.

**RECOMMENDATIONS**

- 12 There was one rule breach during 2013 which was raised at the April 2014 CTAG meeting, and the rule will continue to be monitored annually.

**Esther Wong**  
**Statistics and Clinical Studies**

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