NHS BLOOD AND TRANSPLANT

CARDIOTHORACIC ADVISORY GROUP

CLINICAL CHARACTERISTICS OF URGENT PATIENTS

SUMMARY

BACKGROUND

1 This paper summarises the clinical data provided in the initial registration form for urgent heart registrations between 1 April 2015 and 31 March 2016.

DATA ANALYSIS

2 Data on 216 urgent heart registrations for 208 patients registered between 1 April 2015 and 31 March 2016 were obtained. The urgent heart category was not reported for 5% of adult registrations and 10% paediatric registrations In addition 4% of adult registrations and 10% of paediatric registrations were made under the 'Other' category.

ACTIONS

3 Members are encouraged to ensure that all information on the initial Urgent Heart Recipient Registration form is provided both accurately and in a timely manner.

4 Basic validation, as agreed by CTAG in April 2014, will be performed on the data provided in these forms at the time of listing when IT resource becomes available.

5 A number of changes to the form are to be made in order to clarify the registration process and to support validation.

Rachel Hogg
Statistics and Clinical Studies **September 2016**

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BACKGROUND

1 The current urgent heart registration forms were introduced in May 2008 to collect more comprehensive data on the clinical condition of urgent patients. Inclusion criterion for adult urgent patients were also introduced and audited on the forms.

2 Each new registration onto the urgent heart allocation scheme (UHAS) should be accompanied by an initial Urgent Heart Recipient Registration form. For patients who remain on the urgent list for more than 7 days, Urgent Heart Recipient Weekly Update forms should be submitted each week.

3 It was agreed by CTAG in April 2014 that basic validation should be performed on the data provided in the initial registration form before a patient is listed on to the UHAS. This will be implemented when IT resource becomes available.

4 In the meantime, this paper summarises the clinical data provided in the initial registration form for urgent heart registrations between 1 April 2015 and 31 March 2016. Data provided in the weekly updates are not presented.

DATA

5 Data on 216 urgent heart registrations for 208 patients registered between 1 April 2015 and 31 March 2016 were obtained from the manual records kept by the Organ Donation and Transplantation (ODT) Duty Office. Initial registration forms could not be located for eight of these registrations. Data for these registrations have been classed under the ‘Not reported’ categories in this paper.

RESULTS

6 A total of 166 adult urgent heart registrations and 50 paediatric urgent heart registrations were made between 1 April 2015 and 31 March 2016.

7 **Table 1** shows the urgent heart registration category and key criteria for urgent listing. The most common category for adult patients to be listed under was ‘high dose inotropes’ and the same for paediatric patients. 4% of adult patients were registered under the ‘Other’ category while 10% of paediatric patients were registered under this category. The urgent category was not reported for 5% of adult patients and 10% of paediatric patients.

Table 1 Urgent heart registration category, Level 2 Critical Care status and Cardiac Index criterion status for all adult and paediatric urgent patients, 1 April 2015 – 31 March 2016

	Adult		Paediatric	
	N	%	N	%
Category				
Short-term MCSD	15	9	12	24
MCSD with device-related complications	26	16	1	2
IABP	9	5	0	0
ECMO	0	0	5	10
High-dose inotropes	86	52	17	34
Combination of inotropes	14	8	0	0
Non-invasive ventilation	0	0	-	-
Paediatric≤15kg on ventilation and inotropes	-	-	5	10
Other	7	4	5	10
Not reported	9	5	5	10
Inpatient in Level 2 Critical Care				
Yes	142	86	44	88
No	19	11	1	2
Not reported	5	3	5	10
Cardiac Index (CI)<2l/min/m^2				
VAD or ECMO	34	20	10	20
Not on VAD or ECMO and CI<2	111	67	23	46
Not on VAD or ECMO and CI=>2	12	7	3	6
Not reported	9	5	14	28

9 A table of reasons (1 April 2015 – 31 March 2016) for listing under the 'Other' category is recorded in the **Appendix (removed as patient identifiable)** based on the information discussed and agreed with the UHAS adjudication panel. This information was available for 4 of 7 adult patients registered under the "Other" category and one of the 5 paediatric patients.

10 **Table 2** shows the VAD, ECMO, IABP and inotrope status of all urgent patients registered. 28% of adult patients were on a VAD at time of listing, 0% were on ECMO and 5% were on IABP. The corresponding figures for paediatric patients were 26%, 8% and 0%, respectively. 65% of adult patients and 70% of paediatric patients were on inotropes at the time of listing. It should be noted that the classification of high dose inotropes in Table 2 does not account for milrinone as the current categorisation for urgent listing under high does inotropes states ' milrinone >0.375µg/kg/min or adjusted to achieve therapeutic milrinone levels of 100-300 ng/ml (which may correspond to a lower dose in patients with impaired renal function)'.

Table 2 VAD, ECMO, IABP and Inotrope status for all adult and paediatric urgent patients, 1 April 2015 – 31 March 2016

	Adult		Paediatric	
	N	%	N	%
VAD				
None	112	67	32	64
Left	34	20	6	12
Right	1	1	1	2
Both	12	7	6	12
Not reported	7	4	5	10
ECMO				
No	160	96	42	84
Yes	0	0	4	8
Not reported	6	4	4	8
IABP				
No	151	91	46	92
Yes	9	5	0	0
Not reported	6	4	4	8
Inotropes				
Yes – high dose*	15	9	6	12
Yes – low dose	70	42	27	54
Yes – unknown dose	23	14	2	4
No inotropes	51	31	10	20
Not reported	7	4	5	10

* The following are defined as 'high dose' inotropes: dopamine>5µg/kg/min, dobutamine>7.5µg/kg/min, epinephrine>0.05µg/kg/min, enoximone>5µg/kg/min, levosimandan - any dose.

11 **Table 3** shows the laboratory results for patients at time of urgent listing. Laboratory investigations were not reported on all initial registration forms.

Table 3 Laboratory investigations data for adult and paediatric urgent patients, 1 April 2015 – 31 March 2016

	Hb (g/dl)	WCC (x10^9/l)	Serum creatinine (µmol/l)	Serum bilirubin (µmol/l)	CRP (mg/dl)
Adults					
N	151	156	156	154	138
Mean	12.0	8.2	108.0	21.4	32.6
Standard deviation	2.4	3.0	38.8	15.8	56.9
N (high*)	-	18	4	12	48
Paediatrics					
N	33	34	34	33	28
Mean	11.2	10.8	59.3	17.2	57.6
Standard deviation	2.7	6.8	47.3	19.6	62.3
N (high*)	-	8	2	1	16

* 'High' here means:
- WCC >12 x10^9/l
- Serum creatinine >200 µmol/l
- Serum bilirubin >50 µmol/l
- CRP >25 mg/dl

CONCLUSION

12 The clinical characteristics of patients registered on the urgent list, 1 April 2015 – 31 March 2016, indicates that the urgent heart category was not reported for 5% of adult registrations and 10% for paediatric registrations. In addition 4% of adult registrations and 10% of paediatric registrations were made under the 'Other' category.

ACTION

14 Members are encouraged to ensure that all information on the initial Urgent Heart Recipient Registration form is provided both accurately and in a timely manner.

15 Basic validation, as agreed by CTAG in April 2014, will be performed on the data provided in these forms at the time of listing when IT resource becomes available.

16 A revised registration form will be introduced with the implementation of the new Super Urgent/Urgent Heart Allocation Scheme. This will help clarify the registration process and to support validation. Changes include:

- Categories 59 and 9 ('registering as 'Other' for adult and paediatric, respectively) will include the request for documentation of approval by the Adjudication Panel and the Chairman of the Cardiothoracic Advisory Group (or deputy).
- Category 59 or 9 to include an NHSBT audit email address (as agreed by CTAG in April 2014).
- Category 5 (high dose inotropes category) will separate patients on milrinone >0.375µg/kg/min from those patients on milrinone levels 'adjusted to achieve therapeutic milrinone levels of 100-300 ng/ml'.

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