Organ Utilisation – Hearts

A review of unused hearts and lungs was presented at CTAG in April 2014. This data for 2013 is shown in the Appendix. The conclusions were that relatively few hearts were turned down without at least assessment, although there were some apparently idiosyncratic decisions. A more detailed analysis, based on the Core Donor Data from EOS, has been carried out for a 14 day period in June 2014.

Analysis of Unused Hearts 1-14/6/2014
14 hearts, donors age 18-65, no cardiac history
1 had no consent, 1 had previous Htx
12 to be considered
Age ranged 24-65, 10 had Echos, 5 had PA Catheter (+ 1 oesophageal CO)

a) Three Over 60
F, BG O, 64, 158/62Kg
No Echo, No SG, Norad, No VP
Turned down on size everywhere

F, BG A, 65, 160/65Kg
CO 8.6, low Norad
Turned down everywhere on size and age

F, BG O, 63, 168/68Kg
Good Echo, No SG, Norad, No VP
Turned down on age and size

Comment All *potentially* Usable for small recipients

b) Four Significantly Impaired LV
F, BG A, 24, 164/60Kg
Out of hospital arrest (suicide)
Impaired LV, on Norad 2.0mcg/Kg/min
Troponin 24,000, then 47,000

F, BG A, 54, 163/80Kg
40 Minute down time
Poor LV, No SG

F, BG A, 33, 170,55Kg,
Suicide, downtime 20 minutes
Dilated LV on Echo, On Norad ++
CO6.0, PCWP 8

M, BG AB, 36, 181/100Kg
Severe LV Impairment
Norad 0.08, VP
Co 6.3, PCWP 32

Comment – the last two *may* have improved with time, and the second of these was a large young man with no cardiac history
Five others were a mixed and intermediate group.

c) Two had significant inotropes and an abnormal echo.
M, BG AB, 55, 172/69

CO 5.6, Norad + Adrenaline IVS 1.7 (LVH), EF 55%
Turned down on Age x4, Function x2

M, BG A, 49, 171/75
Moderately impaired LV and Inotropes x 2 (18 hours before retrieval)
No SG. Inotropes weaning
Turned down on poor function x3

Comment - *might* have been worth closer examination**:**

d) Two were much closer to acceptance
F, BG O, 49, 174/69
Good LV on Echo. No SG, CI 2.9 on Oesophageal probe
Norad, Vasopressin
Turned down on Size x 6, History 1

M, BG B, 41, 165/75Kg
Echo, Mildly Impaired LV, No SG
Metaraminol only
Turned down on size, poor function

Comment - should have been visited

e) One (only) was looked at in theatre:
M, BG O, 35, 166/75
CO 6.4, good LV on Echo. No Inotropes – on GTN
Diabetic
CAD found at retrieval. Not offered anywhere else
Comment – possible over-interpretation by retrieval surgeon

Over the same time period there were 8 adult cardiac transplants in the UK
The Waiting list breakdown on May 31st was:

Recipient blood group	**N**
O	**162**
A	**96**
B	**25**
AB	**7**
Total	**290**

Observations
This data might to direct the disposition of Scouts
This data is available to every centre, and should form the basis of robust Donor Audit

Questions for CTAG
Is this data of use? –

- What are the conclusions?

Do we need a different approach to offering?

- Hearts turned down on Function?
- Hearts turned down on palpable coronary disease?

Appendix

Unused Donor Hearts - Overall Picture for 2013

Very large numbers are turned down on the basis of function and history. For gratifyingly few are the reasons logistical, such as transport difficulties or centre already transplanting. Similarly, very few are not used because of damage.

Function, in particular, was the commonest reason given, with hearts from nearly 140 donors turned down on that basis alone.

Analysis for December 2013

A more detailed analysis was then done of actual donors in a calendar month.

In December 2013, there were 28 donors where hearts were offered but not used Retrieval teams attended in 20 instances (71%), and another three had a scout alone. So a very high figure of 80% of donors where the hearts were not used actually had formal cardiothoracic assessment in December.

Thus of the 8 where there is not a record of retrieval team attending, there was a scout in three. When size is often of importance, three of those with no retrieval team were >180cm tall, but two were attended by a scout. Two were still turned down on size!

Some decision making seems arbitrary. In 10 of the 20 donors where a team were present, the reasons for turn down were size, history or in 1 case age – all data which should have been known before the team was sent. In one case the reason was anatomy, but it is not clear if this was coronary disease. The other 9 were turned down on function .

This decision, made when the donor is in the operating room is generally for a specific recipient, and may not be general. Anecdotally, hearts in this setting have been successfully used by another centre, but often they are not offered.

In partial contrast to the lungs, we have no good functional data recorded nationally. There should be scope to collect data from PA catheters, as recorded on the scout project, to see if any good functioning hearts are still turned down.

Table 5 Reasons for non-retrieval and non-use of hearts from deceased organ donors in the UK, 1 January 2013 – 31 December 2013

	DBD	DCD
Reasons for non-retrieval		
Donor unsuitable - age	15	-
Donor unsuitable - past history	88	-
Non heart beating donor	1	-
Donor unstable	5	-
Donor unsuitable - size	31	-
No suitable recipients	22	-
No time	1	-
Poor function	138	-
Infection	2	-
Other disease	6	-
HLA/ABO type	1	-
Organ used elsewhere	1	-
Donor unsuitable - virology	9	-
Donor unsuitable - medical reason	1	-
Other	16	-
Unknown	1	-
TOTAL ORGANS NOT RETRIEVED	**338**	-
Reasons for non-use of those retrieved		
Other	3	-
TOTAL ORGANS NOT TRANSPLANTED	**3**	**-**