Neonatal Organ Donation

Angharad Griffiths
Specialist Nurse in Organ Donation
How common is neonatal organ donation?
## Historical neonatal donation in the UK

<table>
<thead>
<tr>
<th>When</th>
<th>Age (days)</th>
<th>Type</th>
<th>Donated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>10</td>
<td>DBD</td>
<td>Heart</td>
</tr>
<tr>
<td>1996</td>
<td>17</td>
<td>DBD</td>
<td>Heart</td>
</tr>
<tr>
<td>2013</td>
<td>49</td>
<td>DCD</td>
<td>Kidneys</td>
</tr>
<tr>
<td>2013</td>
<td>5</td>
<td>DCD</td>
<td>Heart</td>
</tr>
<tr>
<td>2014</td>
<td>0</td>
<td>DCD</td>
<td>Kidneys</td>
</tr>
<tr>
<td>2014</td>
<td>5</td>
<td>DCD</td>
<td>Kidneys</td>
</tr>
<tr>
<td>2015</td>
<td>23</td>
<td>DCD</td>
<td>Kidneys</td>
</tr>
<tr>
<td>2015</td>
<td>30</td>
<td>DCD</td>
<td>Kidneys</td>
</tr>
</tbody>
</table>

Pretty rare.....
What is a potential organ donor?

- A patient where brain stem death is likely/suspected
- A patient where a plan for withdrawal of treatment has been made.
ThePotentialforOrganDonationAmongstaSpecialistChildren’sHospitalNeonatalPopulation

Brierley J, Scales A, Charles E

GreatOrmondStreetHospitalforChildrenNHSFoundation
Trust‘HNHS’StGeorge’sMedicalSchool,London

Background
Neonatal organ donation does not currently occur in the UK. Verification/certification standards (AoMRC – A Code of Practice for Diagnosis and Confirmation of Death) effectively prohibit the use of neurological criteria for diagnosing death in infants between 37-weeks gestation and 2-months of age and therefore donation after neurological determination of death (DBD). Neonatal donation after circulatory definition of death (DCD) is also possible but is not currently undertaken. There is currently no specific information about the potential for UK neonatal organ donation.

Method
Retrospective mortality database, clinical document database and a patient notes review was held in the Neonatal and Paediatric Intensive Care Unit of a tertiary children’s hospital. Review of deaths in infants that died between 37-weeks gestation and 2-months of age between 1st January 2006 and 31st October 2012. The potential was assessed using current UK guidelines for older children and neonatal criteria elsewhere.

Results
84 infants died

- 34 (40%) Potential DCD
- 31 (37%) Potential DBD (theoretically)
- 39 (46%) Not potentials

Conclusion
There appears significant potential to allow the opportunity for OD within the neonatal population.

Review of current guidelines relating to diagnosis of TBD in infants is required to facilitate consideration of TBD donors

Mandatory training in OD for those caring for neonates needs to be urgently introduced.

Blood and Transplant

- Not currently auditing neonatal units
- Brain stem death testing guidelines review

The diagnosis of death by neurological criteria in infants less than two months old

April 2015

Updated recommendations
Implications for practice

Is this a new future for donation?

Angharad Griffiths
South Wales Organ Donation Services Team
An Extraordinary Donation
The Referral

- Paediatric Palliative Care
- 36/40 gestation – twin boys, one anencephalic

What did we already know?

- unprecedented in the UK
- no previous benchmarked guidelines / protocols
- all anecdotal experiences
- developing area for organ procurement
Potential Neonatal Anencephalic Donor

- Transplant surgeon interested in the potential for kidney donation.

Next Steps
- Obstetric and neonatology collaboration
- Further family discussion/consent
- Blood sampling
- Formal planning
The Plan

• Induction, progression and management of labour as per normal obstetric/neonatal plan

• Three potential outcomes at delivery
  1. Twin 2 does not survive labour and is stillborn
  2. Twin 2 survives labour and is self ventilating
  3. Twin 2 survives labour but has signs of respiratory distress

• Intubation and ventilation measures agreed
What happened?

- Legal/ethical considerations
- Local ethical approval to continue with plan
- Professional anxieties
- Senior support

New Plan
The clamping of the cord following delivery deemed as cessation of life sustaining treatment.
<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>08.00</td>
<td>Membranes ruptured</td>
</tr>
<tr>
<td>10.45</td>
<td>Twin 1 delivered</td>
</tr>
<tr>
<td>11.15</td>
<td>Twin 2 delivered</td>
</tr>
<tr>
<td>11.45</td>
<td>Baby stable - advice sought</td>
</tr>
<tr>
<td>12.15</td>
<td>Deterioration in baby’s condition</td>
</tr>
<tr>
<td>12.40</td>
<td>Asystole – but some respiratory effort</td>
</tr>
<tr>
<td>12.50</td>
<td>Respiration ceased</td>
</tr>
<tr>
<td>12.55</td>
<td>Confirmation of death</td>
</tr>
<tr>
<td>12.58</td>
<td>Knife to skin</td>
</tr>
<tr>
<td>13.02</td>
<td>Cold perfusion of organs</td>
</tr>
<tr>
<td>14.30</td>
<td>Organ retrieval completed</td>
</tr>
</tbody>
</table>
"The possibility of organ donation was the only positive thing that could have come out of it...... And it did"

"There was so much sadness... But so much joy"
Retrieval Outcome

- Kidneys and liver retrieved en bloc for kidney transplantation
- Heart retrieved for heart valve donation

There was no change to baby’s palliative care plan, other than non invasive monitoring
"Teddy lived and died a hero"
Learning Outcomes

• Logistical Issues
  – Offering of potential organs on limited information
  – Unknown outcome of delivery - resources
  – Facilitating in labour theatres/staff
  – New baby registration
  – Blood sampling

• Potential for hepatocyte donation
• Teamwork!!!!

Intubation and ventilation would have delayed or prevented this donation