Sudden and Unexpected Postnatal Collapse

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Unrecognised suffocation

- Primiparous
- Apgars 9 and 10
- Episiotomy repair
- Skin to skin
- 40 mins of age

- Mother smiling
- Father taking photo
- Midwife suturing
Aims

• To determine incidence, presentation and associations
• To describe investigations undertaken
• To determine outcome at discharge and at 1 year

Funding

Becher et al, Arch Dis Child 2011
Entry criteria

Case definition

• Infants $\geq$ 37 completed weeks of gestation
• Five minute Apgar score of $\geq$ 8
• Sudden *unexpected* collapse in hospital $\leq$ 12hrs
• Requirement for positive pressure ventilation
• Death or ongoing intensive care
Incidence

November 2008 - November 2009 (13 months)

Confirmed cases: 45 infants
→ 5/100,000 term live births

Literature (135 cases): 3-8/100,000
## Specified causes of collapse

<table>
<thead>
<tr>
<th>Disease or abnormality</th>
<th>15 infants</th>
<th>Died</th>
<th>Abnormal neurological examination by 1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacterial pneumonia/sepsis (2 Group B streptococcus, 3 culture negative)</td>
<td>5</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Cardiac (transposition of the great arteries, hypoplastic left heart syndrome)</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Metabolic disorder (Zellweger's syndrome, unidentified disorder)</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Intracranial haemorrhage/infarction</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Meconium aspiration syndrome</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Severe chronic anaemia (parvovirus)</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Congenital diaphragmatic hernia</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No underlying disease/abnormality determined</th>
<th>30 infants</th>
<th>Died</th>
<th>Abnormal neurological examination by 1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apparent accidental suffocation during breast feeding or skin-to-skin</td>
<td>24 (80%)</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>No cause identified</td>
<td>6 (20%)</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Becher et al, Arch Dis Child 2011
<table>
<thead>
<tr>
<th>Details of collapse</th>
<th>Underlying condition (15)</th>
<th>No underlying condition (30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in minutes (median (range))</td>
<td>195 (10–688)</td>
<td>70 (6–643)</td>
</tr>
<tr>
<td>Collapse in first 2 h</td>
<td>7 (47%)</td>
<td>22 (73%)</td>
</tr>
<tr>
<td>Baby in care of mother/parents at collapse</td>
<td>13</td>
<td>24</td>
</tr>
<tr>
<td>Mother alone in room at time of collapse</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Mother recognised baby unwell</td>
<td>3 (43%)</td>
<td>2 (20%)</td>
</tr>
<tr>
<td>Parents alone in room at time of collapse</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Parents recognised baby unwell</td>
<td>1 (100%)</td>
<td>5 (71%)</td>
</tr>
<tr>
<td>Clinical staff in room at time of collapse</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>Staff first to recognise baby unwell</td>
<td>7 (100%)</td>
<td>13 (100%)</td>
</tr>
<tr>
<td>Position of baby</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother's breast/chest/abdomen (prone or side)</td>
<td>3 (20%)</td>
<td>18 (60%)</td>
</tr>
<tr>
<td>Arms</td>
<td>3 (20%)</td>
<td>9 (30%)</td>
</tr>
<tr>
<td>In cot (1 prone)</td>
<td>6 (40%)</td>
<td>3 (10%)</td>
</tr>
<tr>
<td>Uncertain position</td>
<td>3 (20%)</td>
<td>0</td>
</tr>
</tbody>
</table>
Other recent population studies

- Germany (ESPED): 2.6/100,000 Poets et al, Pediatrics 2011
- Australia (APSU): 7-9/100,000 Jeffries, Personal Comm. 2016
- Canada (CPSP): 1.1/100,000


Risk factors

- Primiparous mothers and/or unsupervised
- Prone position*
- Skin-to-skin* or breast-feeding * = soft bedding, covered head
- Bed-sharing*
- Tired*, sedated* or distracted* eg procedures, mobile phones Herlenius et al, Acta Paed 2013

* = risk factors for conventional SIDS
Important – when not to sleep with your baby

Smoking increases the risk of cot death. You should make sure that you don’t fall asleep with your baby in your bed if you (or any other person in the bed) are a smoker, even if you never smoke in bed.

Falling asleep with your baby is also dangerous if you (or any other person in the bed) might find it hard to respond to the baby. For example if you:

- have drunk alcohol
- have taken any drug (legal or illegal) which could make you extra sleepy
- have any illness or condition that affects your awareness of your baby
- are otherwise unusually tired to a point where you would find it difficult to respond to your baby.

It also may be safest not to bed share in the early months if your baby was born preterm, was small at birth or if he has a high temperature.

Never sleep with your baby on a sofa or armchair. Sofas are very dangerous for babies as they can become trapped down the sides or in the cushions.
3. Safety considerations

Vigilance as to the baby’s well-being is a fundamental part of postnatal care in the first few hours after birth. For this reason, normal observations of the baby’s temperature, breathing, colour and tone should continue throughout the period of skin contact, in the same way as they would if the baby were in a cot. Observations should also be made of the mother, with prompt removal of the baby if the health of either gives rise to concern.

It is important to ensure that the baby cannot fall on to the floor or become trapped in bedding or by the mother’s body. Particular care should be taken with the position of the baby, ensuring the head is supported so the infant’s airway does not become obstructed.

Many mothers can continue to hold their baby in skin-to-skin contact during perineal suturing. However, adequate pain relief is required, as a mother who is in pain is unlikely to be able to hold her baby comfortably or safely. Mothers should be discouraged from holding their baby when receiving analgesia which causes drowsiness or alters their state of awareness (e.g. entonox).
Kennedy SUDI protocol:
- Limited perinatal focus
- Focus on process and agencies
- For deaths only not survivors
- SUPC not recognised as SUDI

SUPC Guidelines, 2011:
- Comprehensive investigation for all SUPC infants whether dying or not
- Collection of a structured perinatal dataset
- Investigations tailored to conditions linked with collapse in the first months of life
- Referral to the coroner for all deaths
- All PMs performed by perinatal pathologist
Summary

• SUPC occurs in around 5/100,000 births in the UK
  – Rare but nearly half of infants die or suffer neurological sequelae

• Known risk factors for SIDS are common and are modifiable

• With appropriate vigilance in the hours after birth
  – Infants with pathology may be identified earlier
  – Cases of accidental suffocation can be prevented