An effective safety net

The routine use of Intra Operative Cell Salvage for caesarean section

Paul Scates
Blood Conservation Coordinator
Torbay Hospital
Excessive haemorrhage in Caesarean Section (CS) is a major cause of maternal morbidity globally.

The reinfusion of Intra Operative Cell Salvage (IOCS) minimises the effects of excessive haemorrhage and is proven to enhance patient recovery and reduce the need for allogeneic transfusions.

IOCS is a simple, safe, effective and economical way of conserving the UK’s finite allogeneic blood supply.
Factors affecting our IOCS service in 2014

New IOCS system purchased early 2014 (x3 machines)
Operator confidence low
Differing levels of understanding and training in IOCS
Confusion and reluctance to use machines
Under utilised and misunderstood service

Something had to change
New role introduced to promote IOCS

Introduction of a Blood Conservation Coordinator (BCC). The roles purpose was to reduce perioperative blood use utilising PBM methods and strategies and get IOCS service working.

Worked in partnership with transfusion medicine
Raising confidence and competence in IOCS

UKCSAG competency workbook utilised

Competency based standardisation of practice for all IOCS operators

Knowledge and practical skills assessed

106 individual competencies – now mandatory

All members of perioperative team included in its usage
Cell Salvage – SHOT (2017)

2010 – 2017 =141 reports

56 Clinical reactions and 85 adverse events (Most related to use of filters and anti-coagulant)

The majority of adverse events were operator error or equipment failure

(Haynes et al, 2018)
Measuring effectiveness

In 2015, our IOCS service for CS was changed from a criteria based system to providing IOCS for all CS. To establish how effective this change was the first 50 CS performed in both 2014 and 2017 were audited. The LSCS were divided between emergency (24/7) and elective cases. The amount of collections and volume of salvage re-infused were reviewed.
First 50 LSCS in 2014

- Elective: 18
- Emergency: 32

- 3 collections
- 2 Process and return

587mls reinfused
First 50 LSCS 2017

- Elective: 17 collections, 3 process and return
- Emergency: 33 Collections, 15 process and return

Total Returned: 5537mls
What happened next:

PBM at Torbay gained huge recognition and support at the highest level
Perioperative culture change
Emulation of service by other Trusts
Finalist at HSJ Patient Safety awards 2018
BCC role has now evolved in to the Patient Blood Management Lead for Torbay Hospital
PBM activity increased

<table>
<thead>
<tr>
<th>Metric</th>
<th>2013</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood usage (NHSBT)</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Red Cell Transfusions Trust-wide</td>
<td>6832</td>
<td>4204</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(38% reduction)</td>
</tr>
<tr>
<td>Red Cell Transfusions Peri-operative</td>
<td>1697</td>
<td>1039</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(39% reduction)</td>
</tr>
<tr>
<td>TXA Doses</td>
<td>450</td>
<td>1,200</td>
</tr>
<tr>
<td>Pre-Operative anaemia management: Number of patients on Iron Pathway</td>
<td>0</td>
<td>81</td>
</tr>
</tbody>
</table>
First 50 LSCS 2019

Elective:
- 18 collections
- 11 process and return

Emergency:
- 32 collections
  - 11 process and return (5 meconium contamination)
- 5771mls reinfused
Feb – May 2019

183 LSCS

105 collection only
78 collection and process (49 emergency / 29 elective)

19,443mls salvaged RBC returned (range 64/722mls)
Returned RBC estimated as 1/3 of total Blood loss

Total units of allogeneic red cells used?
Conclusion

Since changing to all CS receiving IOCS collection as routine (2015), we have re-infused over 212,000mls of salvaged RBC blood to over 900 patients with estimated blood losses of up to 7000mls. Many of these cases may not have had IOCS had the change not occurred.

Routine IOCS for CS has provided an effective safety net in reducing the effects of excessive blood loss especially in unpredicted CS haemorrhage.

By reducing the need for allogeneic transfusion, we have also reduced the risk of alloimmunisation and the potential complications of red cell antibodies in this cohort of patients.

Positive feedback received from midwives in respect of maternal fatigue
Final words from Rachael and Millie-Moo

BBC Spotlight
Thank you
References