Carbetocin: A cost effective tool to save lives!

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Declaration of Interests

• None
Introduction

• Atonic Postpartum haemorrhage (PPH) is one of the major contributors to maternal morbidity and mortality worldwide

• Prophylactic uterotonics should routinely be offered in the management of the third stage of labour in all women as they reduce the risk of PPH

• Current RCOG guidance recommends using Oxytocin (5iu by slow IV injection) as prophylaxis for delivery by Caesarean Section

• Ergometrine-oxytocin (Syntometrine) reduces the risk of minor PPH and can be considered in patients at increased risk of PPH in the absence of hypertension
Introduction

• Carbetocin is a longer acting oxytocin derivative, which is licenced in the UK specifically for the prevention of PPH in the context of caesarean delivery

• Use of Carbetocin has shown a statistically significant reduction in the need for further uterotonics

• The cost of Carbetocin at £17.64 is significantly higher than that of Syntocinon and Syntometrine with a price of 80p and £1.57 respectively
Objective

• To demonstrate the use of Carbetocin as a cost effective prophylactic tool in the prevention of PPH at caesarean section
Method

- Retrospective analysis of patients undergoing caesarean section
Method

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• Patients were initially divided into three groups (Data set 1):
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  • Group A: Use of Carbetocin only
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  - Group A: Use of Carbetocin only
  - Group B: use of Carbetocin + other uterotonics
Method

• Retrospective analysis of patients undergoing caesarean section

• Patients were initially divided into three groups (Data set 1):
  • Group A: Use of Carbetocin only
  • Group B: Use of Carbetocin + other uterotonics
  • Group C: Other uterotonics
Method

• Retrospective analysis of patients undergoing caesarean section

• Patients were initially divided into three groups (Data set 1):
  • Group A: Use of Carbetocin only
  • Group B: use of Carbetocin + other uterotonics
  • Group C: Other uterotonics

• Amount of blood loss and the cost involved in procuring and administering of the drugs and blood transfusion was compared between the three groups
Method

- A second round of retrospective data analysis of patients undergoing elective caesarean section without the use of Carbetocin (Data set 2)
Method

• A second round of retrospective data analysis of patients undergoing elective caesarean section without the use of Carbetocin (Data set 2)

• The amount of blood loss and units of blood transfusion required were compared between data set 1 and 2
Results

DATA SET 1
• 1114 patients were analysed
Results

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• 1114 patients were analysed

<table>
<thead>
<tr>
<th>EBL</th>
<th>Group A (n = 459)</th>
<th>Group B (n = 301)</th>
<th>Group C (n = 354)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-499ml</td>
<td>270 (59%)</td>
<td>81 (27%)</td>
<td>135 (38%)</td>
</tr>
<tr>
<td>500 – 999ml</td>
<td>165 (36%)</td>
<td>151 (50%)</td>
<td>153 (43%)</td>
</tr>
<tr>
<td>1000 – 1499ml</td>
<td>90 (20%)</td>
<td>44 (15%)</td>
<td>31 (9%)</td>
</tr>
<tr>
<td>&gt;1500ml</td>
<td>6 (1%)</td>
<td>25 (8%)</td>
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Results

DATA SET 1
- 1114 patients were analysed

<table>
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<th>EBL</th>
<th>Group A +B n = 760</th>
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Results

• 79 units of blood were required during this period of time
  • 25 units used for group A+B
  • 54 units used for group C
Results

• 79 units of blood were required during this period of time
  • 25 units used for group A+B
    • 25 units for 760 patients (ratio 1:30)
  • 54 units used for group C
    • 54 units for 354 patients (ratio 1:6.5)
Results

- 79 units of blood were required during this period of time
  - 25 units used for group A+B
    - 25 units for 760 patients (ratio 1:30)
  - 54 units used for group C
    - 54 units for 354 patients (ratio 1:6.5)

- Cost of transfusion
  - Group A+B = £5,000
  - Group C = £10,800
Results

- 79 units of blood were required during this period of time
  - 25 units used for group A+B
    - 25 units for 760 patients (ratio 1:30)
  - 54 units used for group C
    - 54 units for 354 patients (ratio 1:6.5)

- Cost of transfusion
  - Group A+B = £5,000
  - Group C = £10,800

- Cost of drugs + transfusion
  - Group A+B = £8,213
  - Group C = £12,390
Results

DATA SET 2
- 1120 patients were analysed
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>0-499ml</td>
<td>286 (25%)</td>
</tr>
<tr>
<td>500 – 999ml</td>
<td>603 (53.8%)</td>
</tr>
<tr>
<td>1000 – 1499ml</td>
<td>96 (8.6%)</td>
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<table>
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<tr>
<th>EBL</th>
<th>Data Set 1 n = 1114</th>
<th>Data Set 2 n = 1120</th>
</tr>
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<tr>
<td>0-499ml</td>
<td>486 (43%)</td>
<td>286 (25%)</td>
</tr>
<tr>
<td>500 – 999ml</td>
<td>467 (42%)</td>
<td>603 (53.8%)</td>
</tr>
<tr>
<td>1000 – 1499ml</td>
<td>95 (9%)</td>
<td>96 (8.6%)</td>
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Results

- 153 units of blood were transfused
  - 153 units for 1120 patients (ratio 1:7)
Results

- 153 units of blood were transfused
  - 153 units for 1120 patients (ratio 1:7)
  - Group A+B: 25 units for 760 patients (ratio 1:30)
  - Odds ratio 0.2096 (CI 0.1359 – 0.3232)
Results

- 153 units of blood were transfused
  - 153 units for 1120 patients (ratio 1:7)

- Total cost of transfusion = £30,600
Results

• 153 units of blood were transfused
  • 153 units for 1120 patients (ratio 1:7)

• Total cost of transfusion = £30,600
  • Average cost per Caesarean Section = £27.32
Results

- 153 units of blood were transfused
  - 153 units for 1120 patients (ratio 1:7)

- Total cost of transfusion = £30,600
  - Average cost per Caesarean Section = £27.32
  - Average cost per caesarean section Group A+B = £6.58
  - Average cost per caesarean section Group C = £30.51
Conclusion

• The use of Carbetocin was better at keeping blood loss <500ml

• The incidence of major postpartum haemorrhage (EBL >1500ml) was lower in the groups that received Carbetocin

• A reduction in the incidence of major postpartum haemorrhage will reduce the requirement of blood transfusion

• Reducing the requirement of blood transfusions will offset the increased initial cost of Carbetocin as the prophylactic agent of choice
Conclusion

• A cochrane review demonstrated that Carbetocin reduces the need for further uterotonic agents, which offers further cost savings

• Reducing the incidence of PPH will reduced the other associated co-morbidities and psychological sequelae patients suffer
Conclusion

• In developing and the developed world alike, Carbetectin could prove to be an invaluable and cost effective tool to save lives.
Copyright Speaker

Questions?
References

Prevention and Management of Postpartum Haemorrhage, RCOG green top guideline, December 2016


McDonald SJ, Abbott JM, Higgins SP. Prophylacticergometrineoxytocin versus oxytocin for the third stage of labour. Cochrane Database Syst Rev 2004;(1)

Blood transfusions in Obstetrics, RCOG green top guideline, May 2015