The dose-delivery interval of morphine and its impact on adverse neonatal outcomes
Authors: Malith Ranatunga, Dr Tejas Doctor

Background
- Parenteral opioids are a commonly used form of analgesia available to women in labour.
- Morphine is the preferred parenteral opioid during labour in Australia.
- An important consideration in the incidence of adverse neonatal outcomes is the time interval between opioid dose and the delivery of the baby, known as the dose-delivery interval (DDI).

Aims
- To observe the impact the time between morphine administration and delivery of the newborn has on the incidence of adverse neonatal outcomes.

Methods

Figure 1: STROBE flow diagram

Background, Aims & Methods
## Results

<table>
<thead>
<tr>
<th>Category</th>
<th>Neonatal resuscitation needed</th>
<th>Tactile stimulation needed</th>
<th>Continuous positive airway pressure (CPAP) needed</th>
<th>Intermittent positive pressure ventilation (IPPV) needed</th>
<th>Apgar 5-minute binary (&lt;7 score)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDI 1 (&lt;156 mins)</td>
<td>OR (95% CI)</td>
<td>P-value</td>
<td>OR (95% CI)</td>
<td>P-value</td>
<td>OR (95% CI)</td>
</tr>
<tr>
<td>0.82 (0.48-1.39)</td>
<td>0.459</td>
<td></td>
<td>0.89 (0.52-1.51)</td>
<td>0.858</td>
<td>1.40 (0.58-3.38)</td>
</tr>
<tr>
<td>DDI 2 (155-314 mins)</td>
<td>2.08 (1.20-3.59)</td>
<td>0.009</td>
<td>2.05 (1.20-3.51)</td>
<td>0.009</td>
<td>2.51 (1.20-5.25)</td>
</tr>
<tr>
<td>DDI 3 (314-526.5 mins)</td>
<td>1.02 (0.63-1.68)</td>
<td>0.924</td>
<td>1.07 (0.66-1.74)</td>
<td>0.791</td>
<td>1.20 (0.55-2.63)</td>
</tr>
<tr>
<td>DDI 4 (&gt;526.5 mins)</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
</tbody>
</table>

OR- Odds Ratio, CI- Confidence interval

Table 1: Results of multivariate analysis
Discussion & Conclusion

Discussion

- Dose-delivery interval (DDI) category 2 (155-314 minutes) had a 2-fold increase in requirement for neonatal resuscitation in general and tactile stimulation compared to the longest DDI category (>526.5 minutes).
- DDI category 2 had 6.7 times significantly higher odds of requiring IPPV compared to the longest DDI category.
- DDI category 2 had 2.5 times significantly higher odds of requiring CPAP compared to the longest DDI category.

Conclusion
When the time interval between morphine administration and birth of the newborn is between 155-314 minutes, there may be an increased requirement for neonatal resuscitation at birth.