The dose-delivery interval of morphine and its impact on adverse neonatal outcomes

Authors: Malith Ranatunga, Dr Tejas Doctor

RESEARCH WEEK
5-9 OCTOBER 2020
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Background, Aims & Methods

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

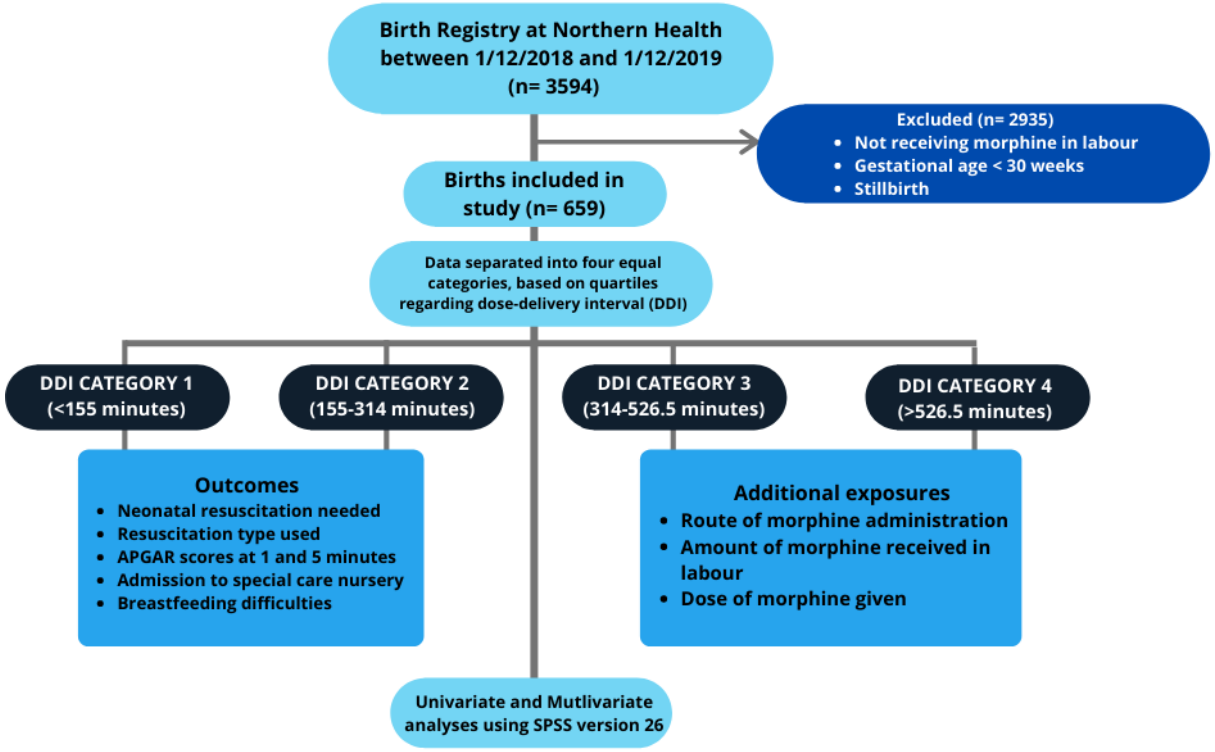

Figure 1: STROBE flow diagram

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Results

	Neonatal resuscitation needed		Tactile stimulation needed		Continuous positive airway pressure (CPAP) needed		Intermittent positive pressure ventilation (IPPV) needed		Apgar 5-minute binary (<7 score)	
	OR (95% CI)	P-value	OR (95% CI)	P-value	OR (95% CI)	P-value	OR (95% CI)	P-value	OR (95% CI)	P-value
DDI category 1 (<155 mins)	0.82 (0.48-1.39)	0.459	0.89 (0.52-1.51)	0.658	1.40 (0.58-3.36)	0.454	2.92 (0.94-9.07)	0.064	0.51 (0.05-5.72)	0.588
DDI category 2 (155-314 mins)	**2.08 (1.20-3.59)**	**0.009**	**2.05 (1.20-3.51)**	**0.009**	**2.51 (1.20-5.25)**	**0.015**	**6.67 (2.53-17.62)**	**<0.001**	3.30 (0.66-16.62)	0.148
DDI category 3 (314-526.5 mins)	1.02 (0.63-1.68)	0.924	1.07 (0.66-1.74)	0.791	1.20 (0.55-2.63)	0.641	2.59 (0.96-6.97)	0.060	0.54 (0.05-6.05)	0.619
DDI category 4 (>526.5 mins)	1	-	1	-	1	-	1	-	1	-

OR- Odds Ratio, CI- Confidence interval

Table 1: Results of multivariate analysis

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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.