

Factors associated with Neonatal Hyperbilirubinaemia in Gestational Diabetes Mellitus

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Hyperbilirubinaemia

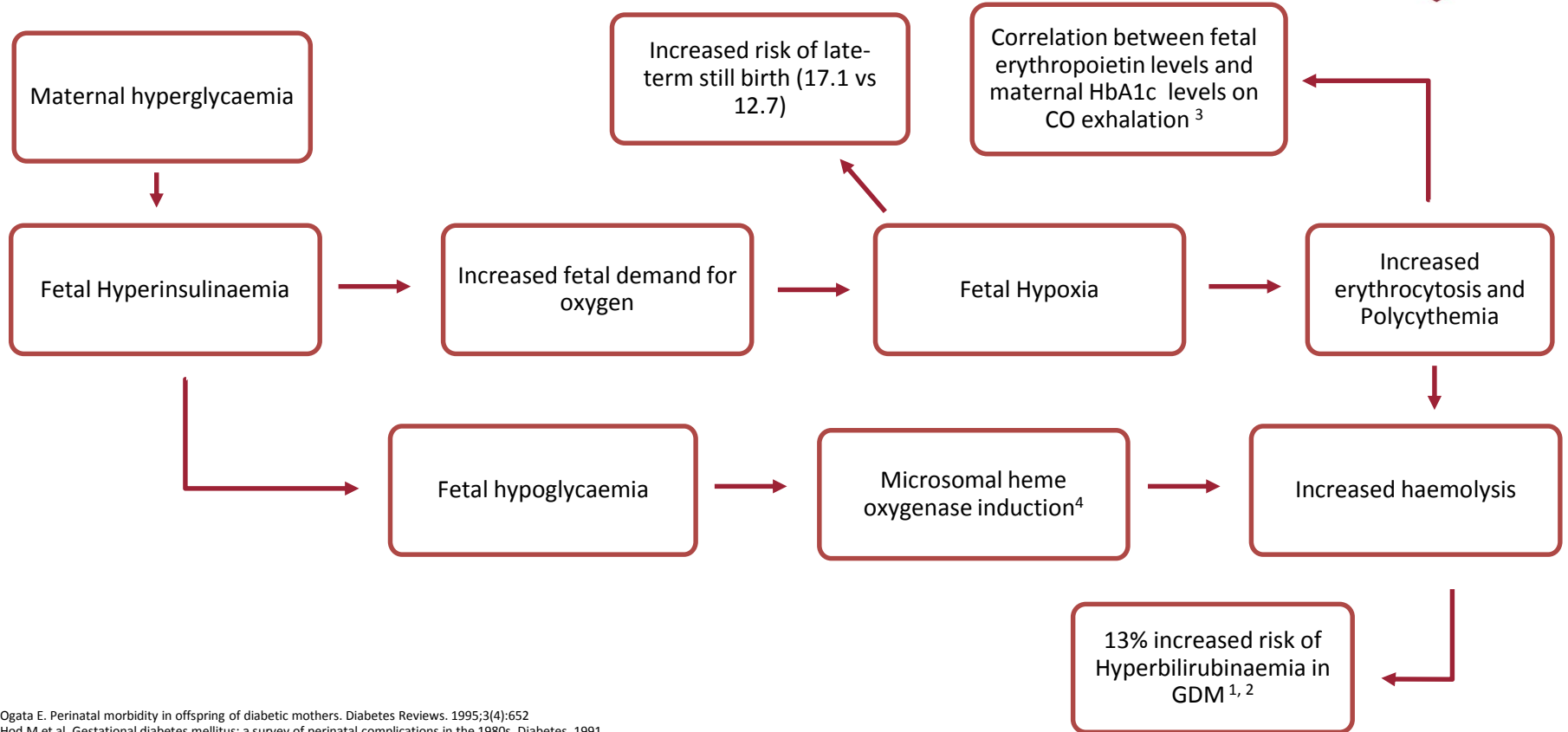


Gestational Diabetes



What is the link?

Background:



1. Ogata E. Perinatal morbidity in offspring of diabetic mothers. *Diabetes Reviews*. 1995;3(4):652
2. Hod M et al, Gestational diabetes mellitus: a survey of perinatal complications in the 1980s. *Diabetes*. 1991
3. Bartoletti et al, Pulmonary excretion of carbon monoxide in the human infant as an index of bilirubin production, *The Journal of pediatrics*. 1979;94(6):952-
4. Chang S-H et al. Glucose deprivation induces heme oxygenase-1 gene expression. *Journal of Biological Chemistry*. 2002;277(3):1933-40.

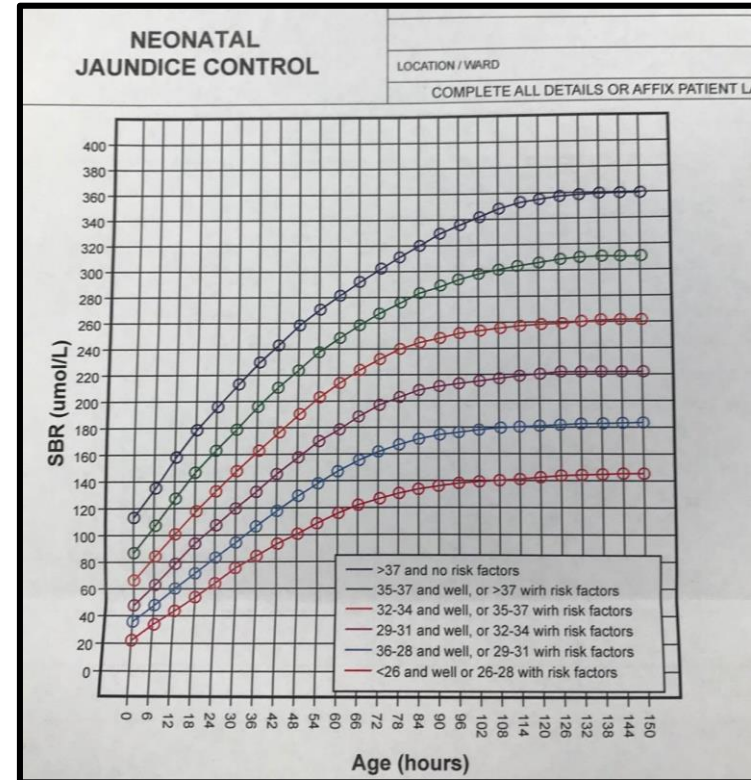
Aim:

To investigate maternal and neonatal characteristics and outcomes from pregnancies complicated by GDM and neonatal hyperbilirubinaemia.



Method:

- Retrospective clinical audit of pregnancies complicated by GDM at Campbelltown Hospital between 01/01/2013 and 31/12/2015
- Hyperbilirubinaemia defined as per the Neonatal Jaundice Treatment Threshold Graph which controlled for:
 - Gestational Age
 - Post-delivery Age
 - Haemolytic disease
- GDM diagnosis: ADIPS 1997/2013 guidelines before/after January 2015 respectively.



Results:

Maternal Factors in Neonatal Hyperbilirubinemia

	Neonatal Hyperbilirubinaemia	No Neonatal Hyperbilirubinaemia	p- value
<i>n</i>	71	825	
FBG mM	5.66 ± 0.13	5.18 ± 0.05	0.04
HbA1c %	5.3 ± 0.6	5.4 ± 0.4	0.89
Insulin:U	7.62	6.23	0.39
Pre-preg. BMI	29.8 ± 0.3	27.3 ± 0.5	0.08

Results:

Maternal Factors in Neonatal Hyperbilirubinemia		
	Likelihood ratio	p- value
Multiple pregnancy	14.9 (8.1-17.5)	<0.001
Hypertension in Pregnancy	2.4 (1.4-3.9)	0.02
Pre-eclampsia	5.5 (2.4-12.3)	0.01
Insulin vs Diet	1.06 (1.02-4.45)	0.09

Results:

Binary Regression of Maternal Risk Factors on Neonatal Hyperbilirubinaemia

	Exp (B)	S.E.	Sig	95% C.I. for EXP (B)	
				Lower	Upper
Pre-eclampsia	0.28	0.76	0.091	0.063	1.226
HTN in pregnancy	0.52	0.50	0.196	0.196	1.398
FBG mM	2.971	0.256	< 0.001	1.798	4.911
Constant	0.001	2.018	0.001		

Results:

Neonatal Outcomes

	Neonatal Hyperbilirubinaemia	No Neonatal Hyperbilirubinaemia	p-value
<i>n</i>	71	825	
5 min APGAR	8.16 ± 1.32	8.71 ± 1.09	< 0.001
Birth Weight	2960 ± 781.1	3309 ± 567.75	< 0.001
Gestational Age	37.0 ± 0.32	39.7 ± 0.59	< 0.001

Results:

Neonatal Hyperbilirubinemia Co-Morbidities		
	Likelihood Ratio	p-value
Polycythaemia	24.4 (15.5-38.5)	<0.001
Neonatal Hypoglycaemia	3.8 (2.4-5.9)	< 0.001
Stillbirth	1.145 (1.02-1.23)	0.439

Conclusion:

- Neonatal hyperbilirubinaemia in GDM was significantly associated with polycythaemia and hypoglycaemia.
- Mothers: more likely to have pre-eclampsia, hypertension in pregnancy and higher FBG on GTT
- No increase in insulin usage or dose.
- Neonates: significantly lower APGARS, birth weight and gestational age
 - Potentially reflecting underlying fetal hypoxia due to hyperglycaemia

Thank you!

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