

Effect of metformin on fetal growth in women with gestational diabetes and pre-conception risk factors for fetal growth restriction: a retrospective, population-based cohort study

Should I take Metformin?

BACKGROUND

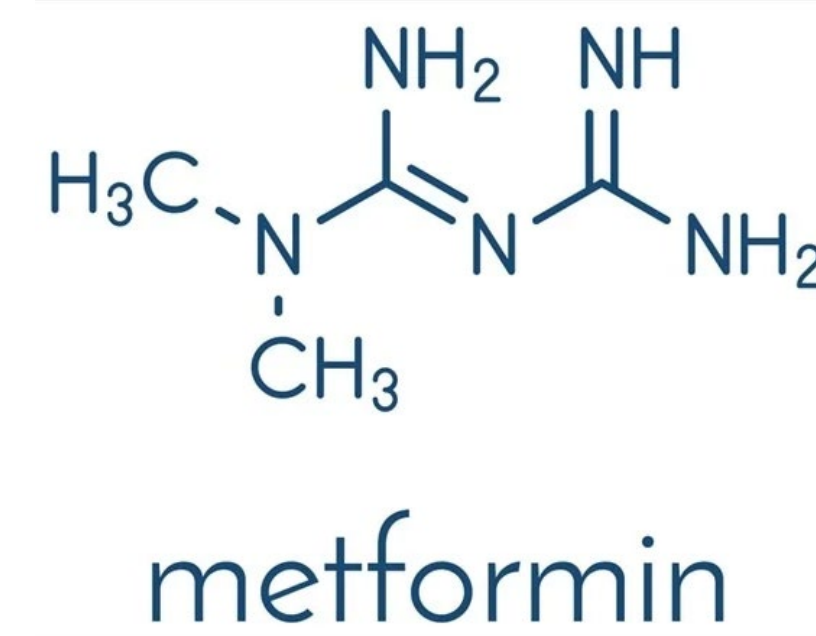
Metformin is an alternative first-line medication for gestational diabetes (GDM) to improve compliance and maternal BMI. The impact of the medication on fetal development is unclear.

This study examines the effect of metformin on fetal growth and peripartum outcomes.

Hypothesis- Metformin use negatively impacts birthweight in women already at higher risk for intrauterine growth restriction (IUGR).

DESIGN Retrospective population-based birth cohort study, 2017-2018

METHODS



Women diagnosed with gestational diabetes in pregnancy, having singleton, non-anomalous live births
N= 8,208

Women having risk factors for IUGR
N= 1,796 (21.9%)

Maternal age ≥ 40 , BMI ≤ 18.5 , assisted reproduction, bariatric surgery, chronic hypertension, autoimmune, cardiac, renal or blood disorders

Women not having risk factors for IUGR
N= 6,412 (78.1%)

Women taking metformin
N= 507 (28.3%)
RF+/MF+
(Insulin- 24.7%)

Women not taking metformin
N= 1,289 (71.8%)
RF+/MF-
(Insulin- 4.0%)

Women taking metformin
N= 1,504 (23.5%)
RF-/MF+
(Insulin- 21.9%)

Women not taking metformin
N= 4,908 (76.5%)
RF-/MF-
(Insulin- 2.5%)

Figure 1: Cohort distribution in the exposure groups;

IUGR- intrauterine growth restriction; RF-Risk factors for IUGR; MF- Metformin use for gestational diabetes; BMI- body mass index

INTERPRETATION OF RESULTS

The use of metformin for the management of GDM in women having pre-existing risk factors for IUGR is significantly associated with decreased birthweight in preterm, higher odds of preterm birth, emergency cesarean, low birthweight and small for gestational age babies.

The use of metformin in this group should be cautious, after balancing the improvement in maternal glycemia with the possible risk of IUGR and future health concerns in the offspring. Non-pharmacological methods and insulin should remain the preferred methods of choice to tackle GDM in this group.

Perinatal Outcomes Total N= 8,208 (Adjusted estimates with 95% CI)		Use of Metformin for GDM N= 8,208			
		Metformin No N=6,197		Metformin Yes N=2,011	
		Risk vs No risk Adjusted OR	P value	Risk vs No risk Adjusted OR	P value
Preterm birth (<37 weeks)		1.28 (1.02-1.61)	0.034	1.78 (1.29-2.44)	<0.001
Preterm birth (<34 weeks)		1.09 (0.64-1.88)	0.748	2.44 (1.14-5.20)	0.021
Cesarean section		1.31 (1.10-1.56)	0.002	1.25 (0.95-1.64)	0.109
Emergency Cesarean section		1.14 (0.95-1.35)	0.149	1.37 (1.05-1.79)	0.020
LBW (≤ 2500 gms)	Overall	1.36 (1.06-1.74)	0.016	1.91 (1.33-2.73)	<0.001
	Term	1.05 (0.71-1.54)	0.807	1.41 (0.80-2.50)	0.239
SGA (<10% CBW)	Overall	1.11 (0.91-1.36)	0.316	1.39 (1.01-1.92)	0.042
	Preterm	0.78 (0.42-1.43)	0.419	1.86 (0.82-4.17)	0.135
	Term	1.15 (0.93-1.42)	0.212	1.27 (0.89-1.81)	0.181

RESULTS

