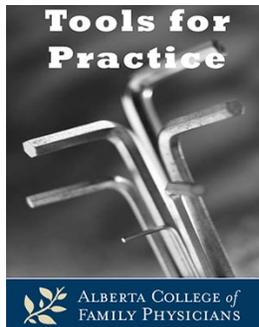


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October 13, 2015



## Has insulin met its match? Metformin for gestational diabetes

**Clinical question: Is metformin a reasonable alternative to insulin in gestational diabetes mellitus (GDM)?**

**Bottom Line: Compared to insulin, metformin results in 1kg less maternal weight gain and less severe neonatal hypoglycaemia for one in 22 babies, but results in earlier delivery by about one day. Other clinical outcomes are unchanged and long-term safety of metformin in GDM appears reassuring. Metformin is a reasonable option in GDM requiring treatment.**

### Evidence:

- Three systematic reviews<sup>1-3</sup> of up to six open-label, Randomized Controlled Trials (RCTs) of metformin or insulin in 1,372 women: Over half of patients from one RCT.<sup>4</sup>
  - Metformin women had:
    - Less weight gain (1.1kg).<sup>1</sup>
    - Less gestational hypertension:
      - 3.6% versus 6.8%, Number Needed to Treat (NNT)=32.<sup>2</sup>
    - More preterm births (<37 weeks):
      - 10.1% versus 6.7%, Number Needed to Harm (NNH)=30.<sup>2</sup>
      - Delivered ~1 day earlier (95% Confidence Interval: 0.14–2.1 days).<sup>1</sup>
    - No difference in caesarean section rates or obstetrical trauma.<sup>1</sup>
  - Metformin babies had:
    - No difference in birth weight, macrosomia, hypoglycaemia (<2.6 mmol/l), shoulder dystocia, low APGAR scores, admission to level 2 or 3 nursery or mortality.<sup>1-4</sup>
    - Less severe hypoglycaemia (<1.6 mmol/l):
      - 3.3% versus 8.1% NNT=22.<sup>4</sup>
  - 77% women preferred metformin for subsequent pregnancy.<sup>4</sup>
  - ~1/3 of metformin users eventually required insulin.<sup>1</sup>
- Long-term follow-up: >400 children from RCTs<sup>4,5</sup> followed up to two years found children born to mothers on metformin (compared to insulin) had:
  - Similar<sup>6</sup> or clinically insignificant differences in height and weight (example ~0.7kg heavier and 1.7cm taller<sup>7</sup>) or development at 18 months.<sup>6</sup>

**Context:**

- GDM occurs in ~5% of pregnancies.<sup>8</sup>
  - Risk factors include: Family/previous history of GDM, higher body mass index, and certain ethnicities.<sup>8,9</sup>
- Recent guidelines recommend either universal screening for GDM,<sup>8</sup> or screening only those with risk factors.<sup>9</sup>
- For women with 'mild' GDM, advising mothers of diagnosis and treating (compared to not advising nor treating) reduces perinatal complications (death, shoulder dystocia, bone fracture, and nerve palsy) from 4% to 1% (NNT=34) but increases the likelihood of labour induction and admission to neonatal nursery (both NNHs=10).<sup>10</sup>
- Although off-label in pregnancy,<sup>11</sup> UK guidelines<sup>9</sup> recommend (in order) diet and exercise, then metformin, then insulin.

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**Disclosure:**

Authors have no conflicts to disclose.

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