Glycaemic control and management after antenatal steroid therapy in patients with gestational diabetes: a retrospective audit to guide an insulin dosing calculator

Background

Administration of antenatal steroids can cause significant hyperglycaemia in women with gestational diabetes which may be associated with adverse outcomes. There are no validated protocols for achieving glycaemic stability following steroid administration and other studies found that increasing insulin doses up to 40% did not achieve target glycaemic control.

Aim

To evaluate changes in maternal glycaemia and insulin requirements following antenatal steroid administration in women with gestational diabetes.

Methods

Women with gestational diabetes admitted to Westmead Hospital who received antenatal steroids over a 6 year period (September 2016 to April 2022) were retrospectively identified from the hospital electronic medical records. Blood glucose and insulin dose records from 0 to 72 hours from the administration of the first dose of antenatal steroids were collected.

Results

100 women with gestational diabetes receiving antenatal steroids were included, 43% were diet controlled, and 57% were insulin treated (including 15 women who were insulin naïve prior to steroids). In the 72 hours post first-dose betamethasone, the proportion of readings above target range (fasting >5.4mmol/L or otherwise >6.9 mmol/L) for diet controlled women was 51.6%, and for insulin treated women was 59.7%, with highest above target proportion at 24-48 hours. The median glucose was highest at 24-48 hours (6.9mmol/L in the diet controlled group, 7.4mmol/L in the insulin treated group). The average insulin dose increase over the 72 hours compared to 0 hours was less than 20%. Hypoglycaemia was rare.

Conclusion

Antenatal steroid administration resulted in significant time outside of range. Insulin dose increases based on current practice at our institution are not sufficient to achieve optimal glycaemic control. We propose an institutional protocol to pre-emptively increase usual insulin doses by 80% from 0-48 hours and by 25% from 48-72 hours post first steroid dose to be implemented and evaluated in a follow up study.