Abstract

Comparison between Metformin and Glybenclamide in the Treatment of Gestational Diabetes: A Preliminary Report

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Objective:
To compare the glycaemic control between two step-wise (dose increment by titration) oral monotherapy hypoglycaemia agent (metformin or glybenclamide) in pregnant women with gestational diabetes.

Method:
This was a randomized control trial involving gestational diabetes mellitus women requiring treatment from March 2011 till September 2012. The patients were randomized into two groups, in which one group received metformin and the other was glybenclamide as the first line treatment. The doses of medications were titrated as required till maximum and glycemic control for both groups were monitored. Commencement of the second medication (glybenclamide for the group which was started with metformin and vice versa) was made before being converted to insulin when the study failed. Progress of the pregnancies was analysed including maternal and fetal complications.

Results:
There were 20(30% of required sample size) women recruited into the study. Patients who received metformin however required more increment of dosage (median 750mg; IQR 500, 1700mg) to achieve targeted glycaemic control compared to patients who received glybenclamide (median 2.4mg; IQR 2.5, 5.0mg). The blood sugar profiles in both groups were similar for fasting (metformin 4.9 mmol/L versus glybenclamide 5.1 mmol/L), prelunch (metformin 5.5 mmol/L versus glybenclamide 5.1 mmol/L), pre dinner (metformin 6.0 mmol/L versus glybenclamide 5.8 mmol/L) and pre bed (metformin 6.1 mmol/L versus glybenclamide 5.0 mmol/L). No difference between the two drugs in its efficacy to control blood sugar with HbA1C median of 5.9% (IQR 5.2%, 6.8%) in metformin group versus 6.0% (IQR 5.8%, 6.1%) in glybenclamide group (p=0.853) and the serum fructosamine median of 203 umol/L (IQR 193, 230 umol/L) in metformin group versus 200 umol/L (IQR 191, 213 umol/L) in glybenclamide group (p=0.481). No patient required both medications. Maternal hypoglycaemia in the glibenclamide group (20%) and gastrointestinal discomfort in metformin group (20%) were observed. Fetal hypoglycaemia was also observed in 10% from each group (p=1.000). There was no major maternal and fetal adverse outcome between treatments with metformin or glybenclamide**.**

The slow progress of the study was due to stringent criteria in selection of patients, although when eligible not many patients consented for the trial. Time from recruitment to delivery was also a factor as the study also looked at the pregnancy outcomes. This had resulted in only 30% of the actual required sample size was able to be recruited over nearly one and a half years of study.

Conclusion:
In this early phase of recruitment, metformin and glybenclamide are equally effective in achieving glycaemic control of women with gestational diabetes mellitus. Both have no major adverse maternal and fetal outcomes. Nevertheless at this point, it is proposed that metformin to be used as the first line of oral hypoglycaemic agent in patients with gestational diabetes mellitus as it has a lesser maternal

hypoglycaemic side effect compared to glybenclamide. As this study is still in progress, the final result can be satisfactorily concluded at the end of the final recruitment.