

P-0981 – Effects of various pharmacologic treatments on maternal and neonatal outcomes in Gestational Diabetes Mellitus



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Background

Gestational Diabetes Mellitus (GDM) is associated with adverse maternal and neonatal outcomes. When pharmacological treatment is needed; Insulin is the gold standard for treating GDM. However in recent years; an interest to use oral anti-diabetic agents (metformin and glibenclamide) is emerging and evidence of efficacy and safety is accumulating. Due to the convenience, cost effectiveness and acceptability of using oral agents; many centers in the world are using these agents to treat GDM. In our tertiary care hospital, we are using metformin to treat GDM since the publication of MiG Trial in 2008.

Objectives

Primary objective:

To compare the maternal and neonatal outcomes in oral anti-diabetic agents vs insulin treated GDM patients.

Secondary objective:

To compare efficacy of oral anti-diabetic agents with Insulin in the treatment of GDM (percentage of subjects who needed supplemental insulin).

Methods:

This is a Retrospective Cohort Study conducted jointly by the Departments of Medicine and OB/GYN at The Aga Khan University Hospital, Karachi, Pakistan. We reviewed all the medical records of GDM patients meeting the inclusion criteria of the study, from January 2005 to December 2015.

Inclusion Criteria: Women with singleton pregnancies who were diagnosed with GDM

Exclusion Criteria: Women with pregestational diabetes mellitus or with overt diabetes mellitus of pregnancy. Women who booked late in the course of the pregnancy i.e. after 33 weeks of gestation. Women with other medical disorders like pre-existing cardiac, hepatic, renal impairment or autoimmune pathologies like systemic lupus erythematosus etc. Women on steroid therapy. Incomplete maternal and neonatal data due to inadequate/loss of follow-ups.

Results:

1754 women with GDM fulfilled the inclusion criteria. Mean maternal age was 30±5.01 years and their body mass index based on either pre-pregnancy body weight or the first trimester body weight was 28.37±13.21 kg/m². 11.1% of women had GDM in their previous pregnancy and 8.4% had a family history of T2DM. The mean gestational age at which Pharmacological intervention began was 31.5 weeks. 57.6% (n=1011) of women received only medical nutrition therapy and exercise intervention to control their GDM out of which 94.4% (n=863) remained in excellent glycemic control. 10.9% (n=191) women were treated with insulin treatment while 28.1% (n=492) received metformin treatment. Small subset of women needed insulin added on to metformin if the later was unable to achieve control {2.3%(n=41)} while very few women who were on insulin treatment needed addition of metformin to insulin to achieve control {1.1%(n=19)}. 80.5% (n=364) women treated with metformin alone achieved excellent glycemic control; while an excellent glycemic control was achieved in 15.3% (n=28) women treated with insulin alone (p<0.001). In contrast; 17.7% women treated with metformin alone and 80.3% women treated with insulin alone achieved moderate glycemic control. 4.4% insulin treated women and 1.8% metformin treated women remained uncontrolled.

Results (Continued):

Women with 0-hour OGTT value of >110 mg/dl and/or 2-hour OGTT value of >200 mg/dl were more likely to be on insulin treatment than metformin treatment {31.4% vs 8.1% for 0-hour OGTT value >110 mg/dl (p<0.001) and 23% vs 6.7% for 2-hour OGTT value >200 mg/dl (p<0.001)}. Neonatal birth weight was comparable across all groups. Only 7 (1.5%) neonates in metformin-treated women and 8 (4.4%) neonates in insulin-treated women had >4 kg birth weight (p=NS). There was one stillbirth each in metformin-treated and insulin-treated women.

GDM management categories				
	Frequency	Percent	Valid Percent	Cumulative Percent
Diet MNT	1011	57.6	57.6	57.6
Metformin	492	28.1	28.1	85.7
Insulin	191	10.9	10.9	96.6
Metformin+ Insulin	41	2.3	2.3	98.9
Insulin + Metformin	19	1.1	1.1	100.0
Total	1754	100.0	100.0	

Discussion:

In our retrospective study, 42.4% women with GDM required pharmacological treatment. The maternal and neonatal outcomes in both metformin-treated and insulin-treated women are equal although excellent glycemic control was more likely to be achieved in the former group. Women with higher values on OGTT (0-hour >110 mg/dl and 2-hour >200 mg/dl) are likely receive insulin treatment while women with values lower than these on OGTT were more likely to get controlled on metformin alone. Only few women received glibenclamide in our cohort so their outcomes were not analyzed. Recent meta-analyses favored the use of insulin and metformin in treating women with GDM. Our study has compared use of metformin with insulin in routine clinical setting and hence will further enhance the confidence of clinicians in using metformin in women with GDM.

