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Association between HbA1C levels and pregnancy outcome in diabetic pregnancies

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Objective: To study the association between HbA1C levels and maternal & perinatal outcome, in pregnancies complicated with diabetes mellitus.

Method: It is an observational retrospective study. In this study we reviewed all singleton pregnant women with any type of diabetes who gave birth in Sultan Qaboos University Hospital, Muscat, Oman between (2013 - 2015). During the study period, there were 9,358 deliveries, of whom 966 pregnancies complicated by diabetes mellitus (DM) 10.29%. We excluded twin and triplet gestations complicated by DM (N=19), so the study group comprised of 947 (10.1%). In this study, HbA1C was performed in each trimester and results were considered abnormally high when it exceeds 6%.

Results: In this study,16% of women studied were aged under 25 years, 66% aged between 25-35 years and 18% aged more than 35 years. Regarding body mass index (BMI) of the study population, 64% had BMI. 29 kg/m2, 25% had BMI between 25-29 kg/m2 and 11% of women had BMI under 25 kg/m2. It is shown that only 1.2% of women had type 1 DM, 8.2% had pre-gestational diabetes mellitus (PGDM) and 90.6% had gestational diabetes mellitus (GDM). Majority of women with GDM, blood sugar was controlled with diet alone (71.5%) and the rest were controlled by Insulin (19.1%). Macrosomia was observed only in 0.48% of all deliveries during the study period while in the study group this was observed in 4.7% of women nearly 10 times. While caesarean delivery increased from 22% during the study period to 26.6% in the study group (P<0.001). Cesarean section rate of 26.6% was significantly correlated with mean HbA1C levels in 2nd and 3rd trimesters (p<0.001). There were 9 stillbirth and 5 IUFDs, 7 stillbirths and 4 IUFDs had HbA1C>8%. All neonatal complications have positive correlation with HbA1C in 2nd and 3rd trimesters.

Conclusions: Starting from a first-trimester, HbA1C level >6%, there is associated with adverse pregnancy outcome.

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