A Retrospective Cohort Study to Compare Pregnancy Outcomes in Teenage Versus Adult Patients with Type 1 Insulin Dependent Diabetes Mellitus (T1D)

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Introduction

- Adolescent pregnancy is associated with adverse maternal and fetal outcomes
- Most teenage pregnancies are unintended and less likely to have adequate prenatal care
- Pregnancies complicated by Type 1 Diabetes (T1D) are also associated with adverse pregnancy outcomes
- Improved glycaemic control and preconception planning can improve pregnancy outcomes
- Very little data exists on pregnancy outcomes in teenage pregnancies complicated by T1D

Objectives:
- To assess glycaemic control achieved in teenage pregnancies with T1D as compared to adult counterparts with T1D
- To compare the rate of adverse pregnancy outcomes between the two groups

Materials and Methods

- Retrospective cohort chart review 2007-2015
- Patients followed at Eastern Virginia Medical School, Dept. of Obstetrics & Gynecology, Diabetes in Pregnancy Program
- Two cohorts of pregnant women with T1D - Teenagers (age <20 years), n = 43 - Adults (≥ 20 years), n = 275
- Data extracted: Patient demographics, medical history, insulin pump use +/- Continuous glucose sensor use (CGM), daily insulin requirements, HbA1c change, and obstetrical and neonatal outcomes
- IRB Approval: # 15-05-0103

Results

- As predicted, there was a significant difference in age, gravity and parity between the groups
- BMI, ethnicity distribution, gestational age at initial visit, and number of prenatal visits were comparable
- As expected, adults entered pregnancy with significantly more medical co-morbidities (thyroid dysfunction, nephropathy, retinopathy and/or hypertension) [70% vs. 51% p<0.01]
- Teens entered pregnancy with a higher HbA1c but achieved a more dramatic decrease ending with HbA1c levels similar to adults
- Teenagers were:
  - less likely to have preconception counseling
  - less likely to use insulin pumps at conception
  - more likely to initiate pumps during pregnancy

Conclusions

- We report the largest series of pregnancy outcomes in teens with pregnancies complicated by T1D
- Our T1D teens enter pregnancy with poorer glycaemic control than adults but, with intensive management, they achieve greater improvement & they achieve similar glycaemic control
- Although teens were less likely to already be using insulin pumps/CGM when they conceived, at term, a similar number of teens and adults with T1D (>50%) were using these technologies
- Unlike other published research, our data suggests that with intensive DM management, our teens & adults with T1D have comparable perinatal outcomes for mother and baby

References


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