Interplay of Gestational Diabetes Mellitus, Obesity and Group B Streptococcus in a multiethnic setting: A Retrospective Cohort Study

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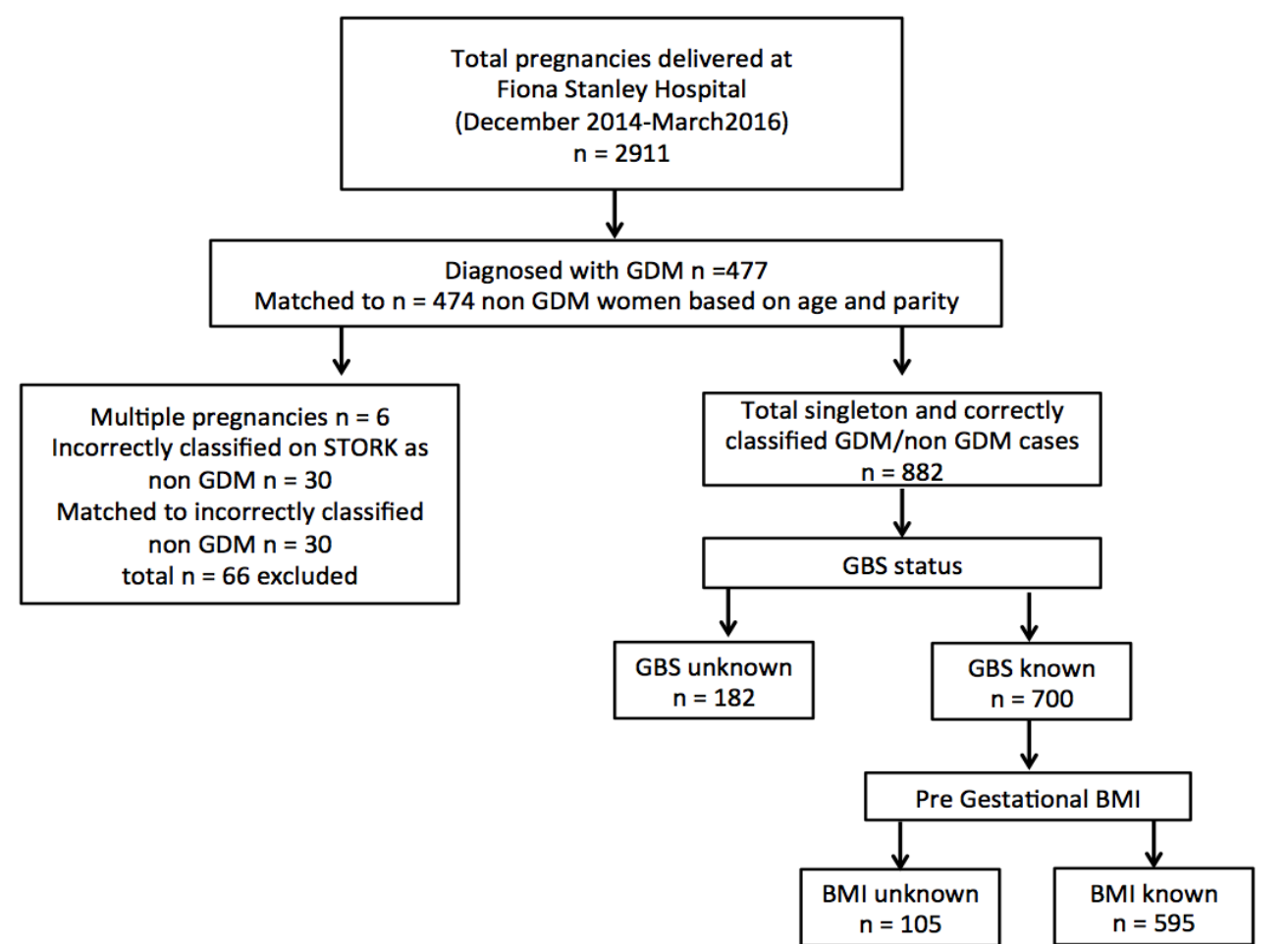
Background

- Group B Streptococcus (GBS) colonization rates in pregnancy vary between 10-30% worldwide (1).
- Several maternal risk factors are identified for GBS colonization, the role of obesity and Gestational Diabetes (GDM) remain unclear in a multiethnic setting (2, 3, 4).

Objectives

- Examine the relationship between GDM, obesity and other risk factors for GBS colonization in pregnancy in a multiethnic facility
- We hypothesized that GDM and obesity will increase GBS colonization.

Methods

- A cohort of 700 age and parity matched GDM and non-GDM pregnant women were retrospectively studied
- A detailed medical record review was conducted to study GBS status, maternal characteristics and neonatal outcomes.

Total pregnancies delivered at Fiona Stanley Hospital (December 2014-March2016) n = 2911 → Diagnosed with GDM n =477, Matched to n = 474 non GDM women based on age and parity → Multiple pregnancies n = 6, Incorrectly classified on STORK as non GDM n = 30, Matched to incorrectly classified non GDM n = 30, total n = 66 excluded; Total singleton and correctly classified GDM/non GDM cases n = 882 → GBS status → GBS unknown n = 182 / GBS known n = 700 → Pre Gestational BMI → BMI unknown n = 105 / BMI known n = 595

Results

- One fifth (19.29%) of women were GBS positive
- GDM mothers were significantly less likely to be GBS positive (22.9% vs 15.6.%, p = 0.016)
- GBS positive women were significantly younger (p = 0.026), however there was no relationship between GBS positivity and pre-pregnancy BMI.
- Ethnicity significantly altered rates of GBS and GDM. When categorized by ethnicity 40.9% of Caucasian women had GDM and 22.2% were GBS positive.
- 61.9% of south east Asian women had GDM but only 13.7% were GBS positive
- Logistic regression analysis indicated that maternal age (p = 0.007), nulliparity (p = 0.010), female baby gender (p = 0.030) and GDM (p = 0.006) were significant multivariate predictors of GBS colonization (p > 0.001, Cox and Snell = 0.055).

Maternal characteristics (n = 700)	Caucasian Ethnicity (n=388)		South-East Asian Ethnicity (n= 285)	
	n (%)	Mean Difference/ OR (CI)	n (%)	Mean Difference/ OR (CI)
GDM	162 (40.9)	P = <0.001 (0.327, 0.603)	140 (61.9)	p = <0.001 (1.516, 2.004)
Overweight or Obese (BMI >25)	221 (41)	p = 0.036 (1.027, 1.776)	149 (27.8)	p = <0.001 (0.435, 0.774)
GBS (Positive)	88 (22.2)	p = 0.02 (1.073, 2.356)	31 (13.7)	P = 0.01 (0.365, 0.876)

Conclusion

- GDM and Obesity did not increase the risk of GBS colonization in pregnancy
- Ethnicity did influence GDM and GBS status
- Further studies with larger cohorts are warranted to confirm these findings.

References

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