



Congenital Cardiology Solutions

MATERNAL DIABETES AND CARDIOVASCULAR MALFORMATIONS IN THE NEWBORN: A POPULATION-BASED CASE-CONTROL STUDY

Moderated Poster Contributions

Poster Sessions, Expo North

Monday, March 11, 2013, 9:45 a.m.-10:30 a.m.

Session Title: Congenital Cardiology Solutions: Important Considerations

Abstract Category: 13. Congenital Cardiology Solutions: Pediatric

Presentation Number: 1293M-140

Authors: *Pankaj Madan, Matt Buas, Jeffrey R. Johnson, Crystal Bonnichsen, Stephen M. Schwartz, Mayo Clinic, Rochester, MN, USA, University of Washington, Seattle, WA, USA*

Background: Although maternal pre-gestational diabetes mellitus (PGDM) has been shown to be associated with infant cardiac malformations, the association of gestational diabetes mellitus (GDM) with cardiac malformations has been inconsistent. In addition, few studies have examined the relationship between maternal diabetes and specific types of infant cardiac malformations. The objective of this study was to assess the associations between maternal PGDM and GDM with the birth prevalence of specific subtypes of infant cardiac malformations.

Methods: A population-based case-control study was conducted using birth certificate data linked with maternal and infant hospital discharge data for delivery hospitalizations in Washington State from 1987 to 2009. 11,043 cases of cardiovascular malformations were frequency-matched by year of birth with 55,598 randomly selected controls. Stratified analyses were conducted to account for effect modification and confounding.

Results: The association of various forms of cardiovascular malformations with PGDM and GDM are shown in Table below.

Malformation type	PGDM		GDM	
	Odds Ratio	95% CI	Odds Ratio	95% CI
All	5.0	4.3-5.8	1.6	1.4-1.7
Early	6.3	4.1-9.6	1.2	0.8-1.7
Laterality, looping	5.4	2.4-12.4	1.2	0.6-2.3
Outflow tract	7.2	4.4-11.8	1.1	0.7-1.8
Atrioventricular septal defects	2.9	0.4-21.0	2.0	0.8-5.2
Obstructive/shunting	5.4	4.6-6.4	1.6	1.4-1.8
L-sided obstructive	8.7	5.8-13.2	2.2	1.6-3.0
R-sided obstructive	6.3	4.5-8.8	1.5	1.2-1.9
L-to-R shunting	4.9	4.0-6.0	1.6	1.4-1.8
Ventricular septal defects	3.7	2.8-4.9	1.3	1.1-1.5

Conclusions: Defects of primary cardiogenesis or early malformations (such as laterality and looping defects and outflow abnormalities) are associated with PGDM but not with GDM. Although both right and left sided obstructive lesions are associated with PGDM and GDM, the association for GDM is relatively weaker.