

Title: Exploring the relationship between obstetric complications and peripartum cardiomyopathy

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Background: Peripartum cardiomyopathy (PPCM) is a life-threatening condition with a global incidence of 1 in 2000 births with higher incidence in African American (AA) populations. Previous studies suggest that various pregnancy risk factors and complications are associated with an increased risk for developing PPCM including C-section, multiparity, advanced maternal age, gestational diabetes, anemia, hypertensive disorders of pregnancy, pre-eclampsia, and eclampsia. However, the relationship between PPCM and obstetric complications such as premature labor, stillbirth, blood transfusion, and post-partum hemorrhage (PPH) is not well understood.

Purpose: This study aims to use large cohort study data to examine if obstetric complications such as PPH, premature labor, blood transfusion, and stillbirth are associated with increased risk of PPCM among women.

Methods: Public discharge data which included hospital readmission data were obtained from the Agency of Healthcare Research and Quality for the states of Arizona (2003-2007), Florida (2004-2013), and Washington (2003-2012). Hospitalizations reporting a delivery were identified using ICD-9 CM codes (V27.xx). Patient, pregnancy, and obstetric characteristics were determined using ICD-9 CM codes. The primary outcome was post-partum presentation defined as hospitalization for PPCM within < 150 days following discharge for delivery hospitalization. Analyses were performed using a chi-square test for categorical variables and Student's t-test for continuous variables. Associations were determined using logistic regression.

Results: In total 3,367,312 delivering mothers were identified. 1601 mothers were diagnosed with PPCM, 917 of which were hospitalized for PPCM after discharge for delivery (52.3%). Characteristics of patients, pregnancy, and delivery are summarized in Table 1. Previously identified risk factors for PPCM such as gestational diabetes mellitus (GDM), anemia, C-section, hypertensive disorders of pregnancy, preeclampsia, eclampsia, advanced maternal age (AMA), and AA race were significantly increased in our PPCM cohort ($p < 0.001$ for all). Compared to non-PPCM patients, PPCM patients had higher rates of premature labor, C-section, and RBC transfusion ($p < 0.001$ for all). Post-partum hemorrhage did not have an association with PPCM ($p = 0.885$). In multivariable analysis, anemia, GDM, preeclampsia/eclampsia, premature labor, C-section, and blood transfusion were all significantly more common in women who developed PPCM post-discharge as seen in figure 1.

Conclusions: In addition to previously determined risk factors for PPCM, this study suggests that obstetric complications including premature labor, blood transfusions, and stillbirth may be associated with an increased risk for PPCM. Postpartum hemorrhage was not associated with increased risk for developing PPCM. Further exploration of risk factors associated with PPCM plays a vital role in identifying at-risk populations.

