

## **Congenital Heart Disease and the Placenta**

*Sekar.P, Albalawi.A,Ehsanipoor.R,Askin.F  
Johns Hopkins Medical Institution , Baltimore ,MD  
United State*

### **Introduction:**

The cardiac-placental axis is associated with parallel development of the placenta and heart that utilizes many common molecules and reflects synergistic growth of both organs. Little information exists on placental pathology in the presence of fetal congenital heart disease (CHD). Therefore; our objective was to describe and characterize the placenta in neonates with CHD and to investigate the association between CHD and placental abnormalities in fetus.

### **Methods:**

This study is a retrospective case series. Cases include all infants who were born at Johns Hopkins Bayview Medical Center (JHBMC) and underwent cardiothoracic surgery at Johns Hopkins Medical Institution (JHMI) within 6 months of life from 2000-2013. Cases with the following characteristics were excluded: maternal diabetes, maternal hypertension, maternal coagulopathy, maternal renal failure, alcohol, smoking, and illicit drugs due to established confounding effect on the placenta. The following infant characteristics were identified and excluded as well: isolated PDA, mild CHD, chromosomal abnormalities and multiple births. Eight out of the 59 patients at JHBMC had met the inclusion criteria. These eight placentas were examined by a pathologist with expertise in study of the placenta.

### **Results:**

The mean gestational age for this CHD sample was 35 weeks. Infants in this sample had average placental BW ratio = 0.20, and median placental BW ratio = 0.19, which is a normal ratio for this gestational age. We found that 50% of CHD cases had eccentric cord insertion on the placenta. One out of the eight placentas had a small infarct, 2 showed signs of acute chorioamnionitis, two had meconium staining, and three were characterized as normal

### **Conclusion:**

Eccentric cord insertion was present in placenta of half of CHD cases, which suggests placental implantation that has been described in other congenital defects. No other obvious abnormalities were found in this small sample. Larger studies are needed to characterize the placenta in fetal congenital heart disease.