

**The PAN study: Association of Gestational and Peripartal Characteristics with Different Cardiovascular Malformations**

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**Objectives:** From July 2006 until June 2009 about 20.000 live births with CHD have been registered in the nationwide PAN-Study ("Praevalenz angeborener Herzfehler bei Neugeborenen") in Germany. Recently, we have documented the prevalence of the different congenital cardiovascular malformations. In this report, the focus is on pre- and postnatal diagnostic assessment of the CHD as well as on the association with pregnancy related data, such as maternal age, gestational age and birth weight of the patients.

**Results:** According to the parents' reports, a prenatal echocardiography has been performed in 31.5% of all pregnancies. Frequency of prenatal detection of the CHD strongly correlated with the severity of the cardiac defect. Among the PDA dependent lesions, which accounted for 10% of all CHD cases, the prenatal diagnosis was made in 96% of the univentricular hearts, 80% of PA/VSD, 92% of IAA and in 55% of CoA. Postnatal diagnosis was ascertained in 95% of the PDA dependent CHD patients. Compared to all live births in Germany during the study period, multiple births, prematurity and low birth weight were doubled in infants with CHD. Prematurity and low birth weight were associated with multiple pregnancy in 69% and 47%, resp, and to a less degree with genetic and extracardiac anomalies. As expected, the association of multiple births was highest with PDA and ASD, but there was a correlation with Ebstein anomaly and valvular PS as well.

About 15% of all patients with CHD were small for gestational age babies. The SGA-risk was highest for PA/VSD, TAC, ToF and DORV.

The maternal age of all CHD cases was similar to that of live births in the general population; it was slightly elevated in CHD patients from multiple pregnancies and significantly elevated in CHD and additional genetic anomalies. Of all cardiovascular defects, only the Ebstein anomaly was found to be associated with a maternal age >33 years.

**Summary:** Severe, PDA-dependent cardiac lesions were effectively detected by pre- as well postnatal echocardiography. Multiple births, prematurity and low birth weight were doubled in patients with CHD. (Study support by the German Federal Ministry of Education and Research, FKZ01GI0601)