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The placenta in fetal congenital heart disease

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CHAPTER 7

Response Letter to the Editor – AJOG MFM

"Placenta insufficiency and congenital heart defects"

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Pan and Li emphasized the importance of assessing the incidence of (1) isolated congenital heart disease (CHD) and (2) placenta insufficiency within the CHD registry PRECOR and to relate this to cases of CHD with stillbirth.

In a previous study by our group, the incidence of isolated CHD (defined as the absence of additional malformations and/or genetic diagnoses) in the PRECOR registry was 60.7% (time frame 2012–2016; n=919).1 In the current study, with a different time frame, 59 of 99 cases (59.6%) were isolated. This suggests that an underlying genetic diagnosis is not a risk factor for fetal demise in CHD when aneuploidy is excluded.

In the PRECOR registry, data on fetal growth and Dopplers and placenta pathology reports were not stored systematically in the past. We agree with the authors that this would be valuable information to evaluate the underlying mechanisms of altered placental development in fetal CHD and to assess the risk for fetal demise in individual CHD cases. Therefore, we will definitely explore these data and study relationships by retrieving these data from the electronic patient files. To provide an answer for now, we assessed fetal growth and placenta-related complications of a subset of cases in the PRECOR register that were all prenatally diagnosed with isolated CHD in the Leiden University Medical Center from 2002 to 2022 (n=868). A total of 16% had a birthweight below the 10th percentile. Fetal demise occurred in 2.7% of cases, which is comparable with the incidence among all the cases in the PRECOR registry (112/4806 cases; 2.4%) described in our study and 9 times higher than the incidence in the overall Dutch population (0.3%).2 We found pregnancy-induced hypertension in 4.6% of the cases compared with in 4.2% of pregnancies in the whole Dutch population.3 In 4.2% of the cases, preeclampsia was reported compared with in 2.2% of pregnancies in the Dutch population.3 Although data on placenta pathology are missing, the high incidence of fetal growth restriction, pregnancy-induced hypertension, and preeclampsia suggest that there are more placenta-related complications in this cohort.

As previously stated, future research with data from the entire PRECOR registry will focus on fetal growth and placenta function in all included CHD cases in the complete PRECOR registry data set. This data could contribute to a better understanding of the relation between placental development, fetal (neuro)development, and pregnancy outcomes in pregnancies with fetal CHD. This information can contribute to a better understanding of the etiology of CHD and may contribute to adequate counseling and obstetrical management of individual cases.

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