Treatment of fetus with tachyarrhythmia

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Background:

Fetal arrhythmia is a term that refers to any abnormality in the fetal heart rate. They are detected in at least 2% of unselected pregnancies during the routine obstetric ultrasound and are normally a temporary, benign occurrence. However, on rare occasions, an irregular heart rhythm can be a significant cause of fetal nonimmune hydrops, premature delivery, and perinatal morbidity and mortality. Therefore, sustained fetal arrhythmias should be considered an emergency in fetal cardiology and treatment should be promptly instituted.

Case presentation:

A 28-year-old female, gravida 2 para 1, was referred at 30 weeks and two days of gestation due to suspected fetal heart arrhythmia. The patient had regular antenatal check ups and an obstetric ultrasonography at 16 weeks revealed an anomaly of the left hand, and shortened bones of the left forearm with the absence of a hand. Fetal echocardiography showed a regular heart structure and cardiac conduction system. At 30 weeks and two days, the patient was hospitalized due to suspected fetal heart arrhythmia during cardiotocogram recording. A tachyarrhythmia was registered with a heart rate of around 285 per minute, without hydrops or effusion. Due to persistent arrhythmia, digoxin was introduced into the therapy. On the 6th day after the introduction, a satisfactory concentration of digoxin was achieved in the maternal plasma, and no fetal tachyarrhythmias were recorded.

Conclusion:

One of the most successful achievements of fetal intervention is the pharmacologic management of fetal arrhythmias. While most arrhythmias in the fetus are benign, persistent arrhythmias can lead to fetal hydrops or cardiac dysfunction. Antiarrhythmic medications are administered transplacentally (given orally or intravenously to the mother) or directly to the fetus (through the umbilical cord). The latter can be considered only in hydropic fetuses, especially if the biophysical profile score (BPS) is altered.

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