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Prenatal MR imaging of congenital heart diseases and associated abnormalities

Tamara Feygin^{1,2}¹Perelman Medical School-University of Pennsylvania, USA²Children's Hospital of Philadelphia, USA

A variety of Congenital Heart Diseases (CHD) may be diagnosed prenatally. Traditionally, the fetal heart was primarily assessed by fetal echography. However, fetal MRI has been proven as a helpful imaging tool in detection of cardiovascular anomalies *in utero*. Numerous conditions, including transposition of great vessels, aorta coarctation, hypoplastic left heart syndrome, tetralogy of fallow, cardiac aneurysm, pericardiac/cardiac tumors may be demonstrated on MR imaging. In addition, presence of other coexisting anomalies outside of the cardio-vascular system may be revealed. Some cardio-vascular anomalies may be more than an isolated problem and could be a part of an underlying systemic/genetic condition. Even in the absence of genetic abnormalities, infants with CHD are at increased risk of brain lesions (15-45%) or neurodevelopmental delay. There is numerous data from autopsy reports, postnatal imaging and from more recent prenatal imaging research that congenital heart defects delay structural brain development *in utero*. The demonstration of a full spectrum of fetal anomalies provides extremely valuable information to clinicians and parents-to be. Fetal MR may be a feasible addition for timely and precise diagnosis of cardiac disease and associated anomalies. Prenatal imaging therefore helps to predict pregnancy outcome, and prepares couples for the birth of a child with an abnormality. The obtained information may also assist in thorough screening of fetal patients for eligibility for fetal treatment. It may help to prognosticate, to some degree, important issues of patient's developmental outcome and quality of life.

Biography

Tamara Feygin is an Associate Professor of Clinical Radiology at University of Pennsylvania and Children's Hospital of Philadelphia. Her primary interests are fetal and neonatal imaging. She led the development and implementation of magnetic resonance "Fluoroscopy" in clinical practice for assessment of dynamic processes in fetuses. She is a dedicated Educator and Mentor of medical students, radiology residents and radiology and neuroradiology fellows. She has been invited to present her work nationally and internationally. She is a Member of the European Society of Neuroradiology, the Radiological Society of North America, the Society for Pediatric Radiology, and a Senior Member of the American Society of Neuroradiology.

FEYGIN@email.chop.edu

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