

## **Fetal cardiac ultrasound and uterine arterial Doppler for family history of second trimester miscarriage, stillbirth and neonatal death. Transgenerational stillbirth excess**

First, second and third degree relatives of affected parents had 1.14-fold, 1.22-fold and 1.15-fold higher stillbirth odds compared with unaffected parents.

\*Workalemahu. Familial aggregation of stillbirth: A pedigree analysis of a matched case-control study. BJOG. Sept 2022.

Uterine artery Doppler is a requisite component to quantitative multifactorial risk assessment for stillbirth.

Stillbirth risk factor(s) - family history.

<https://fetalmedicine.org/research/assess/stillbirth>

Unless excluded by fetal autopsy and placental evaluation by perinatal pathologist, congenital heart disease and placental histopathology must be considered in the differential diagnosis as a risk factor for the recurrence in the current pregnancy.

Patho Clinical differential diagnosis for second and/or third trimester miscarriages includes impaired placentation and its placenta-related adverse obstetrical outcomes including IUGR, chromosomal and non chromosomal syndromes without and with congenital heart disease.

Current pregnancy should be considered at increased risk for this differential diagnosis. This increased risk necessitates performance of 2D fetal cardiac ultrasound and uterine artery Doppler to complete and optimize recurrence risk assessment and possible institution of low-dose aspirin treatment.

Uterine artery Doppler is a validated non-invasive proxy for placenta ischemia due to impaired placentation and defective trophoblastic invasion. Uterine artery Doppler is a marker for defective remodeling of spiral arteries with consequent placental malperfusion and associated impaired fetal growth.

\*Scazzocchio. Ultrasound Obstet Gynecol 2017; 49:435 - 441.

\*Mifsud. Placental pathology in early onset and late onset fetal growth restriction. Fetal Diagn Ther 2014;36:117-128

Abnormalities of the heart and great arteries are the most common congenital defects, accounting for approximately 20% of all stillbirths and 30% of neonatal death due to congenital defect. Z84.89

\*Office for National Statistics. Mortality statistics: childhood, infancy, and perinatal, England and Wales. Series DH3, #35, Office for National Statistics 2002

\*Hoffman. The Incidence of Congenital Heart Disease. Journal of American College of Cardiology 2002; 39: 1890-1900.

\*Llurba. Ultrasound Obstetrics and Gynecology 2013; 42: 169-174.

