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# Management of Monochorionic Twin Pregnancy

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## Management of Monochorionic Twin Pregnancy

This is the second edition of this guideline, previously published under the same title in December 2008.

### Executive summary of recommendations

#### *Diagnosis of monochorionic twin pregnancy*

How is monochorionicity diagnosed prenatally and what is the accuracy of prenatal ultrasound chorionicity allocation?

**All women with a twin pregnancy should be offered an ultrasound examination between 11<sup>+0</sup> weeks and 13<sup>+6</sup> weeks of gestation (crown–rump length 45–84 mm) to assess fetal viability, gestational age and chorionicity, and to exclude major congenital malformations.**

**B**

**Chorionicity should be determined at the time the twin pregnancy is detected by ultrasound based upon the number of placental masses, the appearance of the membrane attachment to the placenta and the membrane thickness. This scan is best performed before 14 weeks of gestation. [New 2016]**

**D**

**A photographic (thermal copy) record should be taken and placed in the patient's notes documenting the ultrasound appearance of the membrane attachment to the placenta and an electronic copy stored (Appendix II).**

✓

**If there is uncertainty about the diagnosis of chorionicity, a photographic record of the ultrasound appearance of the membrane attachment to the placenta should be retained and a second opinion should be sought.**

✓

**If there is still doubt in the diagnosis of chorionicity, the woman should be referred to a specialist without delay, as chorionicity is best determined before 14 weeks of gestation.**

**D**

**On ultrasound, the fetuses in twin pregnancies should be assigned nomenclature (i.e. upper and lower, or left and right) and this should be clearly documented in the woman's case notes to ensure consistency throughout pregnancy. [New 2016]**

**C**

### *Outcome of monochorionic twin pregnancy*

What is the outcome of monochorionic compared with dichorionic twin pregnancies?

**Clinicians and women should be aware that monochorionic twin pregnancies have higher fetal loss rates than dichorionic twin pregnancies, mainly due to second trimester loss and, overall, may have a higher risk of associated neurodevelopmental morbidity. This should form part of the parental counselling.**



### *Optimal screening for chromosomal abnormalities, structural abnormalities and other fetal complications in monochorionic twin pregnancies*

What is the optimum method of screening for chromosomal abnormalities in monochorionic twin pregnancies?

**Women with monochorionic twins who wish to have aneuploidy screening should be offered nuchal translucency measurements in conjunction with first trimester serum markers (combined screening test) at 11<sup>+0</sup> weeks to 13<sup>+6</sup> weeks of gestation (crown–rump length 45–84 mm). [New 2016]**



**In women with monochorionic twin pregnancies who 'miss' or who have unsuccessful first trimester screening for aneuploidy, second trimester screening by the quadruple test should be offered. [New 2016]**



**Early data with noninvasive prenatal testing are encouraging, but results should be interpreted with caution until larger studies have been carried out. [New 2016]**



What is the optimum method of screening for structural abnormalities in monochorionic twin pregnancies?

**All monochorionic twins should undergo a routine detailed ultrasound scan between 18 and 20<sup>+6</sup> weeks of gestation which includes extended views of the fetal heart anatomy (as recommended in the Fetal Anomaly Screening Programme screening of a singleton fetus).**



What is the optimum ultrasound regimen for monochorionic twin pregnancies?

**Fetal ultrasound assessment should take place every 2 weeks in uncomplicated monochorionic pregnancies from 16<sup>+0</sup> weeks onwards until delivery (Appendix III).**



**At every ultrasound examination, liquor volume in each of the amniotic sacs should be assessed and a deepest vertical pocket (DVP) depth measured and recorded, as well as the umbilical artery pulsatility index (UAPI). Fetal bladders should also be visualised. Although first presentation of twin-to-twin transfusion syndrome (TTTS) is rare after 26<sup>+0</sup> weeks of gestation, it can occur and therefore, scans should be performed at 2-weekly intervals in uncomplicated monochorionic twins until delivery (Appendix III). [New 2016]**



**From 16<sup>+0</sup> weeks of gestation, fetal biometry should be used to calculate an estimated fetal weight (EFW) and the difference in EFW calculated and documented. As the risk of selective growth restriction (sGR) extends to delivery, this should be performed at 2-weekly intervals until delivery. [New 2016]**



What are the optimum methods of screening for specific complications of monochorionic twin pregnancies?

#### Screening for TTTS

**Screening for TTTS by first trimester nuchal translucency measurements should not be offered. [New 2016]**



**Women with monochorionic twin pregnancies should be asked to report sudden increases in abdominal size or breathlessness to healthcare professionals in their secondary or tertiary centres as this may be a manifestation of TTTS.**



**Screening for TTTS should be by ultrasound examination from 16<sup>+0</sup> weeks onwards, at 2-weekly intervals, noting and recording fetal biometry and liquor volumes (DVP). Fetal bladders should also be visualised.**



#### Screening for twin anaemia-polycythaemia sequence (TAPS)

**TAPS should be screened for following fetoscopic laser ablation for TTTS and in other complicated monochorionic pregnancies requiring referral to a fetal medicine centre (such as those complicated by sGR) by serial middle cerebral artery peak systolic velocity (MCA PSV). [New 2016]**



#### Screening for sGR

**At each scan from 20 weeks of gestation (at 2-weekly intervals) onwards, calculate EFW discordance using two or more biometric parameters. Calculate percentage EFW discordance using the following formula:  $([\text{larger twin EFW} - \text{smaller twin EFW}] / \text{larger twin EFW}) \times 100$ . Liquor volumes as DVP should be measured and recorded (to differentiate from TTTS). [New 2016]**



**An EFW discordance of more than 20% is associated with an increase in perinatal risk. Such pregnancies should be referred for assessment and management in fetal medicine units with recognised relevant expertise. [New 2016]**



**Umbilical artery Doppler evaluation in monochorionic twins with sGR allows definition of prognosis and potential morbidity. In particular, those with absent or reversed end-diastolic velocities (AREDV) and 'cyclical' umbilical artery Doppler waveforms (intermittent AREDV) are at increased risk of perinatal mortality and morbidity (Appendix IV). [New 2016]**



### *Management of complex pathologies associated with a monochorionic twin pregnancy*

#### The management of TTTS

How useful are grading systems for severity of TTTS in establishing prognosis?

**At diagnosis, TTTS should be staged using the Quintero system. In addition, measurement of umbilical artery Doppler velocities, MCA PSV and ductus venosus Doppler studies should be performed and documented.**



What is (are) the optimal treatment(s) of TTTS and their outcomes?

**TTTS should be managed in conjunction with fetal medicine centres with recourse to specialist expertise and treatment in supraregional centres.**



**TTTS presenting before 26 weeks of gestation should be treated by fetoscopic laser ablation rather than amnioreduction or septostomy. There is evidence that the fetoscopic laser ablative method should be the Solomon technique.**



**Centres performing fetoscopic laser ablation should perform at least 15 procedures per year (rolling 3-year average). [New 2016]**



**Weekly ultrasound assessment (including examination of the fetal brain, heart and limbs) and serial measurements of UAPI, MCA PSV and ductus venosus Doppler velocities should be performed. After 2 weeks post treatment, the ultrasound interval can be increased to every 2 weeks (noting UAPI, MCA PSV and DVP) with documentation of adequate fetal growth (by calculating EFW).**



**In treated TTTS pregnancies, ultrasound examination of the fetal heart should be performed by the fetal medicine specialist to exclude functional heart anomalies.**



When should the delivery of monochorionic twin pregnancies complicated by TTTS take place?

**Delivery of monochorionic twin pregnancies previously complicated by TTTS and treated should be between 34<sup>+0</sup> and 36<sup>+6</sup> weeks of gestation. [New 2016]**



The management of sGR

**sGR in monochorionic twins requires evaluation in a fetal medicine centre with expertise in the management of such pregnancies. [New 2016]**



**In cases of early-onset sGR in association with poor fetal growth velocity and abnormal umbilical artery Doppler assessments, selective reduction may be considered an option. [New 2016]**



**In sGR, surveillance of fetal growth should be undertaken at least every 2 weeks with fetal Doppler assessment (by umbilical artery and middle cerebral artery pulsatility index, and peak systolic velocity). If umbilical artery Doppler velocities are abnormal, the Doppler assessments should be undertaken in line with national guidance, measuring ductus venosus waveforms. [New 2016]**



**Clinicians should be aware that there is a longer 'latency period' between diagnosis and delivery in monochorionic twins complicated by sGR compared with growth restriction in dichorionic twin pregnancy or singleton pregnancy. [New 2016]**



**Abnormal ductus venosus Doppler waveforms (reversed flow during atrial contraction) or computerised cardiotocography short-term variation should trigger consideration of delivery. [New 2016]**

