References

- National Institute for Health and Clinical Excellence. Multiple pregnancy. The management of twin and triplet pregnancies in the antenatal period. NICE clinical guideline 129. Manchester: NICE; 2011
- Nakasuji T, Saito H, Araki R, Nakaza A, Nakashima A, Kuwahara A, et al. The incidence of monozygotic twinning in assisted reproductive technology: analysis based on results from the 2010 Japanese ART national registry. J Assist Reprod Genet 2014;31: 803–7.
- Kawachiya S, Bodri D, Shimada N, Kato K, Takehara Y, Kato O. Blastocyst culture is associated with an elevated incidence of monozygotic twinning after single embryo transfer. Fertil Steril 2011:95:2140–2.
- Kilby MD, Baker PN, Critchley HO, Field DJ, editors. Consensus views arising from the 50th Study Group: Multiple Pregnancy. In: Multiple Pregnancy. London: RCOG Press; 2006. p. 283–6.
- Visintin C, Mugglestone MA, James D, Kilby MD; Guideline Development Group. Antenatal care for twin and triplet pregnancies: summary of NICE guidance. BMJ 2011;343: d5714.
- NHS Evidence. Multiple pregnancy: Evidence Update March 2013. A summary of selected new evidence relevant to NICE clinical guideline 129 'The management of twin and triplet pregnancies in the antenatal period' (2011). Evidence Update 37. Manchester: NICE; 2013.
- Ezra Y, Shveiky D, Ophir E, Nadjari M, Eisenberg VH, Samueloff A, et al. Intensive management and early delivery reduce antenatal mortality in monoamniotic twin pregnancies. Acta Obstet Gynecol Scand 2005;84:432–5.
- 8. Denbow ML, Cox P, Taylor M, Hammal DM, Fisk NM. Placental angioarchitecture in monochorionic twin pregnancies: relationship to fetal growth, fetofetal transfusion syndrome, and pregnancy outcome. *Am J Obstet Gynecol* 2000;182:417–26.
- de Villiers SF, Slaghekke F, Middeldorp JM, Walther FJ, Oepkes D, Lopriore E. Arterio-arterial vascular anastomoses in monochorionic placentas with and without twin–twin transfusion syndrome. *Placenta* 2012;33:652–4.
- Kilby MD, Platt C, Whittle MJ, Oxley J, Lindop GB. Renin gene expression in fetal kidneys of pregnancies complicated by twin-twin transfusion syndrome. *Pediatr Dev Pathol* 2001:4:175–9
- Umur A, van Gemert MJ, Nikkels PG. Monoamniotic-versus diamniotic-monochorionic twin placentas: anastomoses and twintwin transfusion syndrome. Am J Obstet Gynecol 2003;189:1325–9.
- Zhao DP, de Villiers SF, Slaghekke F, Walther FJ, Middeldorp JM, Oepkes D, et al. Prevalence, size, number and localization of vascular anastomoses in monochorionic placentas. *Placenta* 2013;34:589–93.
- Chang YL, Chang SD, Chao AS, Hsieh PC, Wang CN, Wang TH. Clinical outcome and placental territory ratio of monochorionic twin pregnancies and selective intrauterine growth restriction with different types of umbilical artery Doppler. *Prenat Diagn* 2009:29:753–6
- Gallot D, Saulnier JP, Savary D, Laurichesse-Delmas H, Lemery D. Ultrasonographic signs of twin-twin transfusion syndrome in a monoamniotic twin pregnancy. *Ultrasound Obstet Gynecol* 2005;25:308–9.
- Slaghekke F, Lopriore E, Lewi L, Middeldorp JM, van Zwet EW, Weingertner AS, et al. Fetoscopic laser coagulation of the

- vascular equator versus selective coagulation for twin-to-twin transfusion syndrome: an open-label randomised controlled trial. *Lancet* 2014;383:2144–51.
- Lopriore E, Deprest J, Slaghekke F, Oepkes D, Middeldorp JM, Vandenbussche FP, et al. Placental characteristics in monochorionic twins with and without twin anemia-polycythemia sequence. Obstet Gynecol 2008;112:753–8.
- Lopriore E, Slaghekke F, Oepkes D, Middeldorp JM, Vandenbussche FP, Walther FJ. Hematological characteristics in neonates with twin anemia-polycythemia sequence (TAPS). Prenat Diagn 2010;30:251-5.
- Slaghekke F, Kist WJ, Oepkes D, Pasman SA, Middeldorp JM, Klumper FJ, et al. Twin anemia-polycythemia sequence: diagnostic criteria, classification, perinatal management and outcome. Fetal Diagn Ther 2010;27:181–90.
- Lewi L, Deprest J. Management of twin pregnancies: where do we go from here? Ultrasound Obstet Gynecol 2013;41:601–4.
- Sebire NJ, D'Ercole C, Soares W, Nayar R, Nicolaides KH. Intertwin disparity in fetal size in monochorionic and dichorionic pregnancies. Obstet Gynecol 1998;91:82–5.
- National Collaborating Centre for Women's and Children's Health. Multiple pregnancy: The management of twin and triplet pregnancies in the antenatal period. NICE Clinical Guideline. London: RCOG Press; 2011.
- Lopriore E, Sueters M, Middeldorp JM, Klumper F, Oepkes D, Vandenbussche FP. Twin pregnancies with two separate placental masses can still be monochorionic and have vascular anastomoses. Am J Obstet Gynecol 2006;194:804

 –8.
- Senat MV, Quarello E, Levaillant JM, Buonumano A, Boulvain M, Frydman R. Determining chorionicity in twin gestations: threedimensional (3D) multiplanar sonographic measurement of intraamniotic membrane thickness. *Ultrasound Obstet Gynecol* 2006;28:665–9.
- Carroll SG, Soothill PW, Abdel-Fattah SA, Porter H, Montague I, Kyle PM. Prediction of chorionicity in twin pregnancies at 10–14 weeks of gestation. BJOG 2002;109:182–6.
- D'Alton ME, Dudley DK. The ultrasonographic prediction of chorionicity in twin gestation. Am J Obstet Gynecol 1989;160: 557–61.
- Sperling L, Kiil C, Larsen LU, Brocks V, Wojdemann KR, Qvist I, et al. Detection of chromosomal abnormalities, congenital abnormalities and transfusion syndrome in twins. *Ultrasound Obstet Gynecol* 2007;29:517–26.
- Hack KE, Derks JB, Elias SG, Franx A, Roos EJ, Voerman SK, et al. Increased perinatal mortality and morbidity in monochorionic versus dichorionic twin pregnancies: clinical implications of a large Dutch cohort study. BJOG 2008;115:58–67.
- Southwest Thames Obstetric Research Collaborative (STORK).
 Prospective risk of late stillbirth in monochorionic twins: a regional cohort study. Ultrasound Obstet Gynecol 2012;39:500

 –4.
- D'Antonio F, Khalil A, Dias T, Thilaganathan B; Southwest Thames
 Obstetric Research Collaborative (STORK). Crown-rump length
 discordance and adverse perinatal outcome in twins: analysis
 of the Southwest Thames Obstetric Research Collaborative
 (STORK) multiple pregnancy cohort. Ultrasound Obstet Gynecol
 2013;41:621-6.
- Sebire NJ, Snijders RJ, Hughes K, Sepulveda W, Nicolaides KH. The hidden mortality of monochorionic twin pregnancies. Br J Obstet Gynaecol 1997;104:1203–7.

- Lewi L, Jani J, Blickstein I, Huber A, Gucciardo L, Van Mieghem T, et al. The outcome of monochorionic diamniotic twin gestations in the era of invasive fetal therapy: a prospective cohort study. Am J Obstet Gynecol 2008;199:514.e1–8.
- Barigye O, Pasquini L, Galea P, Chambers H, Chappell L, Fisk NM. High risk of unexpected late fetal death in monochorionic twins despite intensive ultrasound surveillance: a cohort study. PLoS Med 2005;2:e172.
- Adegbite AL, Castille S, Ward S, Bajoria R. Neuromorbidity in preterm twins in relation to chorionicity and discordant birth weight. Am J Obstet Gynecol 2004;190:156–63.
- 34. Audibert F, Gagnon A; Genetics Committee of the Society of Obstetricians and Gynaecologists of Canada; Prenatal Diagnosis Committee of the Canadian College of Medical Geneticists. Prenatal screening for and diagnosis of aneuploidy in twin pregnancies. J Obstet Gynaecol Can 2011;33:754–67.
- Garchet-Beaudron A, Dreux S, Leporrier N, Oury JF, Muller F;
 ABA Study Group; Clinical Study Group. Second-trimester Down syndrome maternal serum marker screening: a prospective study of 11 040 twin pregnancies. Prenat Diagn 2008;28:1105–9.
- Gil MM, Akolekar R, Quezada MS, Bregant B, Nicolaides KH. Analysis of cell-free DNA in maternal blood in screening for aneuploidies: meta-analysis. Fetal Diagn Ther 2014;35:156–73.
- Huang X, Zheng J, Chen M, Zhao Y, Zhang C, Liu L, et al. Noninvasive prenatal testing of trisomies 21 and 18 by massively parallel sequencing of maternal plasma DNA in twin pregnancies. Prenat Diagn 2014;34:335–40.
- Bevilacqua E, Gil MM, Nicolaides KH, Ordoñez E, Cirigliano V, Dierickx H, et al. Performance of screening for aneuploidies by cell-free DNA analysis of maternal blood in twin pregnancies. Ultrasound Obstet Gynecol 2015;45:61–6.
- 39. Hall JG. Twinning. Lancet 2003;362:735-43.
- Chang YL, Chao AS, Cheng PJ, Chung CL, Chueh HY, Chang SD, et al. Presence of a single fetal major anomaly in a twin pregnancy does not increase the preterm rate. Aust N Z J Obstet Gynaecol 2004;44:332–6.
- Li H, Meng T, Shang T, Guan YP, Zhou WW, Yang G, et al. Fetal echocardiographic screening in twins for congenital heart diseases. Chin Med J (Engl) 2007;120:1391–4.
- Anderson BL, Sherman FS, Mancini F, Simhan HN. Fetal echocardiographic findings are not predictive of death in twintwin transfusion syndrome. J Ultrasound Med 2006;25:455–9.
- NHS fetal anomaly screening programme (FASP). [www.gov.uk/ topic/population-screening-programmes/fetal-anomaly]. Accessed 2015 Nov 5.
- 44. Lewi L, Lewi P, Diemert A, Jani J, Gucciardo L, Van Mieghem T, et al. The role of ultrasound examination in the first trimester and at 16 weeks' gestation to predict fetal complications in monochorionic diamniotic twin pregnancies. Am J Obstet Gynecol 2008;199:493.e1–7.
- Giles WB. Doppler ultrasound in multiple pregnancies. Baillieres Clin Obstet Gynaecol 1998;12:77–89.
- 46. Stirrup OT, Khalil A, D'Antonio F, Thilaganathan B; Southwest Thames Obstetric Research Collaborative (STORK). Fetal growth reference ranges in twin pregnancy: analysis of the Southwest Thames Obstetric Research Collaborative (STORK) multiple pregnancy cohort. Ultrasound Obstet Gynecol 2015;45:301–7.
- 47. Khalil A, D'Antonio F, Dias T, Cooper D, Thilaganathan B; Southwest Thames Obstetric Research Collaborative (STORK). Ultrasound estimation of birth weight in twin pregnancy: comparison of biometry algorithms in the STORK multiple pregnancy cohort. Ultrasound Obstet Gynecol 2014;44:210–20.

- Van Mieghem T, Eixarch E, Gucciardo L, Done E, Gonzales I, Van Schoubroeck D, et al. Outcome prediction in monochorionic diamniotic twin pregnancies with moderately discordant amniotic fluid. *Ultrasound Obstet Gynecol* 2011;37:15–21.
- Quintero RA, Morales WJ, Allen MH, Bornick PW, Johnson PK, Kruger M. Staging of twin-twin transfusion syndrome. *J Perinatol* 1999;19:550–5.
- Quintero RA, Dickinson JE, Morales WJ, Bornick PW, Bermúdez C, Cincotta R, et al. Stage-based treatment of twin-twin transfusion syndrome. Am J Obstet Gynecol 2003;188:1333

 –40.
- Robyr R, Lewi L, Salomon LJ, Yamamoto M, Bernard JP, Deprest J, et al. Prevalence and management of late fetal complications following successful selective laser coagulation of chorionic plate anastomoses in twin-to-twin transfusion syndrome. *Am J Obstet Gynecol* 2006;194:796–803.
- Lopriore E, Slaghekke F, Oepkes D, Middeldorp JM, Vandenbussche FP, Walther FJ. Clinical outcome in neonates with twin anemia-polycythemia sequence. Am J Obstet Gynecol 2010;203:54.e1–5.
- Valsky DV, Eixarch E, Martinez JM, Crispi F, Gratacós E. Selective intrauterine growth restriction in monochorionic twins: pathophysiology, diagnostic approach and management dilemmas. Semin Fetal Neonatal Med 2010;15:342–8.
- 54. D'Antonio F, Khalil A, Dias T, Thilaganathan B; Southwest Thames Obstetric Research Collaborative (STORK). Weight discordance and perinatal mortality in twins: analysis of the Southwest Thames Obstetric Research Collaborative (STORK) multiple pregnancy cohort. Ultrasound Obstet Gynecol 2013;41:643–8.
- Harper LM, Roehl KA, Tuuli MG, Odibo AO, Cahill AG. Sonographic accuracy of estimated fetal weight in twins. J Ultrasound Med 2013;32:625–30.
- Breathnach FM, McAuliffe FM, Geary M, Daly S, Higgins JR, Dornan J, et al; Perinatal Ireland Research Consortium. Definition of intertwin birth weight discordance. *Obstet Gynecol* 2011;118:94–103.
- 57. Gratacós E, Lewi L, Muñoz B, Acosta-Rojas R, Hernandez-Andrade E, Martinez JM, et al. A classification system for selective intrauterine growth restriction in monochorionic pregnancies according to umbilical artery Doppler flow in the smaller twin. *Ultrasound Obstet Gynecol* 2007;30:28–34.
- D'Antonio F, Khalil A, Thilaganathan B; Southwest Thames Obstetric Research Collaborative (STORK). Second-trimester discordance and adverse perinatal outcome in twins: the STORK multiple pregnancy cohort. BJOG 2014;121:422–9.
- Gratacós E, Lewi L, Carreras E, Becker J, Higueras T, Deprest J, et al. Incidence and characteristics of umbilical artery intermittent absent and/or reversed end-diastolic flow in complicated and uncomplicated monochorionic twin pregnancies. Ultrasound Obstet Gynecol 2004;23:456–60.
- Dickinson JE, Evans SF. The progression of disease stage in twintwin transfusion syndrome. J Matern Fetal Neonatal Med 2004;16:95–101.
- 61. Luks FI, Carr SR, Plevyak M, Craigo SD, Athanassiou A, Ralston SJ, et al. Limited prognostic value of a staging system for twin-to-twin transfusion syndrome. *Fetal Diagn Ther* 2004;19:301–4.
- Taylor MJ, Govender L, Jolly M, Wee L, Fisk NM. Validation of the Quintero staging system for twin-twin transfusion syndrome. Obstet Gynecol 2002;100:1257–65.
- Huber A, Diehl W, Bregenzer T, Hackelöer BJ, Hecher K. Stage-related outcome in twin–twin transfusion syndrome treated by fetoscopic laser coagulation. Obstet Gynecol 2006;108:333–7.

- 64. Michelfelder E, Gottliebson W, Border W, Kinsel M, Polzin W, Livingston J, et al. Early manifestations and spectrum of recipient twin cardiomyopathy in twin-twin transfusion syndrome: relation to Quintero stage. *Ultrasound Obstet Gynecol* 2007;30:965–71.
- Raboisson MJ, Fouron JC, Lamoureux J, Leduc L, Grignon A, Proulx F, et al. Early intertwin differences in myocardial performance during the twin-to-twin transfusion syndrome. Circulation 2004;110:3043–8.
- Huber A, Diehl W, Zikulnig L, Bregenzer T, Hackelöer BJ, Hecher K. Perinatal outcome in monochorionic twin pregnancies complicated by amniotic fluid discordance without severe twin–twin transfusion syndrome. *Ultrasound Obstet Gynecol* 2006;27:48–52.
- 67. Ville Y. Twin-to-twin transfusion syndrome: time to forget the Quintero staging system? *Ultrasound Obstet Gynecol* 2007;30:924–7.
- 68. NHS England Specialised Services Clinical Reference Group for Fetal Medicine. Clinical Commissioning Policy: Management of Twin to Twin Syndrome by fetoscopic laser ablation. NHS England E12/P/b. London: NHS England; 2015. [https://www.england.nhs.uk/ commissioning/wp-content/uploads/sites/12/2015/01/e12-mgmnttwin-twin.pdf]. Accessed 2015 Nov 5.
- Senat MV, Deprest J, Boulvain M, Paupe A, Winer N, Ville Y. Endoscopic laser surgery versus serial amnioreduction for severe twin-to-twin transfusion syndrome. N Engl J Med 2004;351:136

 –44.
- 70. Moise KJ Jr, Dorman K, Lamvu G, Saade GR, Fisk NM, Dickinson JE, et al. A randomized trial of amnioreduction versus septostomy in the treatment of twin-twin transfusion syndrome. *Am J Obstet Gynecol* 2005;193:701–7.
- Crombleholme TM, Shera D, Lee H, Johnson M, D'Alton M, Porter F, et al. A prospective, randomized, multicenter trial of amnioreduction vs selective fetoscopic laser photocoagulation for the treatment of severe twin-twin transfusion syndrome. Am J Obstet Gynecol 2007;197:396.e1–9.
- Roberts D, Neilson JP, Kilby MD, Gates S. Interventions for the treatment of twin-twin transfusion syndrome. *Cochrane Database* Syst Rev 2014;(1):CD002073.
- Baud D, Windrim R, Keunen J, Kelly EN, Shah P, van Mieghem T, et al. Fetoscopic laser therapy for twin-twin transfusion syndrome before 17 and after 26 weeks' gestation. Am J Obstet Gynecol 2013;208:197.e1-7.
- Middeldorp JM, Lopriore E, Sueters M, Klumper FJ, Kanhai HH, Vandenbussche FP, et al. Twin-to-twin transfusion syndrome after 26 weeks of gestation: is there a role for fetoscopic laser surgery? BJOG 2007;114:694–8.
- 75. Van Schoubroeck D, Lewi L, Ryan G, Carreras E, Jani J, Higueras T, et al. Fetoscopic surgery in triplet pregnancies: a multicenter case series. *Am J Obstet Gynecol* 2004;191:1529–32.
- Sepulveda W, Surerus E, Vandecruys H, Nicolaides KH. Fetofetal transfusion syndrome in triplet pregnancies: outcome after endoscopic laser surgery. Am J Obstet Gynecol 2005;192:161–4.
- Taylor MJ, Shalev E, Tanawattanacharoen S, Jolly M, Kumar S, Weiner E, et al. Ultrasound-guided umbilical cord occlusion using bipolar diathermy for Stage III/IV twin-twin transfusion syndrome. Prenat Diagn 2002;22:70–6.
- Paramasivam G, Wimalasundera R, Wiechec M, Zhang E, Saeed F, Kumar S. Radiofrequency ablation for selective reduction in complex monochorionic pregnancies. BJOG 2010;117:1294–8.
- Wimalasundera RC. Selective reduction and termination of multiple pregnancies. Semin Fetal Neonatal Med 2010;15:327–35.
- 80. Cavicchioni O, Yamamoto M, Robyr R, Takahashi Y, Ville Y. Intrauterine fetal demise following laser treatment in twin-to-twin transfusion syndrome. *BJOG* 2006;113:590–4.

- Blickstein I, Arabin B, Chervenak FA, Kavak ZN, Keith LG, Shinwell ES, et al. The Istanbul international consensus statement on the perinatal care of multiple pregnancy. J Perinat Med 2007;35:465–7.
- Royal College of Obstetricians and Gynaecologists. Antenatal Corticosteroids to Reduce Neonatal Morbidity and Mortality. Greentop Guideline No. 7. London: RCOG; 2010.
- 83. Kumar S, Paramasivam G, Zhang E, Jones B, Noori M, Prior T, et al. Perinatal- and procedure-related outcomes following radiofrequency ablation in monochorionic pregnancy. *Am J Obstet Gynecol* 2014;210:454.e1–6.
- 84. Gratacós E, Carreras E, Becker J, Lewi L, Enríquez G, Perapoch J, et al. Prevalence of neurological damage in monochorionic twins with selective intrauterine growth restriction and intermittent absent or reversed end-diastolic umbilical artery flow. *Ultrasound Obstet Gynecol* 2004;24:159–63.
- Royal College of Obstetricians and Gynaecologists. The Investigation and Management of the Small-for-Gestational-Age Fetus. Green-top Guideline No. 31. London: RCOG; 2013.
- 86. Genova L, Slaghekke F, Klumper FJ, Middeldorp JM, Steggerda SJ, Oepkes D, et al. Management of twin anemia-polycythemia sequence using intrauterine blood transfusion for the donor and partial exchange transfusion for the recipient. Fetal Diagn Ther 2013;34:121–6.
- Lopriore E, Slaghekke F, Kersbergen KJ, de Vries LS, Drogtrop AP, Middeldorp JM, et al. Severe cerebral injury in a recipient with twin anemia–polycythemia sequence. *Ultrasound Obstet Gynecol* 2013;41:702–6.
- Simões T, Amaral N, Lerman R, Ribeiro F, Dias E, Blickstein I. Prospective risk of intrauterine death of monochorionicdiamniotic twins. Am J Obstet Gynecol 2006;195:134–9.
- Ong SS, Zamora J, Khan KS, Kilby MD. Prognosis for the co-twin following single-twin death: a systematic review. BJOG 2006:113:992-8.
- Hillman SC, Morris RK, Kilby MD. Co-twin prognosis after single fetal death: a systematic review and meta-analysis. Obstet Gynecol 2011;118:928–40.
- Shek NW, Hillman SC, Kilby MD. Single-twin demise: pregnancy outcome. Best Pract Res Clin Obstet Gynaecol 2014;28: 249–63.
- 92. Righini A, Salmona S, Bianchini E, Zirpoli S, Moschetta M, Kustermann A, et al. Prenatal magnetic resonance imaging evaluation of ischemic brain lesions in the survivors of monochorionic twin pregnancies: report of 3 cases. *J Comput Assist Tomogr* 2004;28:87–92.
- 93. Weisz B, Hoffmann C, Ben-Baruch S, Yinon Y, Gindes L, Katorza E, et al. Early detection by diffusion-weighted sequence magnetic resonance imaging of severe brain lesions after fetoscopic laser coagulation for twin-twin transfusion syndrome. *Ultrasound Obstet Gynecol* 2014;44:44–9.
- 94. Senat MV, Loizeau S, Couderc S, Bernard JP, Ville Y. The value of middle cerebral artery peak systolic velocity in the diagnosis of fetal anemia after intrauterine death of one monochorionic twin. *Am J Obstet Gynecol* 2003;189:1320–4.
- Nicolini U, Pisoni MP, Cela E, Roberts A. Fetal blood sampling immediately before and within 24 hours of death in monochorionic twin pregnancies complicated by single intrauterine death. Am J Obstet Gynecol 1998;179:800–3.
- Senat MV, Bernard JP, Loizeau S, Ville Y. Management of single fetal death in twin-to-twin transfusion syndrome: a role for fetal blood sampling. *Ultrasound Obstet Gynecol* 2002;20:360–3.
- 97. Nakata M, Sumie M, Murata S, Miwa I, Kusaka E, Sugino N. A case of monochorionic twin pregnancy complicated with

- intrauterine single fetal death with successful treatment of intrauterine blood transfusion in the surviving fetus. Fetal Diagn Ther 2007;22:7–9.
- 98. Danon D, Sekar R, Hack KE, Fisk NM. Increased stillbirth in uncomplicated monochorionic twin pregnancies: a systematic review and meta-analysis. *Obstet Gynecol* 2013;121:1318–26.
- Barrett JF, Hannah ME, Hutton EK, Willan AR, Allen AC, Armson BA, et al.; Twin Birth Study Corroborative Group. A randomized trial of planned cesarean or vaginal delivery for twin pregnancy. N Engl J Med 2013;369:1295–305.
- Dias T, Mahsud-Dornan S, Bhide A, Papageorghiou AT, Thilaganathan B. Cord entanglement and perinatal outcome in monoamniotic twin pregnancies. *Ultrasound Obstet Gynecol* 2010;35:201–4.
- Hack KE, Derks JB, Schaap AH, Lopriore E, Elias SG, Arabin B, et al. Perinatal outcome of monoamniotic twin pregnancies. Obstet Gynecol 2009;113:353–60.
- 102. Van Mieghem T, De Heus R, Lewi L, Klaritsch P, Kollmann M, Baud D, et al. Prenatal management of monoamniotic twin pregnancies. Obstet Gynecol 2014;124:498–506.
- 103. Adegbite AL, Ward SB, Bajoria R. Perinatal outcome of spontaneously conceived triplet pregnancies in relation to chorionicity. Am J Obstet Gynecol 2005;193:1463–71.
- 104. Geipel A, Berg C, Katalinic A, Plath H, Hansmann M, Germer U, et al. Prenatal diagnosis and obstetric outcomes in triplet pregnancies in relation to chorionicity. BJOG 2005;112:554–8.
- 105. Papageorghiou AT, Avgidou K, Bakoulas V, Sebire NJ, Nicolaides KH. Risks of miscarriage and early preterm birth in

- trichorionic triplet pregnancies with embryo reduction versus expectant management: new data and systematic review. *Hum Reprod* 2006;21:1912–7.
- 106. Chaveeva P, Kosinski P, Birdir C, Orosz L, Nicolaides KH. Embryo reduction in dichorionic triplets to dichorionic twins by intrafetal laser. Fetal Diagn Ther 2014;35:83–6.
- 107. Lewi L, Gratacos E, Ortibus E, Van Schoubroeck D, Carreras E, Higueras T, et al. Pregnancy and infant outcome of 80 consecutive cord coagulations in complicated monochorionic multiple pregnancies. Am J Obstet Gynecol 2006;194:782–9.
- 108. Pagani G, D'Antonio F, Khalil A, Papageorghiou A, Bhide A, Thilaganathan B. Intrafetal laser treatment for twin reversed arterial perfusion sequence: cohort study and meta-analysis. Ultrasound Obstet Gynecol 2013;42:6–14.
- 109. Roman A, Papanna R, Johnson A, Hassan SS, Moldenhauer J, Molina S, et al. Selective reduction in complicated monochorionic pregnancies: radiofrequency ablation vs. bipolar cord coagulation. Ultrasound Obstet Gynecol 2010;36: 37–41.
- 110. Weisz B, Peltz R, Chayen B, Oren M, Zalel Y, Achiron R, et al. Tailored management of twin reversed arterial perfusion (TRAP) sequence. Ultrasound Obstet Gynecol 2004;23:451–5.
- 111. Mackenzie TC, Crombleholme TM, Johnson MP, Schnaufer L, Flake AW, Hedrick HL, et al. The natural history of prenatally diagnosed conjoined twins. J Pediatr Surg 2002;37:303–9.
- 112. Agarwal U, Dahiya P, Khosla A. Vaginal birth of conjoined thoracopagus – a rare event. Arch Gynecol Obstet 2003;269:66–7.

Appendix I: Explanation of guidelines and evidence levels

Clinical guidelines are: 'systematically developed statements which assist clinicians and patients in making decisions about appropriate treatment for specific conditions'. Each guideline is systematically developed using a standardised methodology. Exact details of this process can be found in Clinical Governance Advice No. I Development of RCOG Green-top Guidelines (available on the RCOG website at http://www.rcog.org.uk/green-top-development). These recommendations are not intended to dictate an exclusive course of management or treatment. They must be evaluated with reference to individual patient needs, resources and limitations unique to the institution and variations in local populations. It is hoped that this process of local ownership will help to incorporate these guidelines into routine practice. Attention is drawn to areas of clinical uncertainty where further research may be indicated.

The evidence used in this guideline was graded using the scheme below and the recommendations formulated in a similar fashion with a standardised grading scheme.

Classification of evidence levels

- I++ High-quality meta-analyses, systematic reviews of randomised controlled trials or randomised controlled trials with a very low risk of bias
- I+ Well-conducted meta-analyses, systematic reviews of randomised controlled trials or randomised controlled trials with a low risk of bias
- Meta-analyses, systematic reviews of randomised controlled trials or randomised controlled trials with a high risk of bias
- 2++ High-quality systematic reviews of case—
 control or cohort studies or high-quality case—
 control or cohort studies with a very low risk of
 confounding, bias or chance and a high probability
 that the relationship is causal
- 2+ Well-conducted case-control or cohort studies with a low risk of confounding, bias or chance and a moderate probability that the relationship is causal
- 2- Case-control or cohort studies with a high risk of confounding, bias or chance and a significant risk that the relationship is not causal
- 3 Non-analytical studies, e.g. case reports, case series
- 4 Expert opinion

Grades of recommendations

consistency of results



At least one meta-analysis, systematic reviews or RCT rated as I++, and directly applicable to the target population; or A systematic review of RCTs or a body of evidence consisting principally of studies rated as I+, directly applicable to the target population and demonstrating overall

- A body of evidence including studies rated as 2++ directly applicable to the target population, and demonstrating overall consistency of results; or Extrapolated evidence from studies rated as I++ or I+
- A body of evidence including studies rated as 2+ directly applicable to the target population, and demonstrating overall consistency of results; or Extrapolated evidence from studies rated as 2++
- Evidence level 3 or 4; or Extrapolated evidence from studies rated as 2+

Good practice point



Recommended best practice based on the clinical experience of the guideline development group