



Universiteit
Leiden
The Netherlands

Ultrasound studies in monochorionic twin pregnancies : results of TULIPS: Twins and ultrasound in pregnancy studies

Sueters, M.

Citation

Sueters, M. (2007, June 5). *Ultrasound studies in monochorionic twin pregnancies : results of TULIPS: Twins and ultrasound in pregnancy studies*. Retrieved from <https://hdl.handle.net/1887/12084>

Version: Corrected Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/12084>

Note: To cite this publication please use the final published version (if applicable).

Abbreviations



AA	arterioarterial
AREDF	absent/reversed end-diastolic flow
AV	arteriovenous
CO	cardiac output
DV	ductus venosus
DVP	deepest vertical pocket
EDF	end-diastolic flow
EFW	estimated fetal weight
IUFD	intrauterine fetal death
IUGR	intrauterine growth restriction
LUMC	Leiden University Medical Center
MCA	middle cerebral artery
PI	pulsatility index
PIV	pulsatility index for veins
PSV	peak systolic velocity
RA	renal artery
RVOTO	right ventricular outflow tract obstruction
TAMX	time averaged maximum velocity
TAPS	twin anemia-polycythemia sequence
TR	tricuspid regurgitation
TRAP	twin reversed arterial perfusion
TTTS	twin-to-twin transfusion syndrome
UA	umbilical artery
UV	umbilical vein
V max	maximum flow velocity
VV	venovenous

Authors and affiliations



From the Division of Fetal Medicine, Department of Obstetrics, Leiden University Medical Center, Leiden:

Marieke Sueters, Annemieke Middeldorp, Katinka Teunissen, Frans Klumper, Dick Oepkes, Frank Vandenbussche, Humphrey Kanhai

From the Division of Neonatology, Department of Pediatrics, Leiden University Medical Center, Leiden:

Enrico Lopriore

From the Department of Pediatric Cardiology, Leiden University Medical Center, Leiden:

Regina Bökenkamp

From the Department of Statistics, Leiden University Medical Center, Leiden:

Saskia Le Cessie

Publications



Lopriore E, Middeldorp JM, **Sueters M**, Oepkes D, Vandenbussche FP, Walther FJ. Long-term neurodevelopmental outcome in twin-to-twin transfusion syndrome treated with fetoscopic laser surgery. *Am J Obstet Gynecol* 2007;196:231.e1-4.

Lopriore E, **Sueters M**, Middeldorp JM, Oepkes D, Walther FJ, Vandenbussche FP. Velamentous cord insertion and unequal placental territories in monochorionic twins with and without twin-to-twin-transfusion syndrome. *Am J Obstet Gynecol* 2007;196:159.e1-5.

Middeldorp JM, **Sueters M**, Lopriore E, Klumper FJ, Oepkes D, Devlieger R, Kanhai HH, Vandenbussche FP. Fetoscopic laser surgery in 100 pregnancies with severe twin-to-twin transfusion syndrome in the Netherlands. *Fetal Diagn Ther* 2007;22:190-194.

Sueters M, Middeldorp JM, Lopriore E, Oepkes D, Kanhai HH, Vandenbussche FP. Timely diagnosis of twin-to-twin transfusion syndrome in monochorionic twin pregnancies by biweekly sonography combined with patient instruction to report onset of symptoms. *Ultrasound Obstet Gynecol* 2006;28:659-664.

Lopriore E, van Wezel-Meijler G, Middeldorp JM, **Sueters M**, Vandenbussche FP, Walther FJ. Neurodevelopmental outcome after laser therapy for twin-to-twin transfusion syndrome. *Am J Obstet Gynecol* 2007;196:e20; author reply e20-1.

Steggerda S, Lopriore E, **Sueters M**, Bartelings M, Vandenbussche FP, Walther FJ. Twin-to-twin transfusion syndrome, vein of Galen malformation and transposition of the great arteries in a pair of monochorionic twins; pure coincidence or related association? *Pediatr Dev Pathol* 2006;9:52-55.

Lopriore E, van Wezel-Meijler G, Middeldorp JM, **Sueters M**, Vandenbussche FP, Walther FJ. Incidence, origin, and character of cerebral injury in twin-to-twin transfusion syndrome treated with fetoscopic laser surgery. *Am J Obstet Gynecol* 2006;194:1215-1220.

Lopriore E, **Sueters M**, Middeldorp JM, Klumper FJ, Oepkes D, Vandenbussche FP. Twin pregnancies with two separate placental masses can still be monochorionic and have vascular anastomoses. *Am J Obstet Gynecol* 2006;194:804-808.

Stroeken H, **Sueters M**, Lopriore E, Meerman RH, Vandenbussche FPHA. A terme perinatale sterfte bij mono- en dichoriale tweelingzwangerschappen: een retrospectieve studie. *Nederlands Tijdschrift voor Obstetrie en Gynaecologie* 2005;118:172-177.

Lopriore E, **Sueters M**, Middeldorp JM, Klumper FJ, Oepkes D, Vandenbussche FP, Walther FJ. Neonatal outcome in twin-to-twin transfusion syndrome treated with fetoscopic laser occlusion of vascular anastomoses. *J Pediatr* 2005;147:597-602.

Lopriore E, **Sueters M**, Middeldorp JM, Vandenbussche FP, Walther FJ. Haemoglobin differences at birth in monochorionic twins without chronic twin-to-twin transfusion syndrome. *Prenat Diagn* 2005;25:844-850.

Middeldorp JM, **Sueters M**, Klumper FJ, Oepkes D, Lopriore E, Kanhai HH, Vandenbussche FP. Foetoscopische laserbehandeling in Nederland. In: Vandenbussche FPHA, Kanhai HHH, Walther FJ eds. *Vorderingen in de foetale geneeskunde*. Boerhaave commissie PAOG. Leiden 2005;95-99. ISBN 90-6767-571-7.

Sueters M. Echoscopie bij tweeling transfusie syndroom. In: Vandenbussche FPHA, Kanhai HHH, Walther FJ eds. *Vorderingen in de foetale geneeskunde*. Boerhaave commissie PAOG. Leiden 2005;83-93. ISBN 90-6767-571-7.

Sueters M, Oepkes D. Ultrasound examination in twin pregnancies. *International Congress Series* 2005;1279:200-206.

Lopriore E, Middeldorp JM, **Sueters M**, Vandenbussche FP, Walther FJ. Twin-to-twin transfusion syndrome: from placental anastomoses to long-term neurodevelopmental outcome. *Curr Pediatr Reviews* 2005;3:191-203.

Sueters M, Middeldorp JM, Oepkes D, Lopriore E, Vandenbussche FP. Twin-to-twin transfusion syndrome at 11 weeks of gestation. *Am J Obstet Gynecol* 2005;193:887-888.

Sueters M, Peek AM, Ball LM, Hogendoorn PC, Scherjon SA, de Keizer RJ, Schalijs-Delfos NE. Prenatal detection of orbital rhabdomyosarcoma. *Arch Ophthalmol* 2005;123:276-279.

van den Bergh JE, **Sueters M**, Segaar M, van Roosmalen J. Determinants of episiotomy in rural Zimbabwe. *Acta Obstet Gynecol Scand* 2003;82:966-968.

Devlieger R, **Sueters M**. Eén enkele navelstrengarterie. *Gunaikēia* 2003;8:124-125.

Sueters M, Arabin B, Oepkes D. Doppler sonography for predicting fetal anemia caused by massive fetomaternal hemorrhage. *Ultrasound Obstet Gynecol* 2003;22:186-189.

Acknowledgements



Dank aan

Alle ouders van de "TULIPS-tweelingen"



Anne Miltenburg



Annemarie de Veld-van Heiningen



Annemieke Middeldorp



Dick Oepkes



"Eenlingzwangeren" voor het normaalwaardenonderzoek



Enrico Lopriore



Esther Sikkell



Frans Klumper



Gynaecologen, arts-assistenten en verloskundigen Groene Hart Ziekenhuis



Heleen van Dongen



Ivanka Bekker



Janneke Markensteijn-van den Bergh



Jennie Verdoes



Joost Zwart



Katinka Teunissen



Linda Anker



Mijn vader en moeder



Phebe Adama van Scheltema



Richard White



Robertjan Meerman



Saskia Le Cessie



Tom Dorresteyn



Verloskundigen LUMC



Wendela Kolkman



Curriculum vitae auctoris



Marieke Sueters was born on March 13th, 1975 in Arnhem, the Netherlands. She graduated from high school (*atheneum*) at the Twickel College in Hengelo in 1993. After receiving her Bachelor Degree in Public Administration, she started Medical School at the University of Leiden in 1994. As a medical student, she worked at the Stichting Eurotransplant in Leiden as an organ allocation coordinator. In 1998, she spent half a year in Gutu Mission, Zimbabwe, investigating the determinants of episiotomy in rural Zimbabwe (Dr. J. van Roosmalen). Back in The Netherlands, she obtained her Medical Degree cum laude in 2001.

As a physician-sonographer at the Division of Fetal Medicine, Department of Obstetrics at the Leiden University Medical Center (LUMC), her fascination for monochorionic twins and twin-to-twin transfusion syndrome was aroused. She was appointed as AGIKO (resident and PhD student) at the Department of Obstetrics at the LUMC in July 2003. At the same time, the research entitled "TULIPS: Twins and ULtrasound In Pregnancy Studies", of which the results are described in this thesis (Prof. Dr. H.H.H. Kanhai, Dr. F.P.H.A. Vandenbussche), was initiated. In July 2005, she started her residency training in Obstetrics and Gynecology at the Groene Hart Hospital in Gouda (Dr. H. van Huisseling), during which she finished writing this thesis. Her residency program will be continued at the LUMC (Prof. Dr. H.H.H. Kanhai) and completed at the Groene Hart Hospital.

Marieke Sueters currently lives in Leiden with her husband Bas Pietersen en their lovely son Guus. She is looking forward to the birth of their second child in September 2007.