

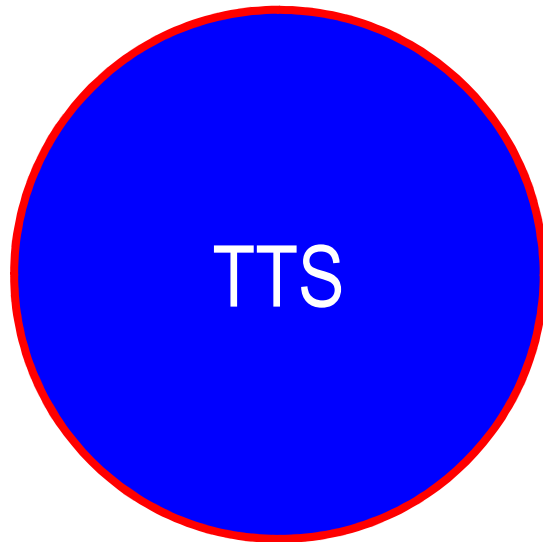


Fetal-Maternal Medicine
Research Group

Clinical management of monochorionic twin pregnancies with selective intrauterine growth restriction (sIUGR)

Placental vascular anastomoses

Arterial-Venous



Polyhydramnios / Oligohydramnios
Enlarged Bladder in the recipient
Abnormal Ductus Venosus in the recipient twin
Discordant Size

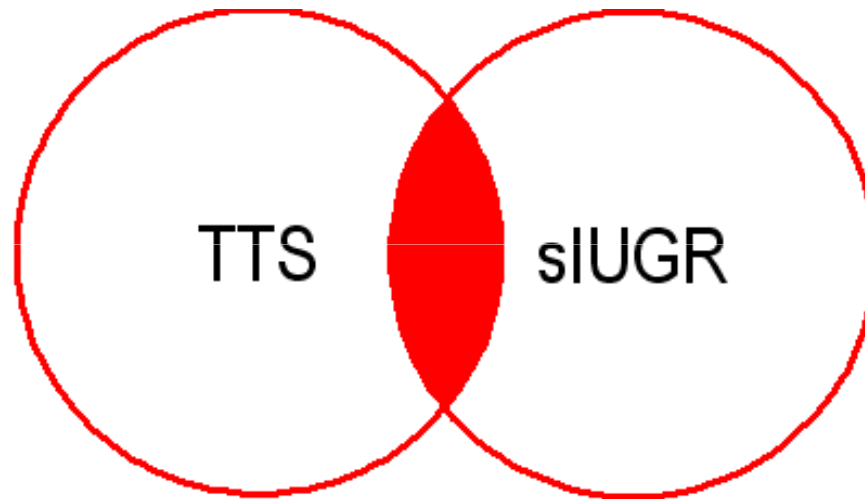
Arterial-Arterial



Discordant size
Normal AF /Oligohydramnios
Normal Bladder en the NGT
Normal Ductus Venosus in the recipient

Placental vascular anastomoses

Umbilical artery in the small twin
Amniotic Fluid in the Large Twin
Ductus Venosus in the large twin



Polihydramnios / Oligohydramnios

Bladders
Abnormal Ductus Venosus in the recipient twin
Discordant Size

Discordant size

Normal AF /Oligohydramnios
Normal Bladder en the NGT
Normal Ductus Venosus in the recipient

MC twins discordant for growth restriction Selective (s) IUGR

Definition of s-IUGR

- EFW < P10
- EFW discordance > 25%, NI AF AGA Twin

Incidence of sIUGR

- EFW <P10 : 10-15 % (*Bjoro K et al. Acta Genet Med Gemelloi 1985*)
- sIUGR (2 criteria) ~ 8 % (*Acosta E et al. Arch Dis Child 2006*)

Clinical relevance of iAEDF in MC-sIUGR: 2 clinical patterns

	Discordant monochorionics	
Intermittent Doppler	NO	YES
n	23	19
IUFD	0/46 (0%)	7/38 (18.4%)
GA at delivery	30	32
IVH total	1/46 (2.1%)	1/31 (3.2%)
Fetus 1	0/23 (0%)	1/17 (5.9%)
Fetus 2	1/23 (4.3%)	0/14 (0%)
LM total	1/46 (2.1%)	6/31 (19.3%)
Fetus 1	0/23 (0%)	6/17 (35%)
Fetus 2	1/23 (4.3%)	0/14 (0%)

Why the normally grown twin has a poor perinatal outcome ?

**Brief periods of exanguination
Increase the risk of brain damage**

**Reduced blood pressure
Changes in FHR**

How to follow twin pregnancies with sIUGR

Umbical artery in the small twin

Amniotic Fluid in the Large Twin

Ductus Venosus in the large twin

Classification of sIUGR twin pregnancies

TYPE I

Normal Doppler in the umbilical artery of the small twin

Good prognosis

TYPE II

Constant absence or reversed end diastolic blood flow in the umbilical artery of the small twin

“Expected” evolution

- **Bad prognosis in the small twin**

TYPE III

Intermittent absence or reversed end diastolic blood flow in the umbilical artery of the small twin

iAREDF

Unpredictable evolution

Perinatal outcome of MC twin pregnancies with sIUGR

	NI n=76	Type I n=39	Type II n=30	Type III n=65
GA at delivery	35.5 (30-38)	35.4 (16-38)	30.7 (27-40)	31.6 (23-40)
Birthweight discrepancy	10 (1-22)	29 (25-37)	38 (25-58)	36 (25-64)
In utero Deterioration	-	-	90%	10.8%
IUGR twin				
Unexpected death	-	-	1/30 LT 1/30 IUGR	4/65 LT 10/65 IUGR

Perinatal outcome of MC twin pregnancies with sIUGR

	NI n=76	Type I n=39	Type II n=30	Type III n=65
GA at delivery	35.5 (30-38)	35.4 (16-38)	30.7 (27-40)	31.6 (23-40)
IVH hemorrhage	-	-	1/30 LT	2/61LT
			3/21 IUGR	3/50 IUGR
PVLM	-	-	1/30 LT	12/61 LT *
			3/21 IUGR*	1/50 IUGR

sIUGR and iAREDF

- n=50 sIUGR iAREDF

50/50 (100%) A-A anastomoses

49/50 (98%) large A-A anastomoses
(> 2mm.)

Invasive Tx sIUGR

- ✓ **Laser coagulation of placental anastomoses:**
 - relatively high failure rate
 - negative impact on the perinatal outcome of the IUGR fetus (risk of IUFD / neurological damage)
 - until more data become available, laser coagulation of placental anastomoses should be contemplated with caution

- ✓ **Umbilical cord occlusion:**
 - technically easier than laser coagulation
 - excellent outcome for the AGA twin
 - umbilical cord occlusion can be the best alternative in sIUGR Type I and II

Conclusions

- ✓ **Diagnosis of sIUGR is based on:
Fetal growth discordance and NORMAL AF in the large twin**
- ✓ **Clinical Management is based on Doppler evaluation of the Umbilical Artery of the IUGR twin**
- ✓ **No treatment is needed when there is present diastolic blood flow**
- ✓ **Umbilical cord occlusion of the IUGR twin seems to be the best alternative when there is absent reversed end diastolic blood flow**