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Síndrome de Anemia Policitemia

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Embarazo Gemelar

- Constituye problema salud pública
  - 1% Partos = representa 15% mort. Perinatal.
  - 50% Emb. Gemelares= parto prematuro.
  - 25% Emb gemelares = RCIU.
  - 15-20% Emb Gemelares = SHE.

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Embarazo Gemelar

- 70% dicigotos = Bc

- 30% monocigotos= 70 - 80% Mc-Ba
  = 20 - 30% Bc
  = < 1% Mc-Ma

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Corionicidad

- Bicoriales (dicigotos- monocigotos)
  - Placentas independientes
  - Vasculatura separada
- Monocoriales (monocigotos)
  - Placenta compartida
  - Vasculatura conectada

PARTO PREMATURO

RCIU

RCIUs
STFF
TRAP
TAPS

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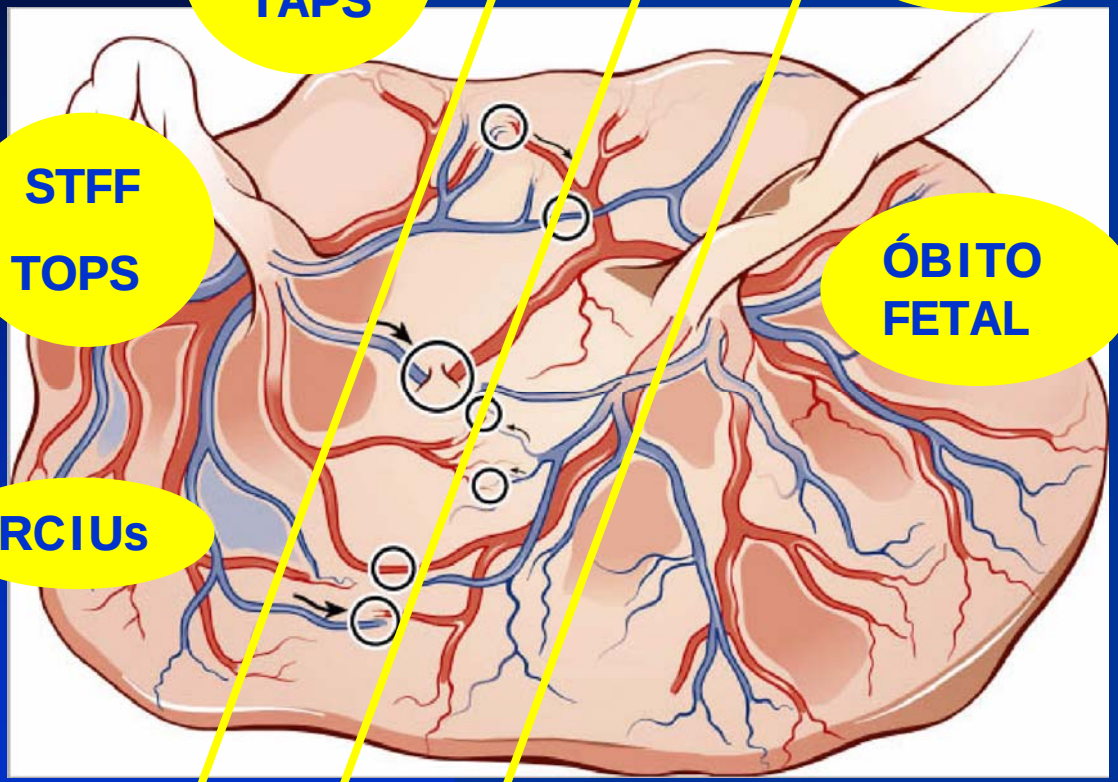
Corionicidad



Reparto
Placentario
Aleatorio

Conexiones
Vasculares

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TWIN ANEMIA-POLICYTHEMIA SEQUENCE

- Tipo de STFF crónica, que se caracteriza por gran diferencia Hb intergemelar, sin TOPS.
- Espontáneo 3- 5%
- Post-láser STFF 2 -13%

Twin anemia polycythemia sequence: Diagnostic criteria, classification, Perinatal management and outcome. Slaghekke F, Kist W, Oepkes D y cols. Fetal Diag Ther. 2010; 27: 181-190

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TWIN ANEMIA-POLICYTHEMIA SEQUENCE

Prevalence, size, number and localization of vascular anastomoses in monochorionic placentas *D.P. Zhao et al. / Placenta 34 (2013) 589–593*

98 % Emb Mc N

100 % RCIUs

96 % STFF

100 % TAPS

} AAV

Diámetro AAV

0,1 TAPS vs 0,4 MC N

0,5 RCIUs vs 0,4 MC N

Número AAV ½ TAPS vs otros grupos

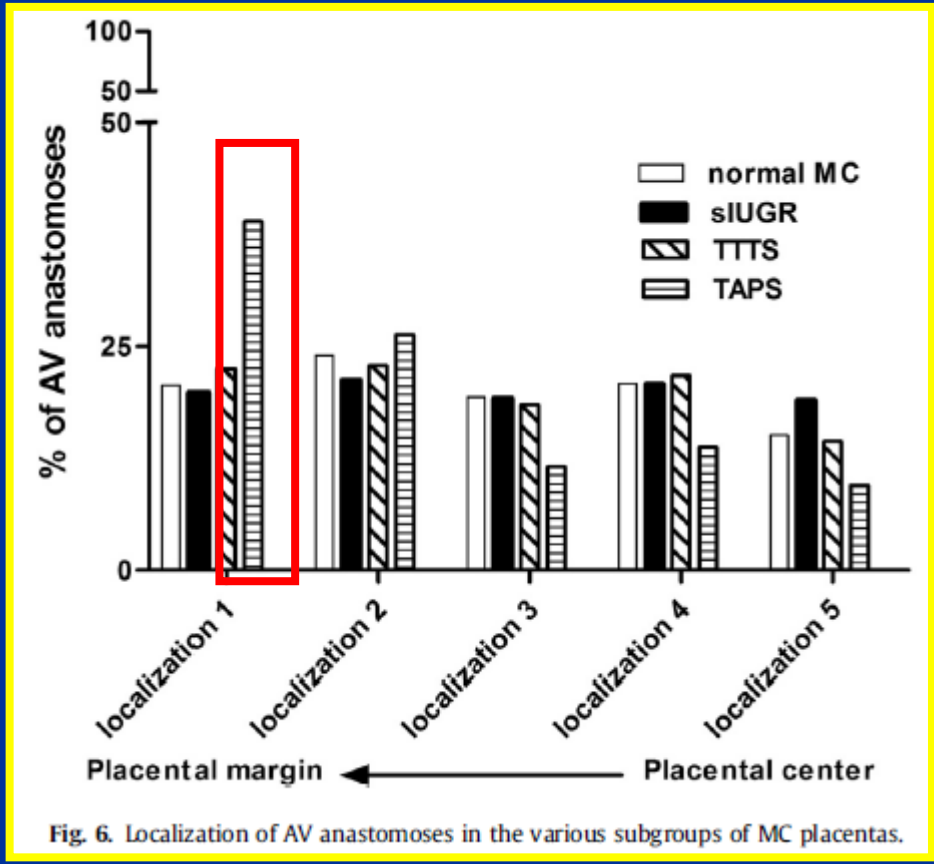

Fig. 6. Localization of AV anastomoses in the various subgroups of MC placentas.

TWIN ANEMIA-POLICYTHEMIA SEQUENCE

Prevalence, size, number and localization of vascular anastomoses in monochorionic placentas

D.P. Zhao et al. / Placenta 34 (2013) 589–593

96 % Emb Mc N

98 % RCIUs

47 % STFF

19 % TAPS

} AAA

Diámetro AAA

RCIUs 2,2 vs 1,7 MC N

STFF 0,6 vs 1,7 MC N

TAPS 0,3 vs 1,7 MC N

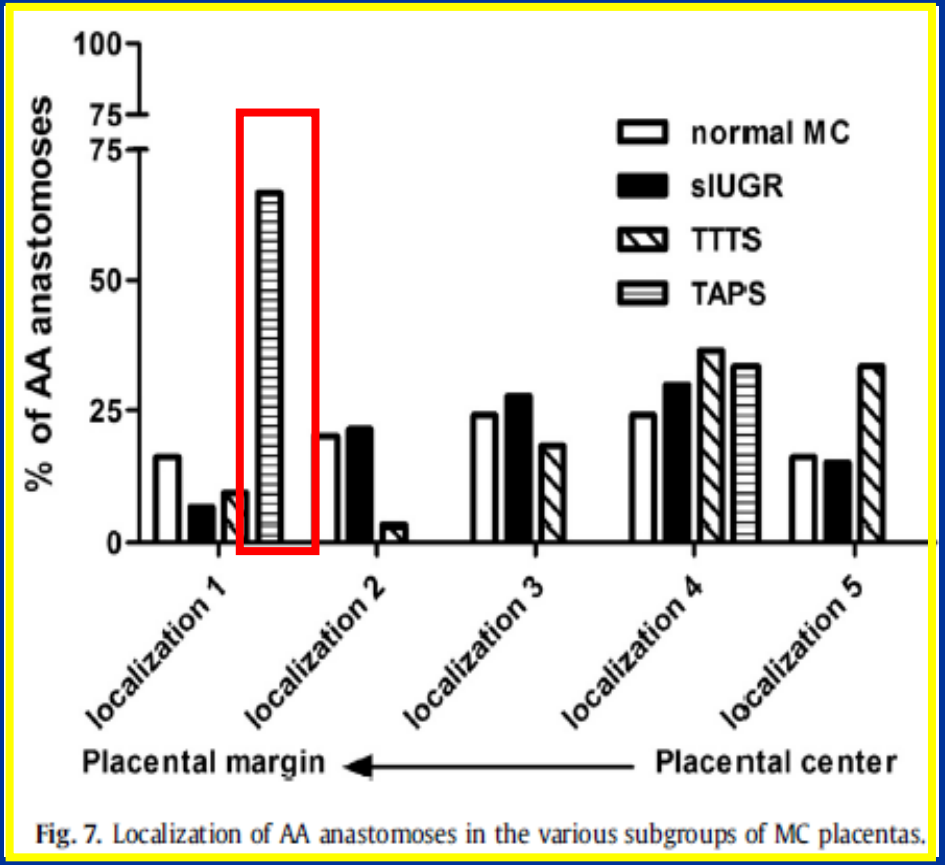

Fig. 7. Localization of AA anastomoses in the various subgroups of MC placentas.

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TWIN ANEMIA-POLICYTHEMIA SEQUENCE

$$R = \frac{8 \cdot L \cdot \mu}{r^4}$$

AAA en TAPS inútiles

Menor número

Pequeñas

Alta resistencia flujo

No hay mecanismo compensatorio

Ecuación Pouiseuille´s

L= longitud tubo

μ = viscocidad fluido

R = radio tubo

Arterio-arterial vascular anastomoses in monochorionic twin placentas with and without twin anemia-polycythemia sequence

S. de Villiers[a], F. Slaghekke[b], J.M. Middeldorp[b], F.J. Klumper[b], F.J. Walther[a], D. Oepkes[b], E. Lopriore[a,*]

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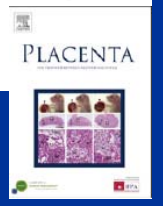
[b] Division of Fetal Medicine, Department of Obstetrics, Leiden University Medical Center, Leiden, The Netherlands

Placenta 33 (2012) 227–229



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TWIN ANEMIA-POLICYTHEMIA SEQUENCE

- **Fisiopatología:**
  - Placenta se caracteriza por la presencia pocas y minúsculas anastomosis AV, que están cercanas al margen de la placenta.
  - AAA en TAPS son raras , alta resistencia al flujo y no previenen desarrollo TAPS.

Twin anemia polycythemia sequence: Diagnostic criteria, classification, Perinatal management and outcome. Slaghekke F, Kist W, Oepkes D y cols. Fetal Diag Ther. 2010; 27: 181-190

Placental characteristics in monochorionic twins with spontaneous versus post-laser twin anemia-polycythemia sequence S.F. de Villiers a, F. Slaghekke b, J.M. Middeldorp b, F.J. Walther a, D. Oepkes b, E. Lopriore a. Placenta 34 (2013) 456e459

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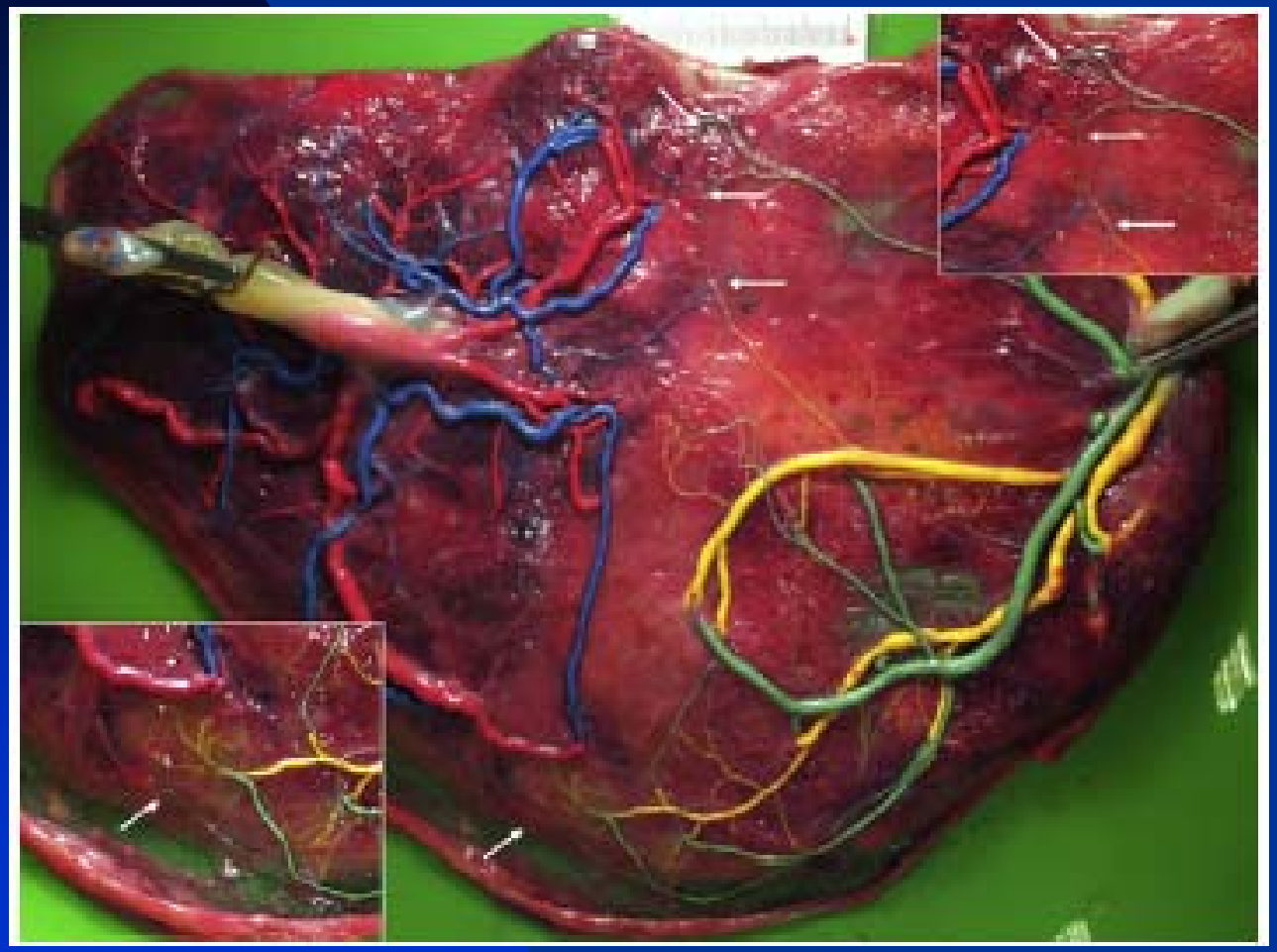
TWIN ANEMIA-POLICYTHEMIA SEQUENCE



Fisiopatología:

Transfusión crónica y lenta

(5 -15 ml/24 hrs)

Donante >>>>

Receptor

Placental characteristics in monochorionic twins with spontaneous versus post-laser twin anemia-polycythemia sequence S.F. de Villiers a, F. Slaghekke b, J.M. Middeldorp b, F.J. Walther a, D. Oepkes b, E. Lopriore a. Placenta 34 (2013) 456e459

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TWIN ANEMIA-POLICYTHEMIA SEQUENCE

- **Diagnóstico:**
  - **Ausencia de TOPS**
  - **Dg. Antenatal:**

MCA-PSV >1.5 MoM in the donor
and
MCA-PSV <1.0 MoM in the recipient

★**Seguimiento MCA-PSV todos MC**

★**Especialmente post-láser.**

Twin Anemia-Polycythemia Sequence: Diagnostic Criteria, Classification, Perinatal Management and Outcome
Fetal Diagn Ther 2010;27:181–190

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TWIN ANEMIA-POLICYTHEMIA SEQUENCE

- **Diagnóstico:**
  - **Postnatal:**

Intertwin Hb difference >8.0 g/dl
and at least one of the following:
– Reticulocyte count ratio >1.7 **Donante / Receptor**
– Placenta with only small (diameter <1 mm) vascular anastomoses

Postnatal stage	Intertwin Hb difference, g/dl
Stage 1	>8.0
Stage 2	>11.0
Stage 3	>14.0
Stage 4	>17.0
Stage 5	>20.0

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TWIN ANEMIA-POLICYTHEMIA SEQUENCE

- **Clasificación prenatal:**

Twin Anemia-Polycythemia Sequence: Diagnostic Criteria, Classification, Perinatal Management and Outcome
Fetal Diagn Ther 2010;27:181–190

Antenatal stage	Findings at Doppler ultrasound examination
Stage 1	MCA-PSV donor >1.5 MoM *and* MCA-PSV recipient <1.0 MoM, without other signs of fetal compromise
Stage 2	MCA-PSV donor >1.7 MoM *and* MCA-PSV recipient <0.8 MoM, without other signs of fetal compromise
Stage 3	as stage 1 or 2, with cardiac compromise of donor, defined as critically abnormal flow[a]
Stage 4	hydrops of donor
Stage 5	intrauterine demise of one or both fetuses preceded by TAPS

[a] Critically abnormal Doppler is defined as absent or reversed end-diastolic flow in umbilical artery, pulsatile flow in the umbilical vein, increased pulsatility index or reversed flow in ductus venosus.

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TWIN ANEMIA-POLICYTHEMIA SEQUENCE

- **Manejo perinatal:**
  - **Técnica quirúrgica láser.**

Técnica	0 vivos	1 vivo	2 vivos
Sistemática	1/3	1/3	1/3
Selectiva	20%	80%	40-50%
Sel. secuencial	15%	80%	60-70%
Solomon	12%	88%	84%

Solomon: 0% STFF recurrente y 0% TAPS

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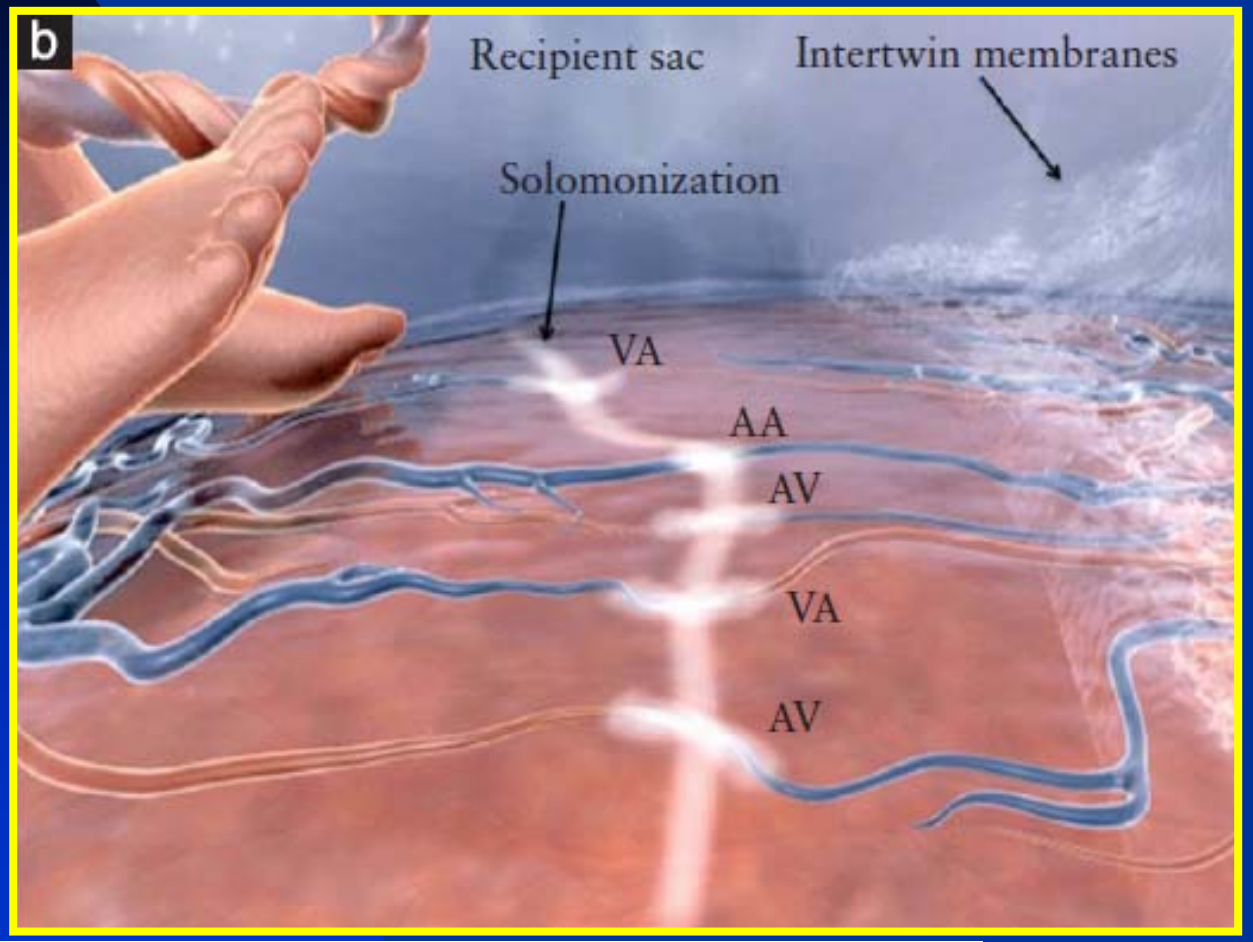
TWIN ANEMIA-POLICYTHEMIA SEQUENCE



Fetoscopic laser ablation of placental anastomoses in twin–twin transfusion syndrome using 'Solomon technique' *Ultrasound Obstet Gynecol* 2013

TWIN ANEMIA-POLICYTHEMIA SEQUENCE

- **Manejo perinatal:**
  - Interrupción embarazo
  - Manejo expectante
  - Transfusión intrauterina (intravenosa y/o intraperitoneal)
  - Fetoscopia Láser

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TWIN ANEMIA-POLICYTHEMIA SEQUENCE

Twin Anemia-Polycythemia Sequence: Diagnostic Criteria, Classification, Perinatal Management and Outcome

Fetal Diagnosis and Therapy
Fetal Diagn Ther 2010;27:181–190

Table 4. Perinatal management and outcome in 18 antenatal TAPS cases detected at our center

	Expectant management	IUT	IUT + laser	Laser	Selective feticide	TOP
Pregnancies, n	10	4[a]	1	1	1	1
GA at diagnosis, weeks	24 (20–29)	24 (21–28)	24	18	19	18
GA at delivery, weeks	34 (32–41)	29 (26–29)	32	36	28	18
Perinatal survival, n/N	15/20 (75%)	8/8 (100%)	2/2 (100%)	2/2 (100%)	1/2 (50%)	0
Postnatal treatment[b], n/N	7/15 (47%)	8/8 (100%)	0	0	0	0

GA = Gestational age (median, range); n/N = number per total number.
[a] Including 1 patient treated with intraperitoneal transfusion at 26 weeks' gestation (pregnancy still ongoing).
[b] Postnatal treatment is defined as blood transfusion due to neonatal anemia and/or partial exchange transfusion due to polycythemia-hyperviscosity syndrome. TOP = Termination of pregnancy.

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Conclusiones:

- TAPS es complicación propia Emb. Gemelar Mc, de reciente descripción.
- Fisiopatología característica
  - AAV pequeño calibre, marginales
- Diagnóstico prenatal se basa en PSV- ACM
  - Seguimiento en todos los Mc
- Manejo prenatal:
  - Usar “Solomon technique” profilaxis
  - TAPS
    - ★ EG, severidad, experiencia equipo, consejería.