



IN THE NAME OF GOD

TTTS

- Dr Vajiheh Marsoosi
- Professor of OB&GYN
- Tehran University of Medical Sciences

Zygosity & Chorionicity

ALL DIZYGOTIC
30% OF MONOZYGOTIC



DICHORIONIC

70% OF
MONOZYGOTIC

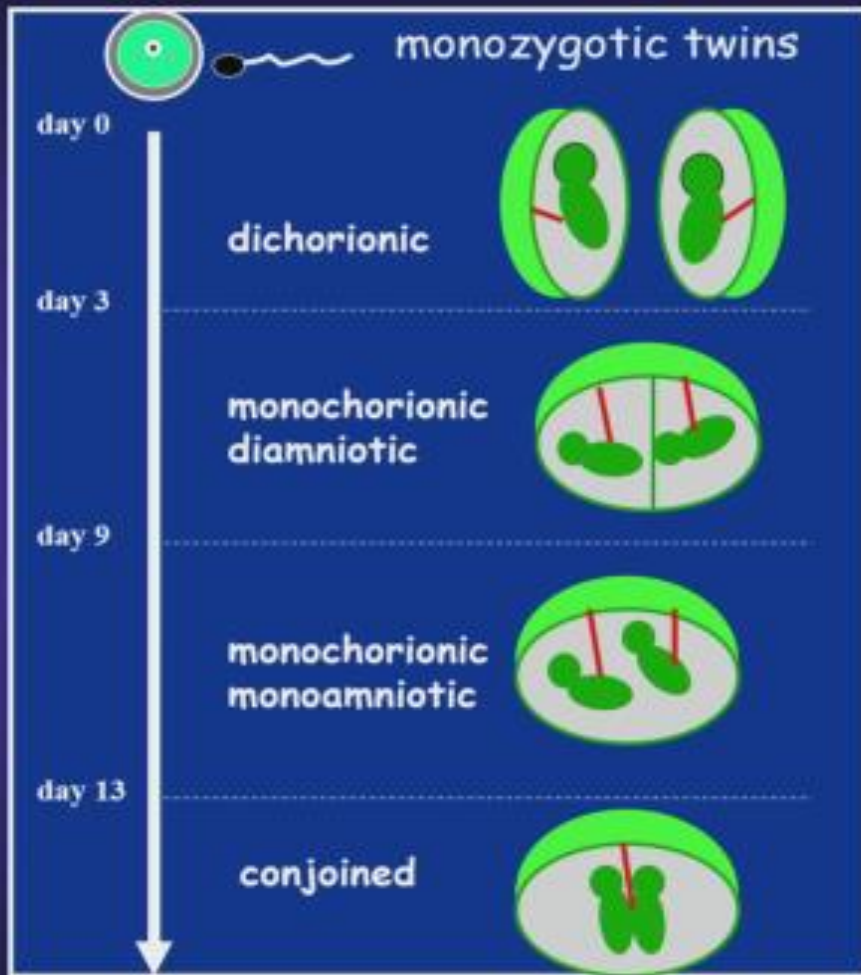


MONOCHORIONIC
DIAMNIOTIC

1% OF
MONOZYGOTIC



MONOAMNIOTIC





Volkow 02.08.1973

RIC5-9-D/Gebh. MI 0.9

29.08.2011 18:57:20

6.4cm/1.6/21Hz Tls 0.1

WZ/HR/REU:
K37Wiedrig
PWR:100.0
DR: 0.1
CS: 7 MS
POWER
SBL: 0.5



dichorionic

33 : 04



dichorionic

32 : 44



lambda sign

32 : 34

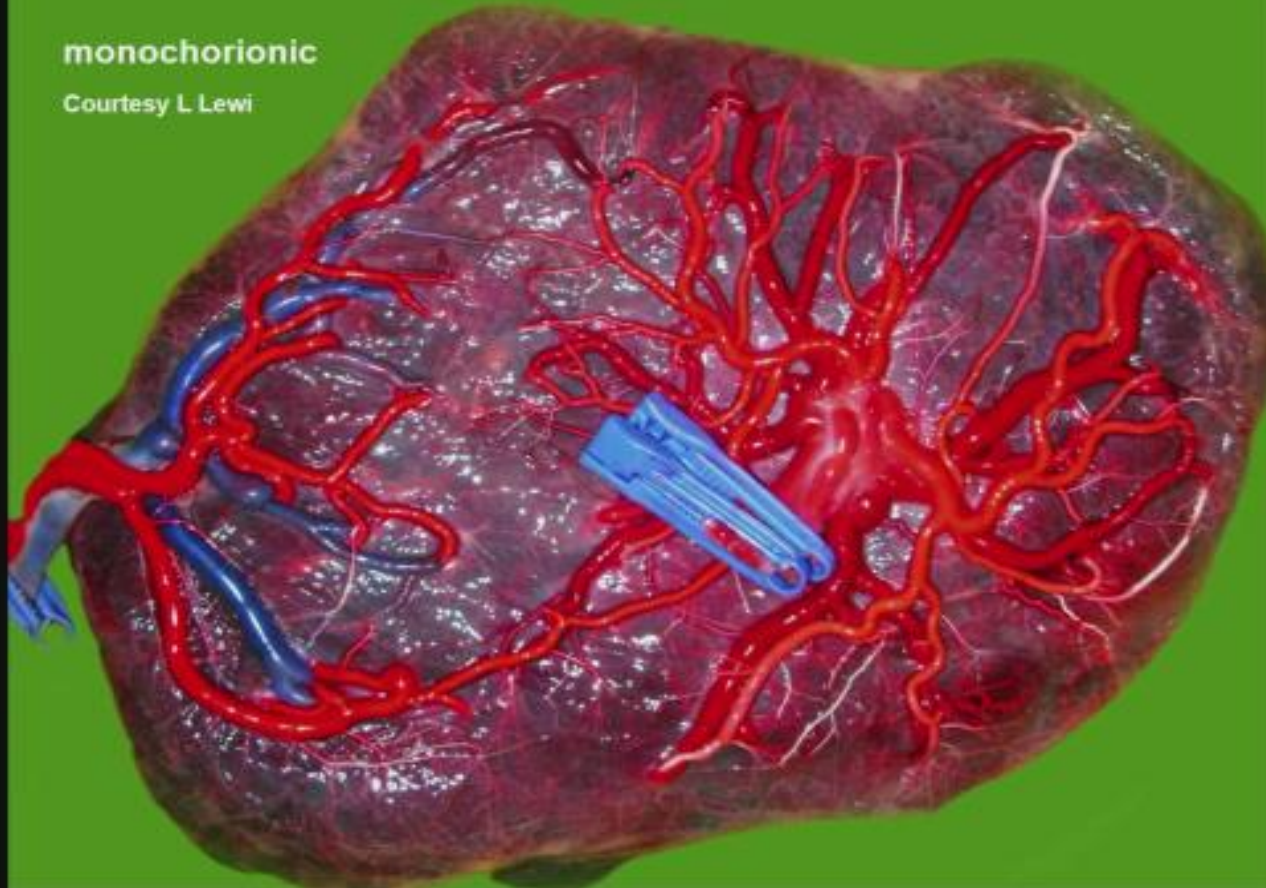


t-sign

32 : 04

monochorionic

Courtesy L Lewi

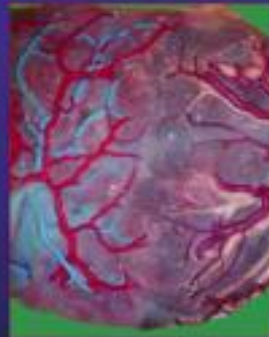


31 : 54

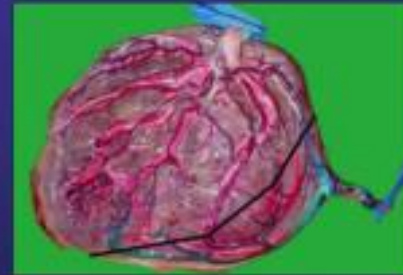
TTTS



TAPS



sIUGR



30 : 04

The outcome of monochorionic diamniotic twin gestations in the era of invasive fetal therapy: a prospective cohort study

Lewi L et al. AJOG, 2008;199

Development of severe TTS in 18/202 **9%**

MORTALITY

20/36 (55%)

20/45 (44%) of all losses

Development of selective IUGR in 29/202 **14%**

REFERENCES

29 : 24

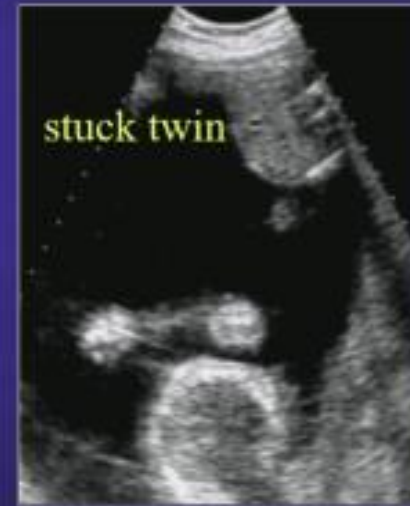
Development of TTS: folding of the membrane



19 wks



22 wks



24 wks

28 : 34

TTS



1 D 11.81cm

28 : 24

TTS stage III

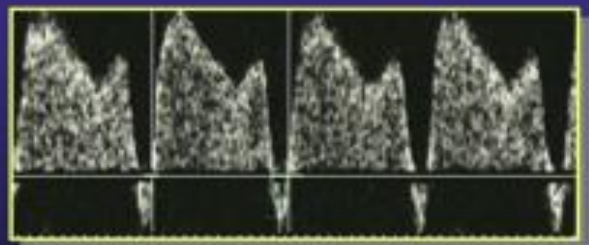
Umbilical artery ARED



DONOR (Recipient)

Ductus venosus zero or reversed a-wave

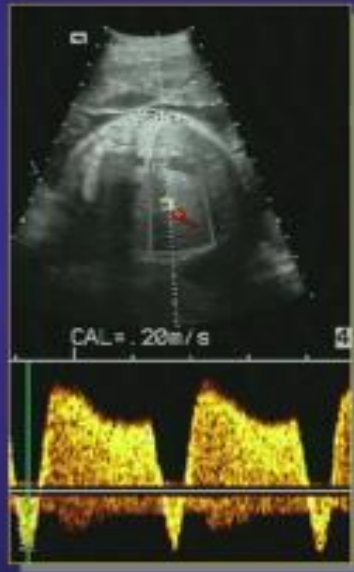
RECIPIENT (Donor)



Fetal venous blood flow

TTS Recipient, Hypervolemia

*ductus
venosus*

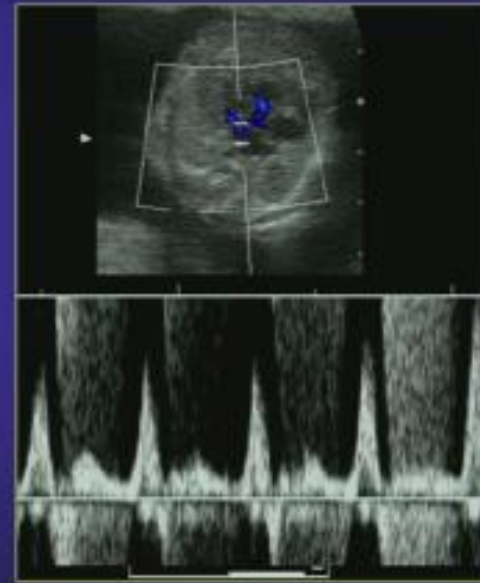


*umbilical
vein*

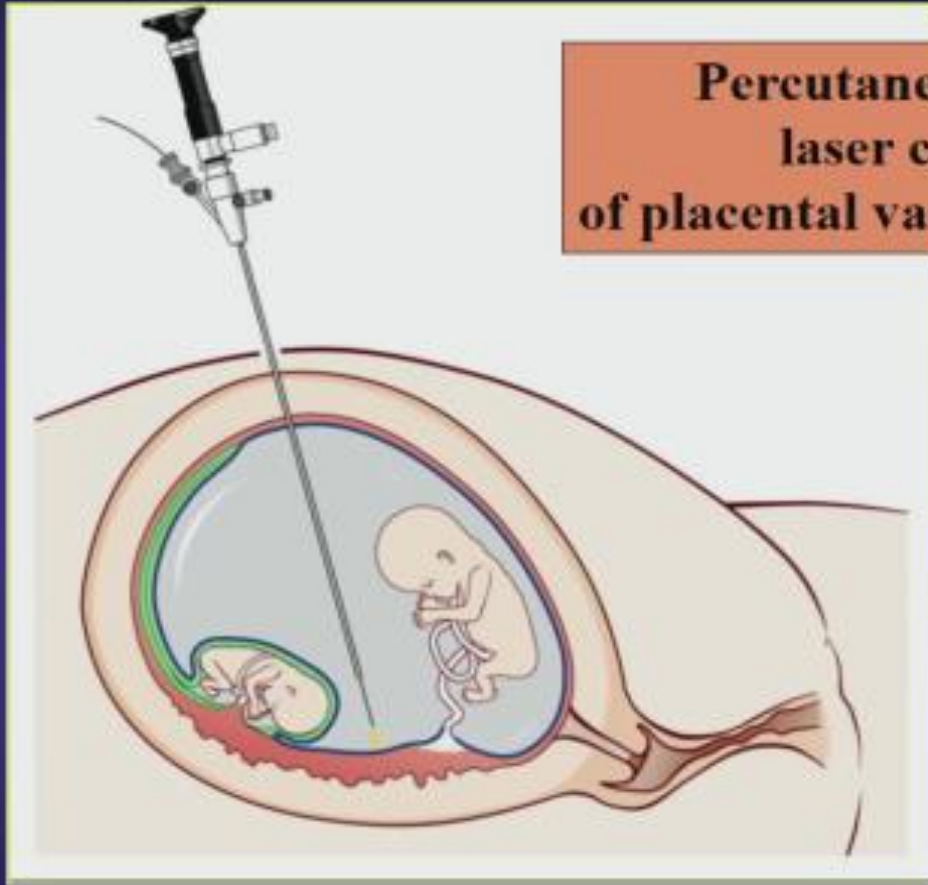


26 : 44

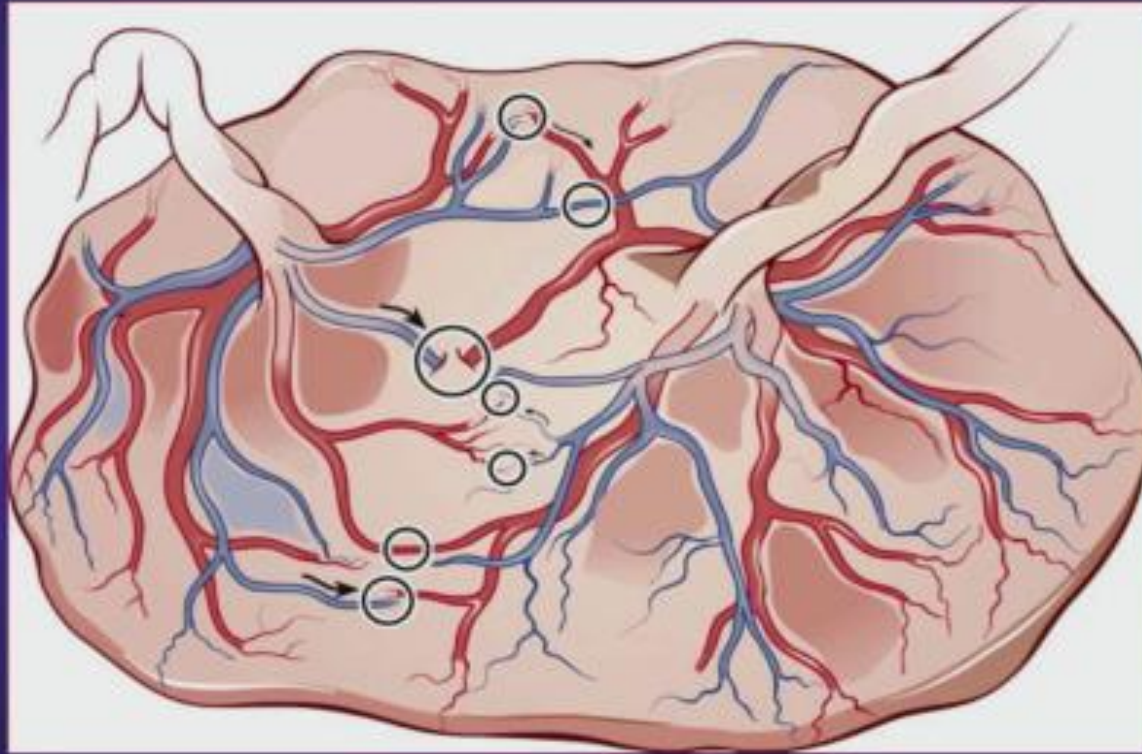
Recipient: hypervolaemia, cardiac failure



**Percutaneous fetoscopic
laser coagulation
of placental vascular anastomoses**



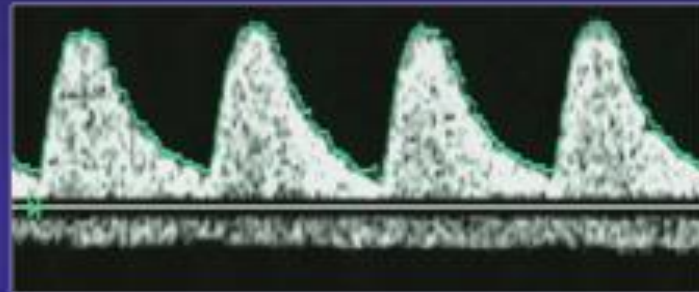
Selective laser coagulation of all anastomoses



25 : 44

TTS – Donor after laser

UA: reoccurrence
of positive EDF 1/3



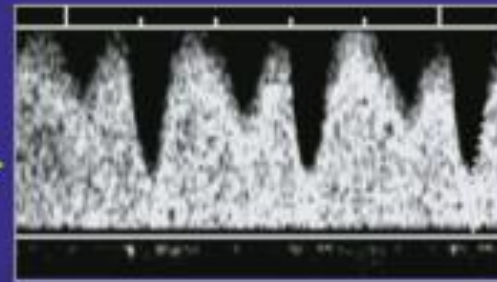
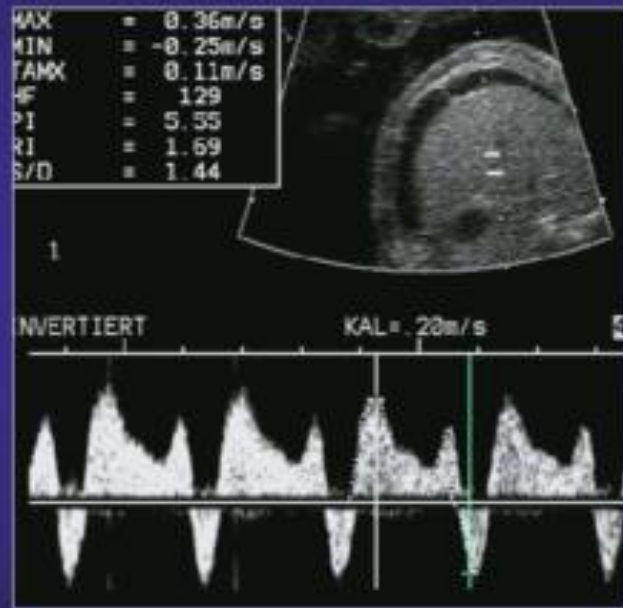
DV: reverse a-wave



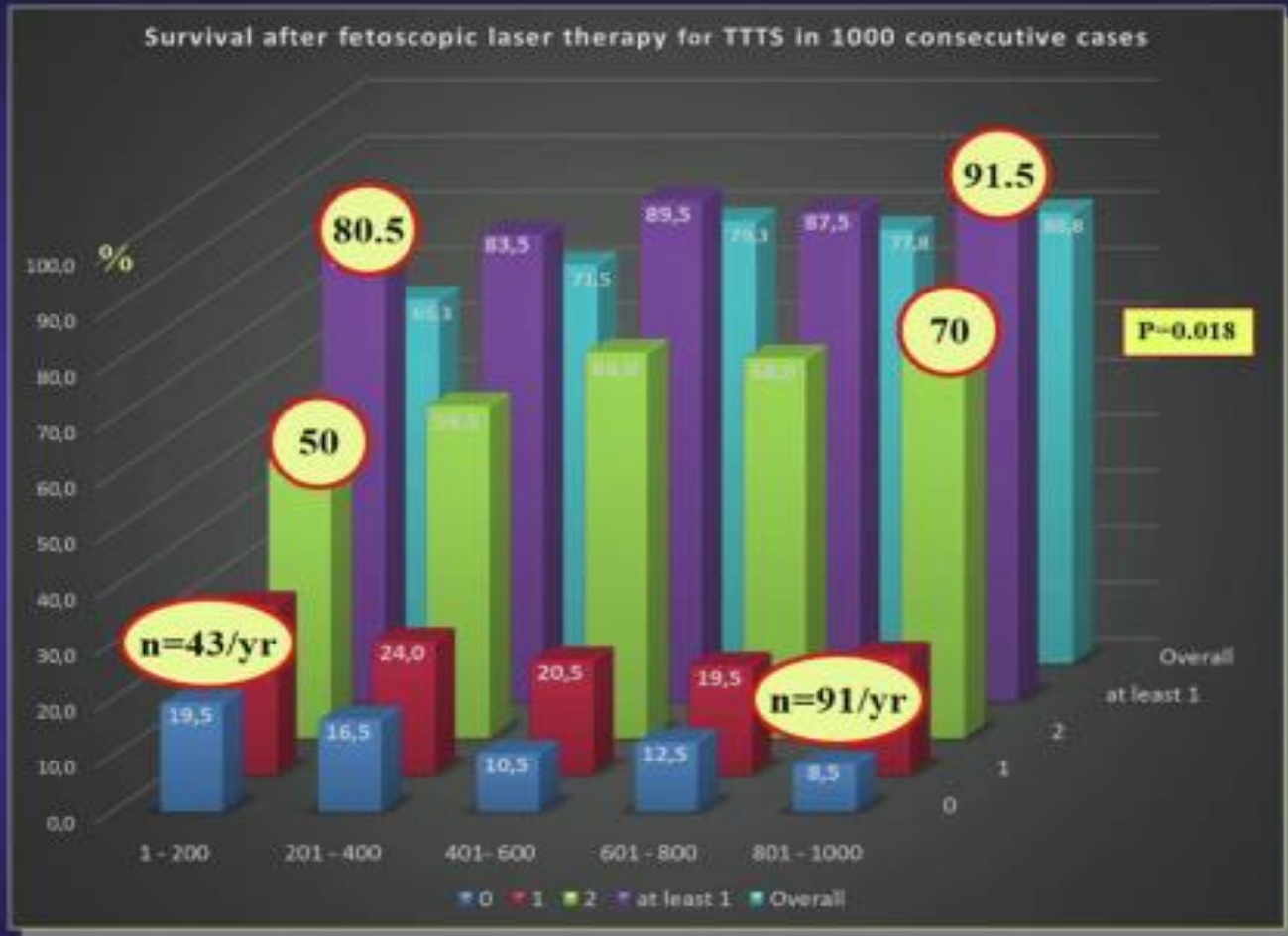
Zikunig UOG 1999
Gratacos UOG 2002

22 : 44

Recipient stage IV, remission of hydrops after laser



22 : 14



Long-term outcomes for monozygotic twins after laser therapy in twin-to-twin transfusion syndrome

Kurt Hecher, Helena M Gardiner, Anke Dierker, Peter Bartmann

Lancet Child Adolesc Health
2018; 1: S5-S5

Published Online
May 29, 2018
[http://dx.doi.org/10.1016/S2468-2642\(18\)30427-5](http://dx.doi.org/10.1016/S2468-2642(18)30427-5)

THE LANCET
Child & Adolescent Health

Update alert



Feature:



Laser therapy in twin-to-twin transfusion syndrome

This Review summarises the literature on follow-up data for survivors of twin-to-twin transfusion syndrome after laser therapy, including neurodevelopmental outcomes, cardiovascular outcomes, growth, renal function, and ischaemic events, as well as the potential effects of intrauterine programming on later life.

[Read the Review](#)

11 : 14

Long-term outcomes for monochorionic twins after laser therapy in twin-to-twin transfusion syndrome

Kurt Hecher, Helena M Gardiner, Anne Diermen, Peter Battmann

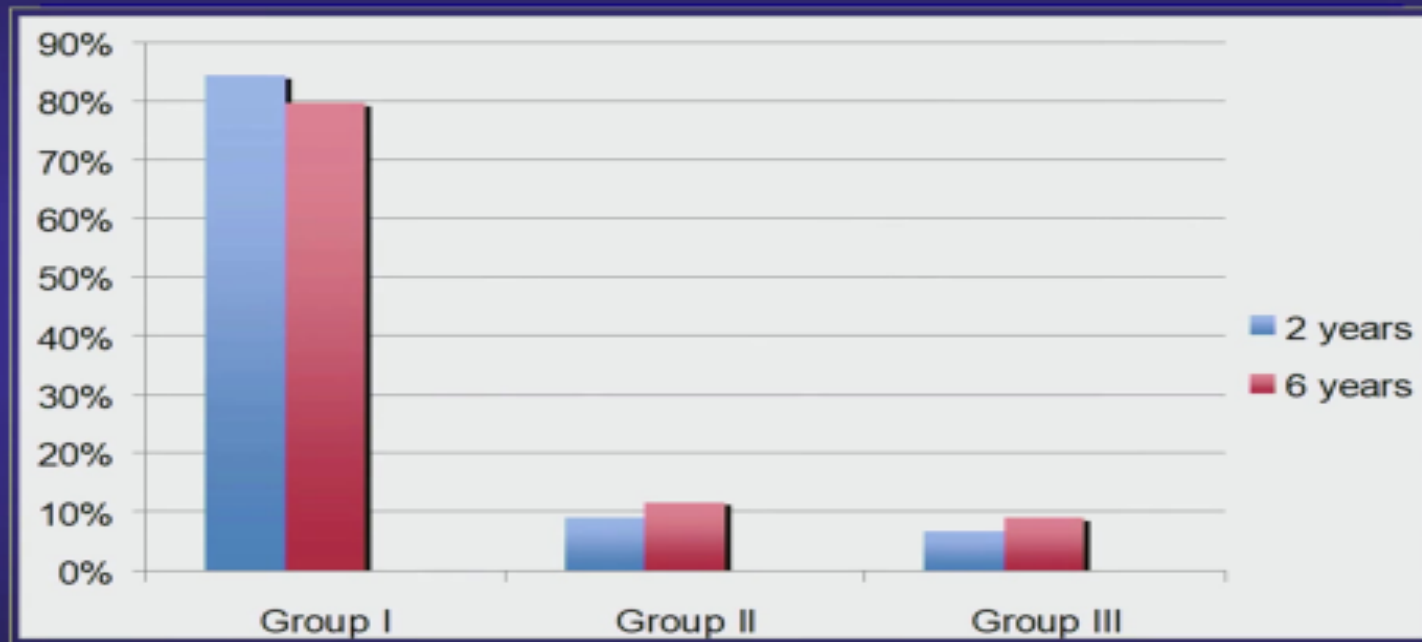
Key messages

- Evidence suggests that laser therapy, which treats the cause of twin-to-twin transfusion syndrome (TTTS), results in a higher neurologically intact survival rate than do symptomatic therapies such as serial amnioreduction.
- The incidence of severe neurodevelopmental impairment is between 4% and 13% and remains stable in children aged between 2 and 6 years. Low gestational age at birth is independently associated with neurodevelopmental impairment.
- Measurements of cardiac function in prepubescent children after TTTS are within normal limits and at 10 years of age, systolic and diastolic blood pressure are normal in most cases (>90% of cases).
- The prevalence of congenital heart disease in surviving children is 10% (about 10–20 times higher in twins with TTTS than in singletons), mostly because of the increased prevalence of right ventricular outflow tract obstruction in recipients.
- Long-term studies of cardiovascular responses to exercise will clarify whether the resolution of cardiac dysfunction in recipients after laser therapy is maintained during adulthood, or whether fetal programming has occurred and warrants lifelong surveillance.
- Standardised core outcome measures are needed for future long-term follow-up studies of survivors of TTTS.

Lancet Child Adolesc Health
2018; 2: 515–25

06 : 54

Neurodevelopmental outcome after laser at 6 yrs vs. 2 yrs (Hamburg)



06 : 44

Conclusions

- **Double survival is the primary aim of laser therapy and there is a significant increase with growing experience and technical improvements**
- **Increased survival rates do not lead to increased handicap rates**

06 : 24

The background is a blue gradient with white circuit-like lines in the corners. The lines consist of straight segments and small circles, resembling a network or data flow diagram.

THANK YOU