394 Outcome in triplets complicated by twin-twin transfusion syndrome (TTTS)

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OBJECTIVE: TTTS in high order multifetal pregnancy is a rare clinical event. Our aim is to describe the outcomes in triplets with TTTS compared to triplets without TTTS and twins with TTTS.

STUDY DESIGN: A case control study of 17 triplets with TTTS from 2004-2008. Controls were defined as triplets without TTTS (n=55) in the same period or twins with TTTS (n=34) matched 1:2 by gestational age (GA) at presentation, stage and treatment. Variables included: treatment; GA at presentation, procedure and delivery; mode of delivery; birthweights of recipient (RT), donor (DO) and incipient (IP); and survival. Data were analyzed by Chi square, Fisher exact test or T- test.

RESULTS: Among 390 multifetal pregnancies with TTTS, 17 (4.4%) triplets were identified. Distribution per Cincinnati staging system was stage I (n=1), II (n=2), III (n=2), IIIA (n=3), IIIB (n=3), IIIC (n=3), IV (n=2) and V (n=1). Three were managed expectantly. 14 underwent interventions: 7 amnioreduction (AR), 6 selective fetoscopic laser photocoagulation (SFLP) and one radiofrequency ablation (RFA). Overall fetal survival was 80% (41/51). Survival was 94% (16/17) bystander, 71% (12/17) recipient and 65% (11/17) donor. Two had pregnancy loss at <20 weeks and 13/17 (76.4%) delivered at <34 weeks. There was no statistical difference in survival comparing the triplets to the twins. Triplets with TTTS delivered at an earlier GA while bystander survival was similar to triplets without TTTS (Table).

CONCLUSION: Outcomes of triplets with TTTS are comparable to twins with TTTS and triplets without TTTS when staged and treated accordingly.

	Triplets with TTTS (n=17)†	Twins with TTTS (n=34)	Triplets without TTTS (n=55)
GA at presentation	19.8±2.5	20.6±2.4	NA
GA at SFLP	21.0±2.6	21.2±2.2	NA
GA at delivery	28.9±4.7	29.8±6	31.8±3.7*
By stander survival	16/17 (94%)	NA	51/55 (93%)
Recipient / donor survival	12 (71%) / 11 (65%)	25 (71%) / 22 (65%)	NA

Reference

p< 0.05

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395 Improved recipient survival with maternal nifedipine in twin-twin transfusion syndrome (TTTS) complicated by TTTS-cardiomyopathy undergoing selective fetoscopic laser photocoagulation (SFLP)

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OBJECTIVE: TTTS-cardiomyopathy is a hypertensive cardiomyopathy affecting the recipient twin in TTTS. We evaluated the efficacy of treating fetal hypertensive TTTS-cardiomyopathy with maternal nifedipine in a prospective case controlled study.

STUDY DESIGN: Between January 2008 and June 2009, 134 TTTS cases with evidence of TTTS cardiomyopathy based on echocardiographic findings (Cincinnati stage IIIA[mild], IIIB[moderate], IIIC[severe], IV) undergoing SFLP were prospectively treated with maternal nifedipine (20mg every 6 hours). A case control study was performed matching for gestational age at procedure and Cincinnati stage and compared for recipient and donor survival stratified by stage.

RESULTS: Of 134 TTTS cases treated with nifedipine, 118/134 delivered, 16/134 remain pregnant. There is a significant increase in survival for recipients treated with nifedipine in stages IIIA (21/21 vs 34/42 or 100% vs 81%; p=0.031) and IIIB (25/26 vs. 47/65 or 96% vs 72%; p=0.008) as compared to controls respectively. The higher survival in the nifedipine treated group corresponds to 7~43% improvement in stages IIIA and 12~57% improvement in IIIB at 95% confidence level. There was no difference in survival with nifedipine in stages IIIC and IV (59/71. 83% vs 39/45, 87%; p=0.605), and in donor survival at any stage (76% vs. 71% in IIIA; 88% vs. 72% in IIIB; 73% vs. 71% in IIIC and IV; p=0.214 with all three stage combined).

CONCLUSION: Nifedipine improves recipient survival in TTTS undergoing SFLP. The survival benefit is limited to recipient twins with mild to moderate TTTS cardiomyopathy (stages IIIA and IIIB). Nifedipine has no effect on donor survival. Advanced TTTS cardiomyopathy did not appear to benefit perhaps due to severity of cardiac dysfunction. Nifedipine should be considered in all patients with mild to moderate TTTS cardiomyopathy.

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396 Twin-to-twin transfusion syndrome: a comparison of combined amnioreduction/laser surgery to laser surgery alone

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OBJECTIVE: A National Institutes of Health randomized clinical trial showed no difference in outcomes in twin-twin transfusion syndrome when comparing amnioreduction and laser therapy preceded by a "test amniocentesis". The purpose of our study was to compare the perinatal outcomes of TTTS patients treated with laser therapy only to those treated by a combination of a "test amniocentesis" followed by laser therapy.

STUDY DESIGN: We compared outcomes for TTTS patients who underwent laser coagulation using the same enrollment criteria as those of the NIH trial: cervix >2 cm in length, no prior amniocentesis in either laser group, and no prior cerclage.

RESULTS: See Table.

CONCLUSION: Based on our data, we conclude that patients who need treatment for TTTS should undergo laser therapy as the primary treatment modality and no prior amniocentesis.

	NIH Trial		US Fetus	P1	P2
	AR	Laser	Laser	NIH-AR vs. US Fetus Laser	NIH Laser vs. US Fetus Laser
Recipient Survive	10/21 (48%)	6/21 (30%)	184/232 (76%)	0.002	<0.001
Donor Survive	12/21 (55%)	12/21 (55%)	193/230 (80%)	0.005	0.006
One/Both Survive	16/21 (75%)	14/21 (65%)	218/241 (91%)	0.058	0.005
Overall (per fetus)	26/42 (60%)	18/42 (43%)	373/482 (77%)	0.02	<0.001
Recipient Stage III&IV	N=? (67%)	N=? (13%)	90/127 (70%)	N/A	N/A

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