Abstract #: 28

Outcomes of Different Anesthetic Techniques in Fetoscopic Selective Laser Ablation of Placental Anastomoses for Twin-Twin Transfusion Syndrome (TTTS)

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Background: TTTS complicates 15% of monochorionic twin gestations. Fetoscopic laser ablation of placental anastomoses is currently the treatment of choice for severe TTTS. Since the anesthetic management of this procedure may potentially impact on both mother and twins, we compared fetal and maternal outcomes using three different modes of anesthesia: general (GA), regional (RA) and intravenous sedation (IVS).

Methods: We performed a retrospective (1998-2009) review of 553 consecutive twin cases (Mount Sinai Hospital, Canada, n=231 and University Hospital Leuven, Belgium n=322) in order to compare the three different anesthetic techniques in regards to the fetal and maternal outcomes. Major maternal complications included placental abruption, blood transfusion, pulmonary edema, "mirror" syndrome, ICU admission and postoperative intrauterine infection. Minor maternal complications were bleeding, amniotic fluid leakage, membrane separation, and hemodynamic instability. Preterm premature rupture of membranes (PPROM) within 7 days of the procedure and before 34 weeks were also analyzed. Fetal outcomes included the number of survivors at birth and at month.

Results: Demographic variables were similar between the 3 groups (nGA= 42, nRA= 310, nIVS= 201). In GA group, anesthetic time was longer (tGA= 165±46 min, tRA= 89±39 min, tIVS= 113± 33min; p<0.001) and more intravenous fluid was necessary (VGA= 2167±808 ml, VRA= 1235±527 ml, VIVS= 627±336 ml; p ≤ 0.001). Both major and minor maternal complications were more frequent with GA: major complications – 35.7% for GA, 8.4 % for RA and 2.5 % for IVS (p<0.001); minor complications - 54.8% for GA, 18.1 % for RA, and 5.1 % for IVS (p ≤ .001). In addition, PPROM was more frequent (47.6% for GA, 19.9% for RA and 33.7% for IVS; p ≤ 0.001) and fetal survival rate was lower in the GA group (survival rate at birth 56% for GA, 68% for RA and 79% for IVS; survival rate at 1 month 50% for GA, 67% for RA and 72% for IVS).

Conclusions: This retrospective study, performed in two national laser referral centers, revealed a significantly increased risk of major and minor maternal complications and adverse fetal outcomes related to GA. Therefore, we suggest that GA should be avoided during placental laser ablation for TTTS.