In-Utero treatment of prenatal thoracic abnormalities by pleuro-amniotic shunts (PAS); Short and Long-term outcome

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Objective
To describe short and long-term outcome of fetuses treated by PAS due to fetal lung lesions (FLL) and to compare the outcome with fetuses treated due to primary fetal hydrothorax (PFH).

Methods
A retrospective analysis (2004-2015) to identify those fetuses treated by PAS. Short term outcome information was drawn from medical record of the fetal medicine unit, delivery room and neonatal unit. Long-term outcome was assessed both by retrospective surveying medical record of infant/child as well as prospective standardized questioners (Vinland - VBAS).

Results
During the study period, 37 fetuses (64 shunt insertions) were treated by PAS; thirteen fetuses (35%) due to fetal lung lesions (FLL including - 7 CPAM, 5 BPS, 1 giant thoracic hemangioma- originally diagnosed as BPS) and 24 due to primary fetal hydrothorax (PFH). Indication for PAS insertion was hydrops in 31 of 37 cases and significantly growing lesions in the remaining six cases. Over all perinatal survival was high (87.9%) with 3 neonatal death and 1 Termination of pregnancy following lack of clinical improvement (4 cases were lost to follow up). High survival rate persisted even in cases requiring recurrent shunt insertion (80% survival). There was no significant difference in short or long term outcome between the fetal lung lesion (FLL) and primary fetal hydrothorax (PFH) study groups, including prenatal characteristics; Hydrops resolution (91% Vs 63%, p=0.19), gestational age at delivery (36.5;33-38 weeks Vs 37;29-39, p=0.76) PAS to delivery interval (5;0-22 Vs 8;3-21, p=0.15), perinatal survival (84% Vs 90%, P=0.64), ventilation time (5;0-25 Vs 5;0-20, pp=0.26) and hospitalization time (27;3-84 Vs 20;3-94, P=0.87) Long term outcome including neurodevelopmental abnormalities (23.5% Vs 20% ) and VABS score (91.3±13.3 Vs 96.4±14.7 were similar for both groups.

Conclusion
PAS insertion in hydropic cases with thoracic abnormalities is effective and resulting in high perinatal survival even in cases when sequential insertion is needed. Short and long- term outcome of neonates with fetal lung lesions treated by TAS are comparable to neonates treated due to primary hydrothorax.