and the right ventricle, presence and absence of holosystolic tricuspid regurgitation and VCC, and the pulsatility of blood flow pattern in the ductus venosus were analyzed.
Results: Six pregnancies were terminated, 1 intrauterine death occurred, 1 ongoing pregnancy and 7 fetuses were lost to follow-up, leaving 28 patients for the analysis. One child died preoperatively.
Biventricular repair was performed in 18 cases by interventional opening of the pulmonary valve and in 3 cases by surgical valvolotomy; one of these children died postoperatively.
Single ventricle palliation (starting with Blalock-Taussig-Shunt) was performed the other 6 cases.
Size of the right ventricle, tricuspid valve size, presence or absence of VCC were correlated with the possibility of biventricular repair and outcome. Tricuspid regurgitation was correlated with absence of VCC and sufficient size of right ventricle and tricuspid valve for biventricular repair.
Conclusions: Prenatal echocardiography can accurately diagnose right ventricular outflow tract obstructions. Size of right heart structures and presence or absence of VCC are important for selecting the postnatal treatment and to therefore for prognosis and prenatal counselling.

OP21.09
Right ventricular morphology in fetal pulmonary atresia with intact ventricular septum assessed by 3D: feasibility & prognostic significance

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Objective: To assess feasibility and prognostic significance of 3D evaluation of RV morphology in fetal PAIVS.
Methods: In 10 normals and 15 PAIVS cases the morphology of the RV was assessed with the Sono-AVC. The ROI box was tailored around the RV, and the atrium, ventricle and pulmonary arteries were identified by filling them with the Sono-AVC function. The morphology of the RV was categorized as: tripartite (normal), bipartite, unipartite, wall-to-wall. The data were crosstabulated by type of surgery or size of RV at necropsy.
Results: In normal cases, it was always possible to identify the normal tripartite morphology of the RV. The correlation between prenatal 3D evaluation and postnatal outcome in PAIVS cases is reported in Table 1. Overall, 6 cases underwent TOP while 9 were born alive, and of these 6 underwent surgery and 3 died pre-operatively. Of the 6 neonates undergoing surgery, 4 underwent a biventricular repair (3 tripartite and 1 bipartite ventricles on prenatal examination) and 2 a univentricular repair (both unipartite on prenatal assessment). Overall, prenatal right ventricular morphology assessment was correct in 13/15 cases.
Discussion: Prenatal prognostic assessment of PAIVS has been so far carried out prevalently by two-dimensional imaging. This represents the first attempt at using 3D ultrasound to derive prognostic information in fetal PAIVS. The major limitations of the study are represented by the small number of cases and its retrospective design. However, these data seem worth assessing in a prospective larger multicenter trial.

OP21.09: RV morphology in PAIVS: 3DUS vs postnatal/necropsy

	RV morphology at postnatal/necropsy			
RV morphology at 3DUS	*Tripartite*	*Bipartite*	*Unipartite*	*Wall-to-wall*
Tripartite	3	–	–	–
Bipartite	1	1	–	–
Unipartite	–	1	4	–
Wall-to-wall	–	–	–	5

OP21.10
Agenesis of the ductus venosus: what is the real clinical relevance?

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Background: Prevalence and clinical consequences of Agenesis of the Ductus Venosus (ADV) it's still unknown. Using the DV Doppler as a marker for chromosomal anomalies at the 11–14th weeks scan has changed this reality.
Methods: Prospective series from January 2005 to December 2008, of two tertiary centers (20 000 US/year), performing a complete first trim scan including DV Doppler assessment. All cases of ADV underwent serial echocardiography looking for signs of cardiac insufficiency until birth and then, postnatal follow-up including echocardiographic evaluation was done.
Results: A total of 29 cases of ADV were detected (27 singleton and 2 twin pregnancies), 14 (48%) of them diagnosed in first trim screening echo. 19 (66%) of these cases had intrahepatic umbilical venous drainage, 3 of them had severe hydrops (1 termination of pregnancy (TOP) and 2 postnatal deaths, one with abnormal communication between the portal sinus and the right atrium), one with associated anomalies underwent termination of pregnancy, the rest were born uneventfully and are alive and well (1 Aortic Coartation operated and 1 renal policystosis). The remaining 10 (34%) cases had extrahepatic drainage, either directly into right atrium (4), to Inferior Vena Cava (4) or the Iliac Vein (2 fetus). Among them 6 had severe hydrops (3 died postnatally, 2 TOP and 1 alive) and 4 had mild cardiac insufficiency. In extrahepatic group 50% had malformations (2 cardiac and 3 extracardiac). The intrahepatic drainage group had less incidence of hydrops (16% versus 60% ($P < 0,005$) and less malformations (16% versus 50% ($P < 0,005$) with a much better postnatal outcome (postnatal surveillance of 79% comparing to 50% of the extrahepatic group ($P < 0.05$).
Conclusions: Prevalence, diagnosis and prognosis of ADV has changed with after inclusion of DV Doppler in the 1st trimester scan. Fetuses with intrahepatic umbilical venous drainage have better prognosis specially without associated malformations.

OP22: FETAL INTERVENTIONS II

OP22.01
Assessment of intraventricular pressure in fetuses with hydrocephaly: initial experience

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Objectives: Our aims are to evaluate the feasibility and safety of intracranial manometry in fetuses with hydrocephaly and to estimate the variation of pressure after drainage of the ventricular cavity.
Methods: 7 fetuses of singleton pregnancies between 20–34 weeks, presenting progressive obstructive hydrocephaly underwent intra-uterine cephalocentesis at the level of the posterior horn of the lateral ventricle. Assessment of ICP was made by the connection of a sterile high-sensitive pressure measurement system through an innovative technique developed by us. Pressure was registered in a digital monitor. We performed slow straining of cerebrospinal fluid (CSF) in the fetuses with high pressure and reassessed high intracranial