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Fetal aortic valvuloplasty – how to improve outcome ?

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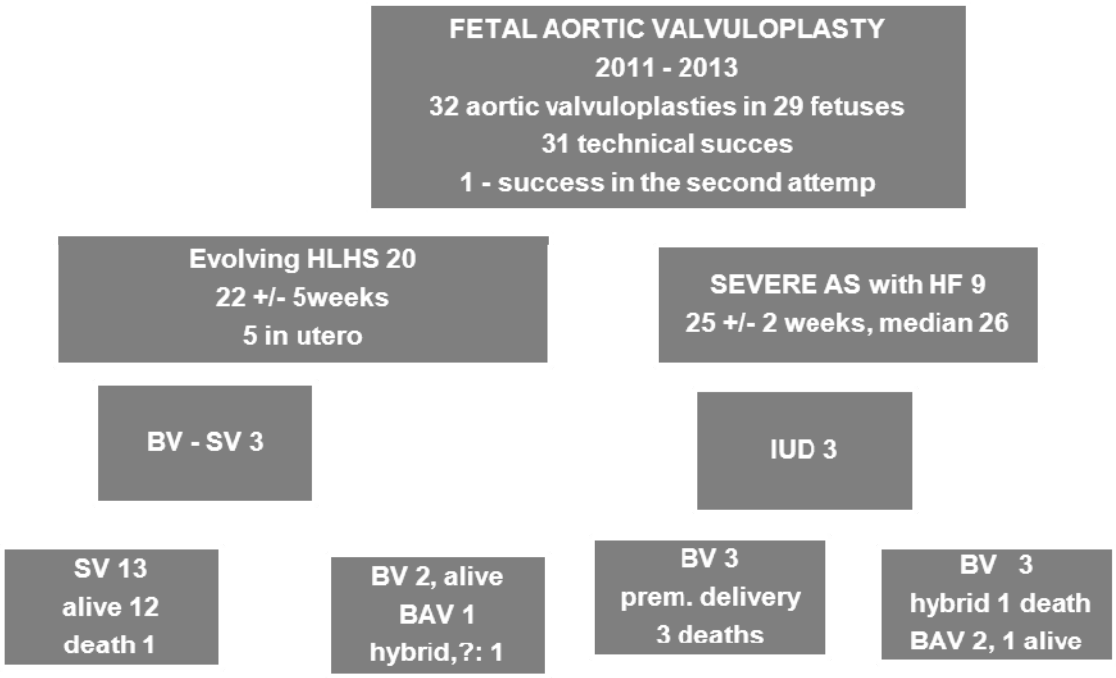
Introduction.
Fetal balloon aortic valvuloplasty F-BAV has already been performed in few institution all over the world. The two biggest series published different outcome: 30% of bivetricular circulation (BV) in Boston and 70% in Linz. There is still not consenus what is the best treatment for neonates and infants after FBAV. Prenatal natural and after FBAV history is still far from understanding. Knowing this we started the program of fetal cardiac interventions in 2011. The objective of this study was evaluation of preliminary results of FBAV.
Material.
Between 2011 – 2013 32 FBAV was performed in 29 fetuses. Fetuses were divided into two gropus: evolvingHLHS (eHLHS)-20; severe AS with heart failure-9.
Results.
Aortic valve was successfully dilated in all 29 fetuses. 11 procedures were done under general anesthesia of the mother, 13 – intravenous, recent 6 – local. All fetuses had intraumbilical analgesia with fentanyl.
In 20 fetuses with eHLHS there was better flow through the aortic valve and better LV function after the procedure. In spite of this just 2 had biventrivular circulation. One was switched to BV after hybrid procedure in the neonatal period. 15 fetuses from the eHLHS group survived neonatal and early infants period. In 3 the first attempt was BV circulation, but it had to be switched to SV due to very poor LV function. One child from this group died due to severe heart and multiorgan failure.
Fetuses from the second group were in worse condition. 3 were hydropic, 3 - severe LVdysfunction with closed Fo and polyhydramnion. In spite of successful procedures, 3 died in utero, 3 were born premature, 2 died without treatment,1 after 2 BAV in the neonatal period. The last after FBAV and stent placement into IAS, died in th 5^{th} week of life after hybrid procedure. There is just one BV survivor from the second group.
Conclusions.
FBAV can be successfully performed. The prenatal course after successful dilation of the aortic valve is unpredictable. Fetuses with severe heart failure are in much higher risk than eHLHS. The best postnatal treatment of this difficult patients should be the topic of international discussion.


FETAL AORTIC VALVULOPLASTY
2011 - 2013
32 aortic valvuloplasties in 29 fetuses
31 technical succes
1 - success in the second attemp
Evolving HLHS 20
22 +/- 5weeks
5 in utero
SEVERE AS with HF 9
25 +/- 2 weeks, median 26
BV - SV 3
IUD 3
SV 13
alive 12
death 1
BV 2, alive
BAV 1
hybrid,?: 1
BV 3
prem. delivery
3 deaths
BV 3
hybrid 1 death
BAV 2, 1 alive