



Endovascular and hybrid approaches for critical defect in newborns

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Management of newborns with critical heart defect

Regional Perinatal Center





Hybrid operating room



Cardiac surgery ICU



Regional Perinatal Center



- Prenatal diagnosis
- Topical diagnosis newborns (ECHO, CTA)
- Preoperative care

- Early postoperative period
- Fast surgical service

- Postoperative care

Methods

1 group Endovascular n = 18

- Age -13.3 ± 22.2 days
- Weight - 3.3 ± 0.5 kg
- Non-cardiac anomalies - 1







Nosological forms - Procedures

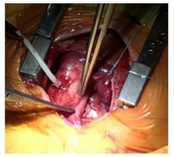
Critical AS
n = 14 (+1 CoA)
→ BAV - 14
(+ balloon CoA – 1)

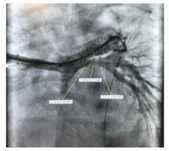
TA with PAS/PAA
n = 4
→ PDA stent
(+ Rashkind 2)

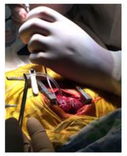
Methods

2 group Hybrid n = 10

Age - 8.8 ± 7.6 days
Weight - 2.8 ± 0.6 kg
Non-cardiac anomalies - 6







Nosological forms - Procedures

- HLHS n = 3
- IAA + SV n = 2
- IAA+ VSD n = 1

→ PDA stent + bilateral PAB

PA with VSD
n = 3
→ PDA stent

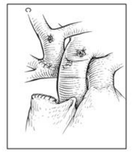
PA with IVS
n = 1
→ PDA stent + BPV

Results.

Endovascular group n= 18

Critical aortic stenosis
Initial BAV
n =14







- None - 9 (1 dead)
- Repeat BAV - 3
- Ross - 1
- Recoarctation repair - 1

TA with PAS/PAA
PDA stent
n=4
→ BDG shunt
→ Fontan procedure

Results.

Hybrid group n =10

PDA stent + Bilateral PAB

- biventricular repair n = 1
- arch repair + BDG n=1
  - hospital death n=3
  - > 30 d. survival n=2
- stent dislocation n=1
  - arch repair + PAB

PDA stent (PA + VSD)
n = 3
- 2 stent thrombosis
  - BT-shunt
    - biventricular repair

PDA stent + BPV (PA + IVS)
n = 1
- hospital death n=1

Conclusions

- Endovascular interventions are safe and effective in patients with critical CHD
- The outcomes of hybrid interventions depend on the initial severity of the CHD and the condition of the patients