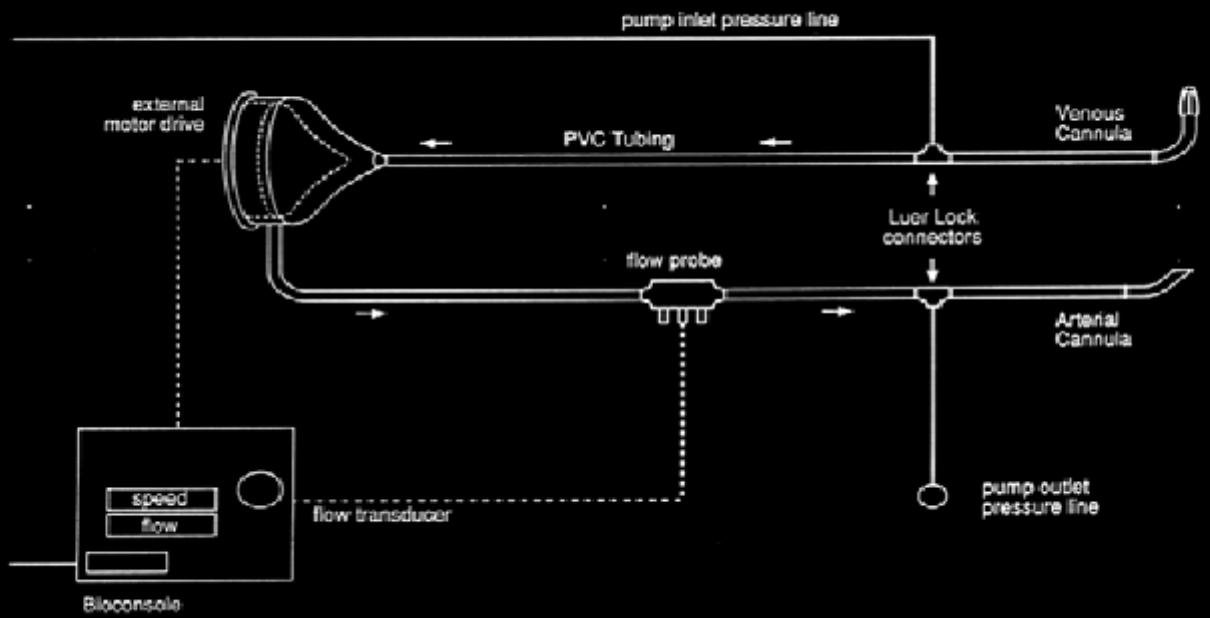
Centrifugal Ventricular Assist in Children Under 6 kg.



Indications for VAD

Potentially reversible ventricular dysfunction

Inability to be weaned from CPB

Postoperative low cardiac output

Planned bridge to transplant

Contra-indications for VAD

Biventricular or pulmonary dysfunction

Irreversible dysfunction in other organs

Intracranial haemorrhage

Neurologic impairment

Sepsis

Indications for weaning from VAD

Increased fractional shortening

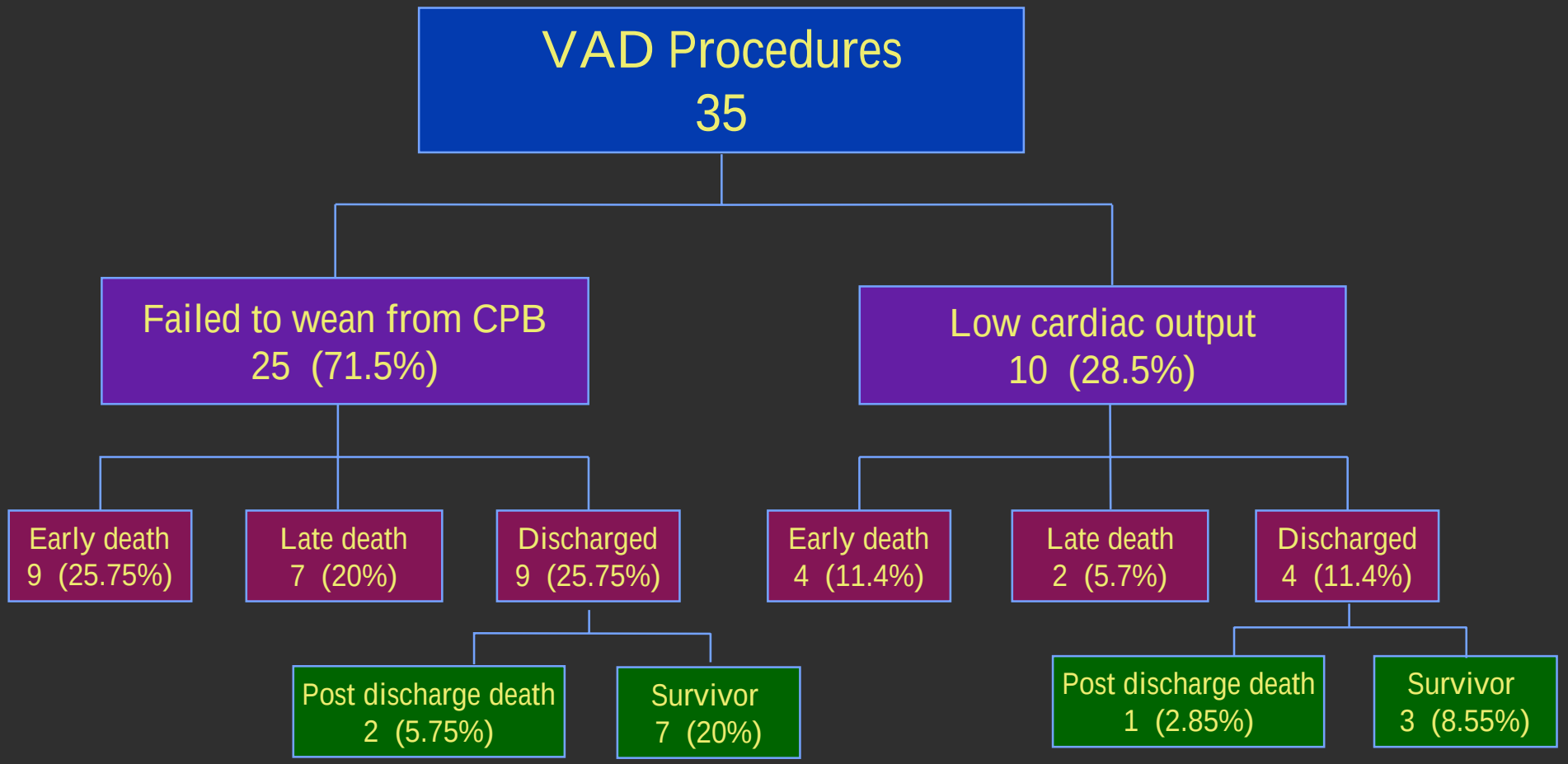
Increased pulsatility of flow

Decreased left or common atrial pressure

VAD complications

Complication	Number of Procedures
Thrombus formation	13/35
Surgical intervention for bleeding	6/35
Conversion to ECMO	5/35
Cannula problems	2/35
Chest opening for CPR	1/35
Total	27/35

Outcomes


VAD Procedures
35
Failed to wean from CPB
25 (71.5%)
Low cardiac output
10 (28.5%)
Early death
9 (25.75%)
Late death
7 (20%)
Discharged
9 (25.75%)
Early death
4 (11.4%)
Late death
2 (5.7%)
Discharged
4 (11.4%)
Post discharge death
2 (5.75%)
Survivor
7 (20%)
Post discharge death
1 (2.85%)
Survivor
3 (8.55%)

Patient diagnosis and outcome

Diagnosis.	No. of patients	No. weaned	No. discharged
HLHS	12/34	7/12	3/12
TGA	8/34	5/8	5/8
CAVSD	3/34	1/3	0/3
ALCAPA	2/34	2/2	2/2
Aortic Stenosis	2/34	2/2	1/2
Mitral & Aortic Regurg.	1/34	1/1	0/1
Mitral & Aortic Stenosis	1/34	1/1	1/1
Tetralogy of Fallot	1/34	1/1	1/1
LVOTO & MR	1/34	0/1	0/1
PA & LVOTO	1/34	1/1	0/1
VSD	1/34	1/1	1/1
PA.IVS	1/34	0/1	0/1

Indicators of Outcome ?

	Factors not predictive of VAD outcome	Same analysis excluding patients converted VAD to ECMO
1. Weight	p = 0.576	p = 0.651
2. Age	p = 0.532	p = 0.903
3. VAD duration	p = 0.181	p = 0.126
4. CPB duration	p = 0.549	p = 0.688
5. X clamp duration	p = 0.984	p = 0.767
6. Univentricular anatomy	p = 0.296	p = 0.283
7. TGA anatomy	p = 0.099	p = 0.009
8. Couldn’t wean from CPB	p = 1.00	p = 1.00

Indicator of successful weaning from VAD

VAD duration	weaned	not weaned
mean	80.5 hours	43.8 hours

p = 0.02

excluding conversion to ECMO patients

Other results

	No. of patients	No. discharged
R.C.H. < 6kg	34	14/34
R.C.H. > 6kg	23	9/23
Scheinin et al.	9	5/9
Costa et al.	13	7/13
Del Nido et al.	22	11/22

Conclusion

Centrifugal VAD can be successful with:

patients < 6kg .
post arterial switch.
univentricular anatomy.
shunt dependent circulation.