

Predictors of outcome of transcatheter balloon dilatation of valvular pulmonary stenosis in neonates and infants

Abdel-Aziz D.M., El-Saeidi S.A., Agha H.M., Hamza H.S., Attia W.A., El-Sisi A.M., Abdel-Aziz F.M., Fattouh A.M., Ammar R.I., Abdel-Aziz O.M., Sobhi R.M.
Cairo University-Pediatric Department-Cardiology Division, Cairo, Egypt

Background: Balloon pulmonary valvuloplasty (BPV) is the treatment of choice for patients with pulmonary valve stenosis (PS). **Methods:** An observational cross sectional study including neonates and small infants underwent BPV in the period from 2004-2013 in Cardiac Cath Unit- Pediatric Cardiology Department- Cairo University. Multivariable models were built to report the predictors of outcome of balloon pulmonary valvuloplasty and its complications both during and early after the intervention. **Results:** A total of 644 cases were included in the study . They were divided according to age into two groups :neonatal and early infancy (n=282, mean age 26.7±6.9 days, BW4.7±1.4 Kg) ,infancy (n=362, mean age 6.8±2.7 months, BW 7.3±1.3Kg). Procedural success was achieved in 82.7% of the patients, being defined as a drop of right ventricular systolic pressure to less than or equal to 50% of the baseline measurements.**The significant predictors of outcome were:** The pulmonary valve annulus measured by angio (successful 8.8±2 mm, unsuccessful 8.2±1mm, Pvalue=0.015), RV pressure and pressure gradient post BPV (P=0.000, P=0.000), the presence of infundibular stenosis (P=0.006),and the balloon size (successful 10.9±2.7 mm, unsuccessful 10.1±2.5mm, P=0.05).The balloon/annulus ratio was not different between the successful and unsuccessful group(P=0.5).We studied also the impact of age , BW, RVP before balloon diltation(Critical PS), presence of RVD and the morphology of the pulmonary valve (dysplastic valve) on the results of BPV and no statistically significant difference of these values was found between successful and unsuccessful cases .**Conclusion:**The PV annulus size, balloon size, absence of infundibular stenosis are strongly correlated to successfulness of BPV(P<0.05).

	SUCCESS						T-test	
	No			Yes			t	P-value
	Mean	±	SD	Mean	±	SD		
Age in days	133.625	±	96.090	134.992	±	87.674	-0.104	0.918
WT	5.878	±	1.734	6.295	±	1.857	-1.702	0.092
PG1	94.250	±	26.421	91.211	±	25.226	0.832	0.408
PVannulus	8.220	±	1.848	8.872	±	2.007	-2.487	0.015*
RVP1	115.906	±	34.890	113.264	±	28.401	0.562	0.576
PAP1	21.734	±	6.496	23.326	±	9.142	-1.608	0.110
RVP2	80.032	±	30.303	50.632	±	12.805	7.482	0.000*
PG2	53.787	±	26.481	24.241	±	9.889	8.575	0.000*
BALL1 S	10.180	±	2.553	10.908	±	2.779	-1.970	0.05*
Ball. Ratio	1.266	±	0.355	1.299	±	0.341	-0.662	0.510