Stented porcine pulmonary biprosthesis for repair of the dysfunctional right ventricle outflow tract. 15 years of experience.

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OBJECTIVES:
Surgical results of porcine pulmonary stented bioprosthesis for repair the sequela / residual lesions after primary surgery on the right ventricle outflow tract: Mortality and risk factors; Associated surgical procedures; Morbidity; Prosthetic dysfunction and related factors; Incidence of endocarditis; Analysis of volumes and function of the right ventricle.

METHODS:
Included all patients who received a porcine pulmonary bioprosthesis between 1999-2014. Primary heart disease: Fallot, pulmonary atresia / stenosis with intact ventricular septum, pulmonary atresia with ventricular septal defect, transposition with ventricular septal defect and pulmonary stenosis, truncus, Ross surgery sequela. Prosthetic dysfunction criteria: new surgical / percutaneous replacement, peak gradient > 50/40 mmHg (echocardiographic / hemodynamic), or pulmonary regurgitation > II.

RESULTS:
91 bioprosthesis in 91 patients. Male: 49(54%). Age: 30±13(1-61) years, 73 adults (> 18 years), 18 children (≤ 18 years). More frequent original heart disease: Fallot 68(75%).
Bioprosthesis implanted: 21(23%) Biocor-St Jude®; 70(77%) Mosaic-Medtronic®. Prosthesis size: numbers 19-29, mainly implanted nº27 in adults and nº25 in children.
Associated surgical procedures: (1-5) in 67(74%), more common tricuspid valvuloplasty.
Hospital mortality 2(2.2%). No mortality in isolated pulmonary replacement. P values for patient’s age, sex, cardiopulmonary by-pass and aortic cross-clamp times, number of previous surgeries, number of associated procedures, right and left ventricle function, were not significant for mortality.
Morbidity in 30(33%), more frequent tachyarrhythmia.
Follow-up: 3,8±3,7(0,1-15) years. No lost patients. Late mortality 1(1,1%), owed to complications prosthetic endocarditis related.
Echocardiography peak transpulmonary gradient: 20±9(4-53) mmHg.
None of the bioprosthesis required reoperation, but 3 patients were reoperated for other indications.
Prosthetic dysfunction: 4 (2 valve-in-valve, 1 gradient > 50, 1 pulmonary regurgitation III). None of the dysfunction criteria were statistically significant.
Incidence of late prosthetic endocarditis: 3(3,3%)
Improved right ventricle volumes after surgery resulted significant (p< 0,001). Neither right (p=0,14) nor left (p=0,76) ventricular ejection fraction improvement were significant.

CONCLUSIONS:
Surgical repair of dysfunctional right ventricle outflow tract by porcine bioprosthesis is performed with low mortality. Unlike percutaneous techniques, surgery allows associated procedures and bioprosthetic endocarditis is uncommon. Survival curve without reoperation related to bioprosthesis reaches 15 years.