Porcine pulmonary prostheses versus bovine jugular vein to repair the dysfunctional right ventricular outflow tract in children and teenagers.

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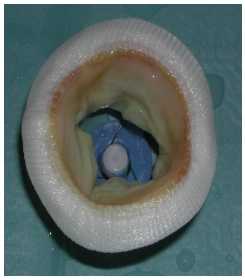
Introduction & Objectives:

Residual dysfunction of the right ventricle outflow tract (RVOT), due to congenital reconstructive surgery, is usually reoperated into adulthood. Sometimes, symptoms and/or dysfunction of the right ventricle (RV) during childhood may condition an earlier pulmonary valve replacement. Our target is to compare the results of the valved bovine jugular vein (BJV)-Contegra® versus the stented porcine pulmonary prosthesis (PPP), implanted in patients under 18 years of age.



Methods:

All reoperations performed for prosthesis interposition (BJV or PPP), in patients aged under 18 years, with dysfunction of the RVOT after previous congenital cardiac surgery.

Study period 2003-2015.

Prosthetic dysfunction criteria: surgical/percutaneous reintervention, gradient > 50 mmHg or severe prosthetic regurgitation.

Statistical Analysis with SPSS 20.0.

Results:

21 PPP/20 patients and 15 BJV/15 patients. 60% male. Fallot, most common primary disease in both groups.

- From **24 preoperative variables studied**, statistically significant differences occur in 11, highlighting:

Previous surgery type on RVOT (p<0.001, more transannular in PPP group)

Degree of previous pulmonary regurgitation (p=0.011, more insuficiency in PPP)

RV ejection fraction (p=0.016, lower in PPP group)

RV diastolic volume (p=0.026, more dilated in PPP group).

No inhospital mortality.

- From **15 perioperative variables**, statistically significant differences in:

Mean age of the implant 8.8 ± 4.4 years in JBV group versus 11.8 in PPP group (p=0.044).

Implanted valve diameter (p<0.001, lower in BJV cohort).

Aortic cross-clamping need (p=0.015, higher in Contegra® group).

No late mortality. BJV mean follow-up 4.8 years, versus 2.4 in PPP group (p=0.046).

- From other **16 postoperative variables**, differences were also statisticaly significant in:

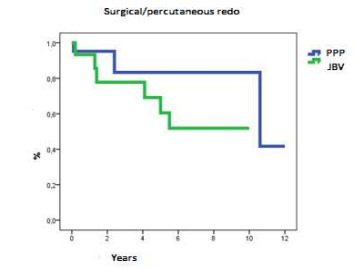
Mean transprosthetic systolic gradient (p<0.001, lower in PPP cohort).

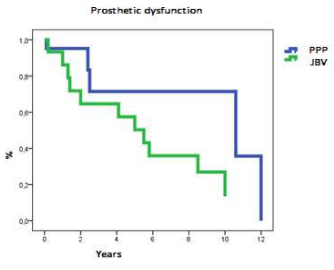
Degree of residual pulmonary regurgitation (p=0.009, lower in PPP group).

Prosthetic dysfunction (p=0.006, 60% BJV versus 23% PPP).

Presurgical MR data	PPP	BJV
SRVV (cm^3/m^2)	86,3	43,3
DRVV (cm^3/m^2)	168,1	95,0
RVEF (%)	47,5 %	53,8 %
LVEF (%)	56 %	59,5 %

Post surgical MR data	PPP	BJV
SRVV (cm^3/m^2)	41,8	38,5
DRVV (cm^3/m^2)	89,8	86
RVEF (%)	46,4 %	54,2 %
LVEF (%)	51,2 %	57,4 %





Conclusions:

- With the prudence imposed by differences in follow-up time and type of previous surgery for the right ventricle outlet pathway in both cohorts, it seems reasonable to choose a PPP to recover functionality of the RVOT.
- The BJV would be elected when a conduit is essential.

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