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

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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 (BJ) versus the stented porcine pulmonary prosthesis (PPP), implanted in patients aged 1 to 18 years old.

Methods:
All reoperation performed for prosthesis interposition (BJ or PPP), in patients aged 1-18 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 BJ/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 on RVOT (p<001, more transannular in PPP group), degree of previous pulmonary regurgitation (PR) (p=0.011, more PR in PPP), RV function (p=0.016, lower in PPP) and RV diastolic volume (p = 0.026, more dilated PPP group).
No hospital mortality. From 15 perioperative variables, significant differences in: average age of the implant (p = 0.044, lower in BJ group, 8 vs 11 years), implanted valve diameter (p <0.001, lower in BJ group) and need of aortic cross-clamping (p = 0.015 higher in BJ).
No late mortality. BJ mean follow-up 4.8 years, vs 2.4 in PPP group (p=0.046).
From other 16 postoperative variables, were also statistically significant peak transprosthetic average gradient (p<0.001), degree of residual PR (p=0.009) and prosthetic dysfunction (p=0.006, 60% BJ vs 23% PPP), ever favorable for PPP group.

Conclusions:
Although only a longer follow-up will confirm the hypothesis, it seems reasonable to chose a PPP to improve RVOT functionality in children above 1 year, being significantly lower its percentage of dysfunction in tracking.