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 insufficiency 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 BJV 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 statistically significant in:
  - Mean transprosthetic systolic gradient (p<0.001, lower in PPP cohort).
  - Prosthetic dysfunction (p=0.006, 60% BJV versus 23% PPP).

Presurgical MR data
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<th>PPP</th>
<th>BJV</th>
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<tbody>
<tr>
<td>SRVV (cm³/m²)</td>
<td>46.3</td>
<td>31.3</td>
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<tr>
<td>DRVV (cm³/m²)</td>
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<td>RVEF (%)</td>
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<td>LVEF (%)</td>
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<td>50.5</td>
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Post surgical MR data
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<tbody>
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<td>SRVV (cm³/m²)</td>
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<tr>
<td>DRVV (cm³/m²)</td>
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<tr>
<td>RVEF (%)</td>
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<tr>
<td>LVEF (%)</td>
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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.