Results: Using the PISA method 76 patients (34%) had severe AR. Sensitivity, specificity, VPP, VPN of the recommended thresholds of the 4 semi-quantitative methods for severe AR based on ERO are presented in the Table. Overall, semi-quantitative methods had a good specificity but a poor sensitivity except the VC which presented both a good sensitivity and specificity. Thus, semi-quantitative methods should be integrated in the comprehensive evaluation of AR severity but severe AR should not be excluded only on the basis of semi-quantitative criteria. Our results emphasize the need for quantitative assessment of AR severity in clinical practice and may explain the better prognostic value of quantitative methods than traditional variables.

<table>
<thead>
<tr>
<th>Threshold</th>
<th>Sensitivity, Specificity, VPP, VPN, AUC</th>
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<tbody>
<tr>
<td>CO100/m</td>
<td>38, 95, 81, 73, 0.70</td>
</tr>
<tr>
<td>VC6mm</td>
<td>91, 77, 65, 95, 0.90</td>
</tr>
<tr>
<td>DFR18cm/s</td>
<td>51, 86, 71, 71, 0.77</td>
</tr>
<tr>
<td>PHT200ms</td>
<td>12, 100, 100, 60, 0.81</td>
</tr>
</tbody>
</table>

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Balloon aortic valvuloplasty: insights into subsequent treatments and long-term outcome

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Introduced in 1986 as a therapeutic option for degenerative aortic stenosis, balloon aortic valvuloplasty (BAV) knows actually a new development and has become a faster, safer and more efficient with marked technological improvements. However, early restenosis remains the Achilles’ heel for the long-term outcome. Actually, many critically ill patients declined for surgical aortic valve replacement could undergo a BAV followed by whether a transcatheter aortic valve implantation (TAVI) or a conventional aortic valve replacement (AVR).

In this study, we aimed to analyze the long-term outcome after BAV stratified by subsequent treatments.

From 2005 to 2008, 323 patients were treated by BAV with a retrograde trans-femoral approach. Mean age was 80 ± 8 years. Mean Euroscore was 21.3 ± 13.6. After BAV, effective orifice area increased from 0.68 ± 0.24 to 1.12 ± 0.39 cm² (p < 0.001) and mean gradient decreased from 44 ± 19 to 29 ± 11 mmHg (p < 0.001). Early mortality rate (<7 days) was 3.4% (n=11).

At long term, 210 patients received medical treatment alone, 31 (9.6%) patients underwent subsequent surgical aortic replacement, 54 (16.7%) had a transcatheter aortic valve implantation (TAVI) and 28 (8.7%) had repeat BAV at least one time with a delay of 7.3 ± 9.8, 5.9 ± 6.1 and 9.8 ± 8.5 months respectively. With a Kaplan-Meier analysis, survival after isolated BAV was very poor (5.1% at 5 years), whereas patients treated by BAV followed by AVR or TAVI had a significantly better survival rate (55.7% at 5 years).

BAV leads to short term hemodynamic improvement in patients with aortic stenosis. This helps to bridge some critical situations allowing to further perform a more radical treatment in better clinical conditions.

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Myocardial injury after transcatheter aortic valve implantation: are transfemoral and transapical approaches equal?

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Transcatheter aortic valve implantation (TAVI) induces a certain amount of myocardial injury assessed by an increase in cardiac troponin after the procedure. The goal of this study was to compare troponin levels after TAVI performed using either the transfemoral (TF) or transapical (TA) route.

Methods: We enrolled 103 consecutive pts with severe symptomatic aortic stenosis and a high surgical risk who underwent TAVI using the Edwards-Sapien valve. TF TAVI was performed in 74 pts under local anesthesia after surgical cutdown of the femoral artery while the other 29 pts underwent a TA TAVI. For the 2 approaches, the valve was implanted during rapid pacing. Cardiac Troponin I (lower limit of detection: 0.2 µg/l, suggested diagnostic value for myocardial infarction: 1.0 µg/l) was measured before, 8 hours and 24 hours after TAVI.

Results: Pts undergoing TA TAVI were significantly more often males (69% vs 45%, p < 0.05), younger (79 ± 8 vs 84 ± 6 years, p < 0.01) and had more often previous bypass surgery (48% vs 23%, p < 0.03) than TF pts. The proportion of pts with previous myocardial infarction, previous PCI, presence of at least one significant (> 50%) coronary stenosis at the time of valve implantation, was similar between the TF and TA population. Logistic Euroscore, ejection fraction, creatinin level were similar in the 2 groups. After TAVI, the effective orifice area increased from 0.65 ± 0.15 to 1.90 ± 0.30 cm² (p < 0.0001) and the transvalvular mean gradient decreased from 44 ± 14 to 9 ± 4 mmHg (p < 0.0001), while troponin level was similar at baseline in the TF and TA populations (0.06 ± 0.14 µg/l TF vs 0.11 ± 0.34 µg/l TA), peak troponin was very significantly higher after TA TAVI than after TF TAVI (65.20 ± 61.06 µg/l TA vs 5.23 ± 7.94 µg/l TF, p < 0.001).

Conclusions: Troponin elevation after TA TAVI is much higher than after TF TAVI. Whether these differences in the degree of myocardial injury have prognostic value will require further studies.

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Percutaneous aortic balloon valvuloplasty as first-line treatment in high-risk patients scheduled for transcatheter aortic valve implantation

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Purpose: To assess the results of first-line percutaneous aortic balloon valve valvuloplasty (PABV) in high-risk patients referred for transcatheter aortic valve implantation (TAVI).

Methods: Of 253 high-risk patients referred for TAVI between October 2006 and September 2009, 41 were considered transiently unsuitable for either aortic valve replacement (AVR) or TAVI and underwent PABV as potential bridge to intervention. In the others, primary TAVI or AVR was performed in 140 cases, and medical therapy alone in 72.

Results: Indications for PABV were: unstable haemodynamic condition (n=27, of whom 12 cardiogenic shocks), TAVI not immediately available for logistic reasons (n=6), associated cancer requiring further explorations (n=4), therapeutic test for contentious presentation (n=3), combined acute coronary syndrome requiring urgent percutaneous revascularization (n=1). No death occurred during PABV. Twenty-three patients actually underwent secondary TAVI (n=19) or AVR (n=4) (bridge PABV), while 18 did not undergo further intervention (PABV alone) because of technical (n=10) or general (n=8) complications, death before intervention (n=2) or patient’s refusal (n=1). The main baseline characteristics and clinical outcomes of the different subgroups are presented in the Table. There was no significant difference in one-year survival between the primary TAVI / AVR and bridge PABV groups (p=0.08), and between the medical treatment and PABV alone groups (p=0.36).

Conclusion: In very high-risk patients with aortic stenosis and temporary contraindications to AVR or TAVI, 1) PABV may be used as a bridge to intervention with good mid-term outcomes, 2) PABV alone can be safely performed but is associated with a poor mid-term outcome.