Role of radiolabeled leukocyte scintigraphy in management of patients with a suspicion of prosthetic valve endocarditis

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Objective: In patients with a suspicion of a prosthetic valve endocarditis (PVE), detection of perivalvular infection can be difficult based only on echocardiography, but has an important impact in guiding surgical indications. The aim of this retrospective study was to test the interest of leukocyte scintigraphy (LS) for detection of perivalvular infection in patients with suspicion of non-complicated PVE.

Methods: LS was performed in 42 patients admitted for suspicion of PVE. Results of LS were classified as positive, with either intense or mild accumulation of radiolabeled leukocytes in the cardiac area, or negative. Macroscopical aspects and bacteriology were obtained from patients who underwent cardiac surgery (n=10). Clinical outcome was collected in patients treated medically (n=32).

Results: Among patients with an intense signal with LS who underwent surgery (n=6), 5 had an abscess confirmed during intervention, and 1, post-operatively. Patients with an intense accumulation of radiolabeled leukocytes with scintigraphy and treated medically (n=3) had a poor outcome: death (n=1); prosthetic valve dehiscence (n=1); recurrent endocarditis (n=1). Among patients with a mild activity with LS (n=5), one patient developed a large prosthetic valve dehiscence during follow-up. The 4 remaining patients were treated medically and did not present any recurrent endocarditis after a median follow-up of 14 months. No abscess was detected in patients with negative LS who underwent surgery (n=4). Among patients with negative LS treated medically (n=24), none presented recurrent endocarditis after a mean follow-up of 15±16 months. In total, LS helped to identify perivalvular infection or abscesses in 12 out of 42 patients (29%).

Conclusion: This retrospective study suggests that LS is useful for identification of perivalvular infection and could help in guiding surgical indications in patients with suspicion of PVE.

Impact of patent foramen ovale closure in patients with platypnea-orthodeoxia syndrome

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Objective: To update information gained on the epidemiology profile of IE in a Tunisian high-volume tertiary care centre

Patients and methods: This was a descriptive retrospective study of patients treated for IE from January 2001 to December 2010. The patients were divided in two groups according to the date of diagnosis of IE: group 1 (from January 2001 to June 2006) and group 2 (from June 2006 to December 2011). These groups were compared for epidemiologic factors and microbiological differences.

Results: A total of 297 patients admitted during the study period met the modified Duke criteria for IE. The comparison of demographic and microbiological characteristics of IE cases over time between the results of the two groups showed that the annual incidence of IE was stable. The sex incidence rates of IE, in particular, incidence among men was relatively stable across the study period and ranged from 60% in 2001-2006 to 58% in 2006-2010, also there was no significant increase in incidence among women (P=ns). Among incident cases, there was a significant increasing age on presentation, with median age increasing from 39.5 years in 2001-2006 to 51.5 years in 2006-2010 (P=0.05). There were no statistically significant decreases in the proportions of cases affecting the aortic valve (P=0.4) and in IE due to oral streptococci (P=ns) over time. Also there was no significant increase in the incidence of Staphylococcus IE. However, the incidence of IE with negative blood culture has remained stable and continues to be high, nearing 50%.

The rate of rheumatic heart disease as an underlying heart disease was stable over time. However, the standardized incidence of IE has increased in patients with prosthetic valves (P=ns). Overall in-hospital mortality rate decreased from (18.6% in 2001-2006 vs 14.6% in 2006-2010).

Conclusion: This study has shown that the annual incidence of IE is stable in Tunisia. However, profound changes in the epidemiological profile of this disease have not been noted in our population.

Impact of patent foramen ovale closure in patients with platypnea-orthodeoxia syndrome

Platypnea orthodeoxia syndrome (POS) is a rare condition with right to left shunting through a Patent Foramen Ovale (PFO) that results in oxygen desaturation during postural changes. Few series are available on the functional status after PFO closure. The aim of our study was to describe the impact of PFO closure in this population.

Methods: We retrospectively included 24 consecutive patients with dyspnea related to POS, aged 73.6±9.6 years old (min 52, max 86, 62.5% male) who were...
referred for PFO closure between Oct. 2006 and July 2011 in the Toulouse Rangueil university hospital. Follow-up data were available in May 2012.

**Results:** At baseline, all patients had dyspnea (58.3% NYHA 4). Eight patients (33.3%) had a history of stroke attack. POS was related to right pneumonectomy in 3 patients (12.5%), ascending aortic ectasy in 11 patients (45.8%), hepato-renal polycystic disease in 2 patients (8.3%). Aneurysm of the inter-atrial septum was observed in 12 patients (50%). PaO2 in erect position compared to recumbent position (50.4±6.8 versus 72.6±12.5 mmHg, p=0.0005). Closure of the PFO was performed percutaneously in 24 patients (100%). An additional surgical PFO closure was necessary in 1 patient because of significant residual shunting. PaO2 in erect position was significantly increased after closure (p=0.0254).

During follow-up, 4 patients (16.7%, p=0.125) had a complete relief of their symptoms after closure. Dyspnea was significantly improved according to NYHA functional class (p=0.023). General status improved in 75% patients (p=0.025). Eight patients died (33.3%). Four deaths (50%) were related to stroke attacks at respectively 18 days, 3,11 and 39 months after PFO closure. Four deaths were not related to cardiac issue.

**Conclusion:** Patients referred for PFO closure for POS are old and at high risk of mortality, particularly from stroke attacks. PFO closure is associated with an improvement of the functional NYHA class and of the general status.

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**Balloon aortic valvuloplasty can it be performed safely without heparin?**

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**Blinding and femoral access complications which occurred after balloon aortic valvuloplasty (BAV) may be enhanced by the systematic use of heparin during the procedure. We assessed the hypothesis that BAV performed without heparin may be associated with lower complications rates.**

**Methods:** We conducted a retrospective analysis of all consecutive patients who had undergone BAV in our center between 2008 and 2011. We evaluated 3 groups: group 1 included patients whose BAV was performed with large sheaths (10 to 12 F) and use of unfractionated heparin (UH) (50IU/kg bolus IV); patients whose BAV was performed with use of smaller size sheaths (8 or 9 F) who were divided into group 2 (with UH bolus) and group 3 (without UH bolus). We collected all major in-hospital adverse events, bleeding (2BARC 3), vascular complications (including pseudoaneurysm or arterio venous fistula) and acute limb ischemia.

**Results:** Overall, 132 patients were included in this study. The 3 groups had similar median age (84 years) or previous lower extremity artery disease (overall n= 36, 27%, p=0.79). Vascular and bleeding complications were observed in 17 patients (12.8%) and were significantly higher when UH was used (table 1) with a relative risk of 2.89 (1.18-6.1). Conversely, absence of heparin did not increase ischemic complications or major in-hospital adverse events (p=0.5). Vascular complications were similar among patients who received heparin whatever the size of the used sheath (table 1).

**Conclusion:** Balloon aortic valvuloplasty performed without heparin appears to be safe and is associated with a dramatic reduction of vascular and bleeding events. Although randomization was not used, this marked difference is difficult to explain by confounding factors.

Table 1 – Vascular and bleeding complications

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Femoral and/or bleeding</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>group 1 (UH+, LS)</td>
<td>n=23</td>
<td>4 (17.3%)</td>
</tr>
<tr>
<td>group 2 (UH+, SS)</td>
<td>n=46</td>
<td>4 (17.3%)</td>
</tr>
<tr>
<td>group 3 (UH-, SS)</td>
<td>n=63</td>
<td>0</td>
</tr>
</tbody>
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**UH+: unfractionated heparin bolus 50 u/kg; UH-: no heparin bolus; LS: large sheath; SS: small sheath**

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**The incidence, risk factors and prognosis of acute kidney injury (AKI) according to the valve academic research consortium (VARC) definition after transcatheter aortic valve implantation (TAVI)**

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**Background:** Few data are currently available about patients characteristics and procedural features associated with AKI after TAVI using the new recommended VARC definition.

**Methods:** 99 patients underwent TAVI (1 procedural death, 78.8% transfemoral, 12.1% trans-apical/aortic and 9.1% subclavian access) between February 2009 and September 2011 at Rennes university hospital. Creatinine level was assessed daily at least up to 72 hours after TAVI. Patients’ characteristics, procedural features and outcomes according to VARC definitions were studied to evaluate determinants and prognostic impact of AKI.

**Results:** AKI occurred in 22 patients (22.2%). Among them, 5 were AKI 2 (5.1%), 8 were AKI 3 (9.1%) including 4 who needed dialysis (4%). At baseline, compared to no AKI or AKI 1, AKI 2 or 3 patients had a higher prevalence of moderate or severe chronic kidney disease (p=0.046) and ≥ grade 2 mitral regurgitation (p=0.03). During the post TAVI hospitalization, AKI 2 or 3 was associated to a higher rate of death from any cause (p=0.0009), major bleeding, acute heart failure (both p=0.002), infectious complications (p=0.0008) and longer total and ICU hospitalization duration (p=0.0004 and <0.0001 respectively). AKI 2 or 3 patients had a higher rate of 30-days and 6 months death from any cause (p=0.005 and p=0.0002 respectively) but only because of the deaths occurring during the initial hospitalization. Only AKI 3 was associated with a higher risk of 6-months NYHA class III or IV (p=0.016).

**Conclusion:** AKI 2 or 3 as defined by the VARC criteria were associated with a higher risk of post procedural death because of their association with other major post procedural complications. AKI 3 was associated with a higher risk of short term worse functional outcomes.