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Editorial

Prosthetic Valve Thrombosis Highlights in the Latest AHA/ACC Guidelines for the Management of Patients with Valvular Heart Disease

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Editorial

Prosthetic Valve Thrombosis (PVT) is a potentially lethal complication in patients with prosthetic heart valves. PVT has a high morbi-mortality and it is mandatory an urgent management with either fibrinolytic therapy or emergent surgical intervention [1].

Despite the absence of a Clinical Trial Randomized comparing the two therapeutic alternatives, many articles of series of cases, reviews, metaanalysis that provide evidence on this controversial topic have been published.

In the first guidelines published in 1997, Lengyel et al, [2] recommended thrombolytic treatment as first choice in the right-sided PVT. However, in patients with left-sided PVT, thrombolysis was considered only in critically ill patients in NYHA functional class III or IV with high surgical risk and contraindications to be operated. In patients in NYHA functional class I or II the therapeutic choice was surgery. The aforementioned recommendation was mainly based on the relatively low surgical mortality in this group as opposed to the high embolic risk caused by thrombolysis.

In the following years, numerous articles that added favorable evidence to the use of the thrombolysis in the left-sided PVT have been published. These evidence, which not come from randomized clinical trials, were the basis for the guidelines of different scientific societies related to this topic. There is still no consensus on the recommendations of these societies [3].

The European Society of Cardiology proposes surgery as the initial treatment, regardless of clinical status and the size of the thrombus [4]. The Society of Heart Valve Disease recommends that the first choice should be thrombolysis in all cases of PVT, unless such treatment is contraindicated [5]. The American College of Chest Physicians recommends that the main criterion in the therapeutic decision should be the size of a thrombus [6]. The American Heart Association and American College of Cardiology (AHA/ACC) in the last updated guideline recommends as an indication class I-B, the urgent initial treatment with either slow-infusion low-dose fibrinolytic therapy or emergency surgery in patients with a left-sided mechanical PVT presenting with symptoms of valve obstruction [7].

Most recent evidence

We made a meta-analysis that compared surgery with thrombolytic therapy for the treatment of PVT. We included a total of forty-eight studies (2239 patients). Form the total, 27 studies was included in surgery cohort (1132 patients). Also we included 26 studies where the patients received thrombolytic therapy (1107 patients). There was a highly significant difference in mortality between the two groups: surgery, 18.1% (CI, 14.6–22.1%); and thrombolysis, 6.6% (CI, 4.8–9.9%) (P<0.001). Surgical mortality appeared to increase with NYHA class. Other results related to surgery and thrombolytic therapy, respectively, were: embolic events 4.6% and 12.8%; stroke 4.3% and 5.6%; success rate 81.9% and 80.7%; bleeding 4.6% and 6.8%; death or stroke 19.0% and 11.4%. Although the limited quality of the primary studies, our meta-analysis provides evidence that suggests a primary role for thrombolysis in patients with PVT and a safe conclusion is that surgery has not been proved superior to thrombolysis [8].

Oskan and co-workers [9], in the Ultra-slow PROMETEE trial, administered thrombolytic therapy in 120 episodes of PVT in 114 patients. They reported a 90% therapeutic success rate. The overall complication rate was 6.7% (3.3% nonfatal major, 2.5% minor, and 0.8% death). They concluded that, ultraslow (25hours) low-dose T-PA infusion (25mg) without bolus in patients with PVT showed to be efficient with low mortality rates and non-fatal complications.

Recently, Chandrakasu and colleagues [10], reported the results of 30 patients with left-sided PVT that were treated with thrombolysis. The results showed a success rate of thrombolysis in 80% of patients and a low incidence of embolic complications. The authors concluded that, in patients with left-sided PVT, thrombolytic therapy was effective and should be considered as the first choice in these patients.

Latest AHA/ACC focused update guideline

Several studies showed the usefulness of the multimodality of images in the assessment of patients with suspected PVT.

It is well-established the use of the echocardiography and fluoroscopy in the diagnosis of the PVT. Recently, the use of CT tomography and 3D real-time transesophageal echocardiography has been incorporated as diagnostic tools in the PVT. Those tools have been useful not only in the diagnostic evaluation but also in the follow-up of the thrombolytic therapy.

The AHA/ACC Guideline recommends that the urgent evaluation with multimodality imaging be used in the mechanical PVT diagnosis and follow-up of patients with suspected mechanical prosthetic valve thrombosis. The urgent evaluation with multimodality imaging is used to assess valvular function, leaflet motion, and the presence and

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size of thrombus (Recommendation Class I-B).

In addition, regarding the therapeutic intervention in PVT, the new AHA/ACC guidelines experienced a remarkable change. Equalized the indication level and emphasizing the need for urgent initial treatment with either slow-infusion low-dose fibrinolytic therapy or emergency surgery in patients with a left-sided mechanical PVT presenting with symptoms of valve obstruction (Recommendation Class I-B). Also, this last update adds a group of clinical elements of the patients and institutional capacity to consider in time of the taking of therapeutic decisions including the choice of the patient.

In the current guidelines, the therapeutic recommendation has marked an important advance and acknowledgment of the accumulated evidences in the medical management of the PVT.

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