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High-Sensitivity Troponin for Prediction of Myocardial Infarct Size in Patients with ST Segment Elevation

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Since the test was positive, upgrade to dual-chamber ICD (5) was successfully implanted on the following days.

The patient was asymptomatic at follow-up, and presented isolated episodes of monomorphic ventricular tachycardia during ICD control, which reversed with ATP.

In these cases, programmed stimulation can be performed from the site where the ventricular lead is implanted, so a conventional EPS with stimulation from the right ventricular outflow tract has to be performed in cases of non-induced arrhythmia from the RV apex.

The timely use of resources available in our daily practice will help us provide adequate follow-up to our patients, with the safest and most appropriate diagnostic and therapeutic options, always by experienced operators.

In addition to its safety and reliability, inductive telemetry completely rules out any complication associated with the puncture site, and avoids radiation exposure received during any invasive method.

Induction of complex and sustained arrhythmias should be performed in the coronary care unit with all the necessary resources to manage possible complications.

In addition to induction of sustained arrhythmias, asynchronous and/or programmed stimulation from implantable devices can be very useful as diagnostic tool, even for the evaluation of the permanent pro-
of involvement of myocardial tissue surrounding the necrotic area, previous ventricular hypertrophy, and associated multivessel disease, among other factors.

It is possible that as a result of these factors Chia et al. found poor correlation between fourth-generation troponin T at 12 hours and EF measured by SPECT five days after the event (r=0.39). (5) In turn, Steen et al. evaluated the correlation of AMI size with magnetic resonance imaging and fourth-generation troponin T, measured 96 hours since symptom onset, and found an excellent association for STEMI (r=0.91). (6) Apparently, late troponin values improve correlation with infarct size, since baseline values are influenced not only by the affected myocardium but also by the level of reperfusion and time of ischemia.

The wall motion score index is simple to measure and is less dependent on the injured territory because the amount of points for each segment is equal regardless of the arterial territory. In this case, hs-Tn improved its predictive ability, supporting the hypothesis that its concentration is associated with the affected myocardial tissue.

Ours is a retrospective study with the risk of bias involved in data collection. The echocardiographic assessment of infarct size was performed with portable equipment at the patient bedside, by operators who were not blind to the patient’s condition.

Based on these results, we can conclude that hs-Tn values within 12 hours in patients with STEMI and no history of previous AMI present a regular predictive ability of infarct size assessed by WMSI.

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REFERENCES
Simultaneous Percutaneous Closure of Paravalvular Aortic Leak and Aorto-Atrial Fistula Guided by Two-Dimensional Transesophageal Echocardiography

Paravalvular prosthetic leak is a complication of valve surgery caused by degeneration of annular tissue, affecting about 6% to 15% of surgically implanted prosthetic valves and annuloplasty rings. (1)

We report the case of a 75-year-old male patient, who underwent aortic valve replacement with a bioprosthesis (Biocor 27; St Jude®) and myocardial revascularization surgery (mammary artery bypass graft to the anterior descending artery and venous bypass graft to the first diagonal artery). The patient was discharged on the sixth day after uneventful postoperative course. Two months after the procedure, a control transthoracic echocardiography revealed a moderate anterior paravalvular leak (PVL), 5-6 hour of surgical view, and a fistula between the aorta and the right atrium (AO-RA), 8-9 hour of surgical view (Figure 1). There was no clinical, analytic, or echocardiographic evidence of endocarditis. During the 2-year follow-up, the patient had chronic hemolytic anemia and progressive heart failure despite optimal medical treatment; therefore, percutaneous leak closure was suggested.

Under two-dimensional transesophageal echocardiography (TEE) and angiographic guidance, simultaneous paravalvular leak closure was performed via retrograde aorta with 8 mm Amplatzer Vascular Plug II (St Jude®) device, with immediate minimal residual shunt, and AO-RA fistula was closed with 6 mm Amplatzer Vascular Plug III (St Jude®) (Figure 2).

Today, three years after the percutaneous treatment, the patient is asymptomatic, with no evidence of hemolysis. Control echocardiography showed mild paravalvular leak, with mild increase in transvalvular aortic gradient (mean gradient 24 mm Hg) and preserved left ventricular ejection fraction.

Paravalvular leak after cardiac valve replacement involves abnormal flow through the native tissue and prosthetic valve, due to incomplete apposition of the sewing ring to the native tissue. This is generally a consequence of suture dehiscence. It may develop more commonly in patients with heavy annular calcification, localized infection, or due to technical considerations. (2)

Paravalvular leaks are usually small and asymptomatic, and have a benign course. Larger PVLs -with greater clinical involvement occur in about 1-5% of the patients with prosthetic valves. (3) Biological valves are more commonly involved than mechanical valves.

Patients with significant PVLs present symptoms because blood flow through the valve and subsequent volume overload are associated with reduction of effective cardiac output and congestive heart failure, resulting in decreased exercise tolerance and dyspnea. Symptoms can also be associated with hemolytic anemia, which is caused by red cell fragmentation in the elevated shear stress of the regurgitant jet. Infectious endocarditis can be cause or consequence of PVLs.

Diagnosis is made based on clinical and echocardiographic findings, the latter being very difficult at times. Three-dimensional TEE allows for the visualization of the entire prosthetic valve, increasing the definition and characterization of PVLs. (4)

Reoperation is the treatment of choice in PVLs, either repairing the defect or, most commonly, replacing the valve. It is generally performed in very symptomatic patients due to severe anemia or progressive heart failure, and is associated with elevated morbidity and mortality. It also has the risk of recurrent paravalvular failure. (5)