Cardiac device-related endocarditis

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INTRODUCTION: Cardiac device-related endocarditis (CDE) is a phenomenon for which incidence is on the rise. The prevalence of CDI (cardiac device infection) ranges between 0.13% and 19.9%, and the prevalence of CDE ranges between 0.5% and 7%. The definition of early and late CDE is not uniform, as it is with infective endocarditis of the artificial valve. There is a significant delay in diagnosing CDE – an average of 5.5 months from clinical onset. The diagnosis is confirmed by positive blood cultures and an echocardiogram that demonstrates vegetations on the pacemaker/ICD lead. Transesophageal echocardiography (TEE) has been found to be more sensitive in detecting CDE than transthoracic echocardiography (TTE). TEE has a reported sensitivity of >95% in pacemaker/ICD endocarditis, versus <30% for TTE. Management should consist in complete device extraction and long-term administration of antibiotics. CDE is associated with a mortality rate of 66% if the device is not extracted. In the case of complete device extraction combined with antimicrobial therapy the mortality rate is 13-21%. The optimal timing of re-implantation remains unknown.¹⁻³ The aim of the case report is to raise awareness of CDE among clinicians, and to provide an appropriate approach to its management.

CASE REPORT: 48-year-old patient was first referred to Internal Department two years ago (September, 2013) with fever, previously ambulatory treated with antibiotic therapy. From the medical records: 7 years ago implantation of artificial aortic valve, then two days after the surgery double-chamber pacemaker was implanted due to the appearance of total AV block. (Heart Center BH Tuzla). Five years later (March, 2013), reposition of pacemaker protrusion was done, locally was found inflamed decubital wounds.

During hospitalization patient was treated with antibiotics and the clinical condition improved. On several occasions blood cultures remained sterile, but serological testing verified *Coxiella burnetii*. Other laboratory findings showed increased erythrocyte sedimentation rate and sideropenic anemia. TTE examination registered normal dimensions of the cardiac chambers and heart walls, with preserved EF 55%. Vegetation along the PM electrodes in right atrium were detected, with post inflammatory changes of mitral valve with functional MRI +2, artificial mechanical valve in the aortic position, AVPG mean 12.51 mmHg, normal morphology of tricuspid valve with functional TR +2, PHT 45mmHg. TEE was indicated but not done until the next hospitalization. Two months later (November of 2013) the exacerbation of endocarditis occurred complicated with thromboembolism. Chest CT-verified consolidation of lung parenchyma in the left lower lung lobe, defects in contrast filling in the lower left pulmonary artery, with lower left pleural effusion.

After the recovery, in March of 2014 TEE examination was performed which verified vegetations along the PM electrodes on multiple levels indicating thrombo-endocarditic masses (size 30x20mm) that made the mild obstruction through TV, TR +1 with PHT 50 mmHg. Urgent cardiac surgery was suggested.

In April of 2014 patient was admitted to hospital due to worsening clinical condition followed by hemoptysis, iatrogenic elevated INR>10, ECHO verified right pleural effusions. About 800 ml of hemorrhagic fluid was evacuated by thoracocentesis. After the recovery, in June 2014, planned surgery was performed (Extraction pacemaker leads DDD, Extraction pacemakeris). Postoperatively ECG Holter monitoring registered the complete AV block with satisfactorily rate, an average 43 per min. Reimplantation of PM was recommended (VVIR). During hospitalizations in our department and after the surgical treatment patient received: Ceftriaxone, Ciprofloxacin, Levofloxacin, Doxycycline, Vancomycin. On one year follow up patient was doing well, without any clinical symptoms of infection; ECG: sinus rhythm, rate 50 per minute.

In July of 2015 patient had two syncope attacks, registered heart rate was 30 per min. He was referred to the Heart Center UKC Sarajevo where was implanted single-chamber PM VVIR with ventricular electrode. The patient today feels great.

CONCLUSION: Management of device-related endocarditis is challenging and requires collaborative efforts between cardiologists, surgeons, and infective disease specialists. The recommended treatment approach is a combination of wire removal (surgically or by traction) along with antibiotic therapy. An MT (medical treatment) approach is not recommended due to the high rate of failure and recurrent exacerbation of the infective endocarditis.

LITERATURE

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