

Commentary

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Pacemaker endocarditis – did we let the genie out of the bottle?

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Over the last several years we have been witnessing rapid and virtually logarithmic progress in technology and miniaturization. Together with brisk growth of medical evidence, this progress has resulted in a huge increase in the number of implantable devices employed worldwide in cardiac patients. Simultaneously, constant improvement in medical care, which contributes to increased average lifespan in developed countries, has led to progressive ageing of the population. As a result, these days cardiologists and cardiac surgeons must face patients who are older and have more comorbidities compared to just a few years ago. Furthermore, nowadays, patients are more frequently qualified for complex, sophisticated diagnostic and therapeutic procedures, which in turn inevitably lead to dangerous, difficult and expensive to treat complications. Even more paradoxically, modern treatment has created new problems, which were completely unknown just ten to twenty years ago. Electrical storm in a patient with an implanted automatic cardioverter-defibrillator may be a model example thereof.

Infective endocarditis (IE) associated with an implantable pacemaker/defibrillator/resynchronization device is one of such progress-related complications. The syndrome is a diagnostic challenge, often presenting with atypical symptoms and signs as well as limited diagnostic value of classic Duke criteria. It is also extremely difficult to treat – conservative medical management is often ineffective and complete removal of a pacemaker and leads is usually required. What is even more depressing, even with early detection and proper management, device-related IE is

associated with considerable morbidity and mortality [1]. Treatment of IE is often extremely puzzling, in particular in pacing-dependent patients, as well as in cases where infection is related to a cardiac resynchronization device. In the latter case, removal of the pacemaker abruptly deprives the patient of resynchronization, which in turn and together with a generalized inflammatory process often leads to fatal hemodynamic decompensation.

In the current issue of the journal, Bartczak *et al.* present an interesting, extremely complicated case of resynchronization pacemaker-related IE in a pacing-dependent patient [2]. In the challenging decision-making process, the authors decided to employ two infrequently used techniques, which emerged as the key to clinical success at the end of the day. Congratulating the authors on their creativity, skills and clinical sense, one has to bear in mind the potential weaknesses of these techniques. Leaving one lead in place (or implanting a new one), and pacing with an externalized permanent pacemaker may indeed protect against potentially fatal lead dislocation, especially if a screw-in electrode is being used. This approach is also less aggressive than the use of a stiff, temporary lead. However, leaving a retained, potentially infected lead (or implanting a new one, which will remain in contact with infected endocardium) may defer the healing process, or even inhibit the bacterial eradication. One potential solution is epicardial lead implantation using mini-thoracotomy – an approach applied by the authors. However, “down-grading” a resynchronization pacemaker (three leads) with defibrillator function to a single chamber pacemaker (one electrode) is far from optimal. It may cause detrimental right ventricular pacing and does not protect against malignant arrhythmias.

The presented manuscript, while demonstrating clinical success achieved in an extremely difficult patient, also exposes our helplessness in managing patients with complex syndromes related to new techniques. Taking into consideration the expected increase in the incidence of pacemaker IE, it underscores the urgent need for further research in this area.

References

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