Arrhythmias and sudden death

Thomas F. Lüscher, MD, FESC

Editor-in-Chief, Zurich Heart House, Careum Campus, Moussonstrasse 4, 8091 Zurich, Switzerland

For a journal’s success, the impact factor remains—in spite of many concerns with this type of quality measurement—an important aspect. The quality of submitted papers is closely related to this magic number, since authors decide at least in part on where to submit based on the impact factor of a journal. The current editorial team took over the European Heart Journal in 2009 with an impact factor of 8.9. Accordingly, they are very happy and proud, as well as grateful to all who have contributed to this success, to report that in 2015 the European Heart Journal almost doubled its impact factor. This issue therefore begins with an Editor’s Page entitled ‘The European Heart Journal’s new impact factor of 15.2: a global strategy is paying off’, by the Deputy Editors of the European Heart Journal. The editors highlight the global strategy that has resulted in the journal being ranked second among cardiovascular journals.²

The main focus points of this issue, however, are arrhythmias and sudden death. For the prevention of sudden death in heart failure patients who are at increased risk of this complication, devices of different kinds are commonly used.³ The choice between cardiac resynchronization therapy with (CRT-D) or without (CRT-P) a defibrillator remains a contentious issue.⁴–⁷ Cause-of-death analysis among CRT-P, compared with CRT-D, patients could help evaluate the extent to which CRT-P patients would have additionally benefited from a defibrillator in daily clinical practice. A FAST TRACK paper entitled ‘Causes-of-death analysis of patients with cardiac resynchronization therapy: an analysis of the CeRtiTuDe cohort study’ by Eloi Marijon from the Cardiovascular research Center, in Paris, looks at this issue.⁸ A total of 1705 patients implanted with a CRT were enrolled in CeRtiTuDe, a multicentric prospective cohort study. Patients with CRT-P compared with CRT-D were older, less often male, and more symptomatic, with less coronary artery disease, wider QRS, more atrial fibrillation, and more co-morbidities. At 2 years, the annual mortality rate was 84 per 1000 person-years. The crude mortality rate among CRT-P patients was double compared with CRT-D. In a Cox proportional hazards regression analysis, CRT-P remained associated with increased mortality, although other potential confounders may persist. By cause-of-death analysis, the majority of the excess mortality among CRT-P subjects was related to an increase in non-sudden death. Thus, as compared with CRT-D, excess mortality in CRT-P recipients was mainly due to non-sudden death. The findings suggest that CRT-P patients, as currently selected in routine clinical practice, would not potentially benefit from addition of a defibrillator. The manuscript is accompanied by a thought-provoking Editorial by Jagmeet P. Singh from the Massachusetts General Hospital in Boston.⁹

For patients undergoing CRT with an implantable cardioverter defibrillator (ICD; CRT-D), the impact of an improvement in left ventricular ejection fraction on appropriate ICD therapy may have significant implications regarding management at the time of ICD generator replacement. In the second clinical paper, ‘Reduced appropriate implantable cardioverter defibrillator therapy after cardiac resynchronization therapy-induced left ventricular function recovery: a meta-analysis and systematic review’, Neal A. Chatterjee and colleagues from the Massachusetts General Hospital in Boston conducted a meta-analysis to determine the effect of left ventricular ejection fraction recovery following CRT on the incidence of appropriate ICD therapy in 1740 patients.¹⁰ In those with a left ventricular ejection fraction of ≥35% post-CRT, the pooled estimated rate of ICD therapy was 5.5/100 person-years and significantly lower than in patients with post-CRT left ventricular ejection fraction <35% in which it averaged 6.5/100 person-years. Similarly, patients with left ventricular ejection fraction of ≥45% post-CRT had estimated rates of ICD therapy of 2.3/100 person-years compared with 5.8/100 person-years without such recovery. Restricting analysis to studies discounting ICD therapies during recovery of left ventricular ejection fraction, patients with left ventricular ejection fraction recovery of 35% or 45% or greater had significantly lower rates of ICD therapy compared with patients without such recovery. Patients with a primary prevention indication for ICD, regardless of the definition of left ventricular ejection fraction recovery, had very low rates of ICD therapy, i.e. 0.4–0.8/100 person-years. Thus, recovery of left ventricular ejection fraction post-CRT is associated with reduced appropriate ICD therapy. Patients with improvement of left ventricular ejection fraction to ≥45% and those with a primary prevention indication for ICD appear to be at lowest risk of appropriate ICD therapy. The manuscript is accompanied by an informative Editorial authored by John Gorman from the University of Pittsburgh in Pennsylvania, USA.¹¹

This issue continues with the new ESC Clinical Practice Guidelines on Ventricular Arrhythmias and the Prevention of Sudden Cardiac Arrest by the ESC Guideliens Committee.¹² A short summary of the main massages of these new guideline are provided in CardioPulse of the issue.¹³

The editors hope that readers of this issue of the European Heart Journal will find it of interest.
References


