INTRODUCTION

August 2016 at a glance: the new ESC guidelines, and pathophysiology, epidemiology and prognosis of heart failure

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European Society of Cardiology (ESC) guidelines

This issue has our new ESC guidelines for the diagnosis and treatment of heart failure (HF).\(^1\) Compared with the previous 2012 guidelines, major changes regard the introduction of the new category of patients with mid-range left ventricular ejection fraction (EF), a new algorithm for the diagnosis of HF, the inclusion of new exams for patients’ evaluation, recommendations to prevent or delay the development of overt HF, including antidiabetic treatment with empaglifozin, a new algorithm for HF treatment, with the replacement of angiotensin-converting enzyme inhibitors or angiotensin receptor blockers with an angiotensin receptor nephrilysin inhibitor in the patients still symptomatic with a low EF, updated indications to cardiac resynchronization therapy, new evidence regarding treatment of comorbidities and more detailed indications for mechanical circulatory support.\(^1\) Treatment of HF with preserved EF (HFrEF) and treatment of acute HF are updated and summarized with new algorithms but, unfortunately, no major change is present, as no new drugs have reached evidence for treatment in these conditions.\(^2,3\) A last paragraph with our gaps in evidence and a table with the messages about what to do or not to do in HF nicely summarize both future developments and current evidence.\(^1\)

Cardiac monitoring devices

The use of cardiac implantable electronic devices to monitor and predict episodes of decompensation in HF patients is reviewed by Hawkins et al.\(^4\) Interestingly, a new strategy, moving from crisis detection to health maintenance, aimed at maintaining the “ideal state” and treating any deviation from homeostasis is proposed.\(^4\)

Pathophysiology

A new rat model of HF, based on subtotal nephrectomy with development of stable chronic kidney disease and HFrEF, is described by Primessnig et al.\(^5\) Abnormalities in diastolic function were attended by a progressive upregulation of Na\(^{+}\)/Ca\(^{2+}\) exchanger protein expression with a concomitant reduced Ca\(^{2+}\) extrusion capacity, with an increased activity in the reverse mode, e.g. Ca\(^{2+}\) import. Consistently, the administration of a Na\(^{+}\)/Ca\(^{2+}\) inhibitor improved diastolic function acutely and cardiac function and remodelling in the long-term with new perspectives for HFrEF treatment.\(^5\)

Marques et al. have measured microRNAs in arterial and coronary sinus venous samples in healthy volunteers and HF patients.\(^6\) Upregulation or downregulation of different microRNAs and cardiac release of micro-RNAs was found in the failing hearts, compared with controls, confirming the potential role of microRNAs as biomarkers and/or targets of treatment.\(^6–10\)

Epidemiology

Christ et al. have examined trends in HF hospitalizations in Germany.\(^11\) From 2000 to 2013, the absolute number of HF hospitalizations and of HF-related in-hospital days has continued to increase and this increase has been more pronounced in the older subjects. HF has remained the leading cause of hospitalizations and of in-hospital deaths in Germany. These data contrast with other recent studies from different countries showing a stable or decreasing proportion of HF hospitalizations.\(^12,13\) Aging of the population, changes in the diagnostic procedures, outpatient care, and in the coding and reimbursement systems may all have influenced these results.

Prognosis

Similar to previous data in patients with HF and reduced EF,\(^14\) QRS duration and morphology, namely left bundle branch block, are shown to have an independent prognostic value also in the patients with HFrEF enrolled in the I-PRESERVE clinical trial.\(^15\) The prognostic significance of the electrocardiographic abnormalities is shown also in the patients hospitalized for acute HF by another study.\(^16\)

An article regarding patients hospitalized for acute HF shows the strong and independent relation between an increased length of hospital stay and post-discharge mortality at 90 days. Length of hospitalization was not predicted by baseline variables related to HF severity but was strongly associated with the occurrence
of in-hospital worsening HF. The independent prognostic role of functional mitral regurgitation in patients with acute HF and either reduced or preserved EF, and in patients undergoing cardiac resynchronization therapy, respectively, is shown in two other studies.18 19

References