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EDITORIAL COMMENT

Infective endocarditis in Portugal: Changing epidemiology but still a deadly disease

Endocardite infeciosa em Portugal: uma epidemiologia em evolução, mas ainda uma doença mortal

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Infective endocarditis (IE) is a severe disease associated with high morbidity and mortality[1–5] and whose incidence and severity remain unchanged despite improvements in diagnostic and therapeutic strategies. The main reason for this apparent unchanged prognosis is because IE is a changing disease, with older patients with more severe disease, changing epidemiological profiles and greater numbers of patients with prosthetic valve or device-related infections.[5,6]

Diagnostic strategies and management may differ between countries and these differences are currently investigated in the EURO-ENDO registry,[7] which prospectively included 3116 adult patients (2470 from Europe, 646 from non-European Society of Cardiology (ESC) countries), admitted to 156 hospitals in 40 countries between January 2016 and March 2018 with a diagnosis of IE based on ESC 2015 diagnostic criteria.[8]

In this issue of the Portuguese Journal of Cardiology, de Sousa et al.[9] present a systematic review of all published series of patients hospitalized with IE in Portuguese hospital centers.

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This review gives us the opportunity to compare the IE characteristics observed in Portugal to those of IE currently observed in other parts of the world, as reported in European Infective Endocarditis Registry (EURO-ENDO).[7]

Epidemiology of infective endocarditis

In the series by de Sousa et al.,[9] the mean age of patients was 55.5 ± 12.1 years, with a large predominance of males. This population is younger than that observed in EURO-ENDO and this may be related to the high number of intravenous drug users and to the inclusion of some relatively old studies with possibly younger patients. In three one-year population-based surveys conducted in 1991, 1999, and 2008,[5,6] the total IE incidence remained stable over time, but mean age progressively increased from 57.9 ± 16.6 years in 1991 to 61.6 ± 16.3 years in 2008. Similarly, the incidence of cardiac device-related IE (CDRIE) is increasing. Although observed in only 6.1% of cases in the Portuguese series, it is now much more frequent (9.9%) in EURO-ENDO,[7] reflecting the increasing burden of IE in this older population. Conversely, the relatively high incidence of *enterococci* (11.7 to 15% of patients) reported by the current study corroborates the current increasing incidence of this microorganism (15.8%)

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reported in EURO-ENDO, again reflecting the increasing age of this population.

Imaging

One of the most important changes in the diagnosis of IE is the implementation of non-echocardiographic imaging techniques, mainly cardiac computed tomography (CT) and ^{18}F-fluorodeoxyglucose positron emission tomography / computed tomography (^{18}F-FDG PET/CT).[8,10] These techniques are more and more frequently used in IE, particularly in the field of suspected prosthetic valve IE. For instance, [^{18}F]FDG PET/CT was performed in 16.6% of patients in EURO-ENDO (7), and multislice CT in 53.1% of patients. The low use of these techniques in Portuguese centers probably reflects the difficult access to nuclear imaging in some Portuguese cities. But more importantly, as reported by the authors, the main explanation is the inclusion of patients before the publication of the 2015 ESC guidelines,[8] in which these new imaging tools were included for the first time in the diagnostic and prognostic stratification of IE. Nevertheless, the use of [18F]FDG PET/CT varied largely between countries across the world, ranging from 0.5 to 33.9% of IE cases in EURO-ENDO.[7]

Treatment and prognosis in infective endocarditis

At Portuguese centers, the reported surgical rate ranged from 3.1 to 52%, with a trend toward a higher surgical rate in the most recent series, with three main indications for surgery: heart failure (50 and 74%), uncontrolled infection (27.3 and 46.8%) and embolization (13.6 and 15.6%). These results support current ESC guidelines,[8] in which early surgery is recommended as soon as one of these three complication occurs. In EURO-ENDO,[7] we focused on the implementation of the ESC guidelines in clinical practice and found that, although theoretical indication for cardiac surgery was present in 69.3% patients, surgery was eventually performed during hospitalization in only 51.2% patients. Failure to perform surgery when indicated was associated with the worst prognosis in EURO-ENDO, emphasizing the benefit of an aggressive surgical strategy in these patients. The relatively high in-hospital and long-term mortality reported at Portuguese centers probably reflects the low use of surgery (29.8%) in some relatively old reported series.

Conclusion and perspectives

The report from de Sousa et al. (9), although limited by its retrospective nature and other issues reported by the authors, has the merit of emphasizing the main messages of EURO-ENDO, including the higher frequency of IE among the elderly, in prosthetic IE and in CDRIE, the value of new imaging techniques, still underused in several countries, the need for early surgical management, and the still poor prognosis of IE, particularly when surgery is indicated and cannot be performed. Endocarditis teams[8] are now in existence at several hospitals across Europe. They will help implementing the ESC guidelines in the future, both in terms of diagnostic and therapeutic strategies, and improving the prognosis of this devastating disease.

Conflicts of interest

The authors have no conflicts of interest to declare.

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