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## EDITORIAL COMMENT

## Is the role of surgery in infective endocarditis changing?☆



### O papel da cirurgia na endocardite infecciosa está a modificar-se?

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When an editor of a journal is asked to write an editorial comment on an article in the acceptance of which he/she played an important part, he/she faces the dilemma of whether to highlight its strengths or to comment on its weaknesses. Some of the latter, of course, are overcome during the editorial process (the thoroughness of which readers are generally unaware), since what is eventually published is the final product of a wide-ranging review process.

There are many reasons why an article may be accepted or rejected for publication. Acceptance of the article by Moreira et al. of the medical-surgical cardiology group at Santa Marta Hospital in Lisbon published in this issue of the *Journal*<sup>1</sup> could very well be justified by the conclusion of one of the reviewers: “Informative, considering the scarcity of data about the disease in Portugal.” In fact, around four years ago, the São João Hospital group in Porto published a similar study in the *Journal*,<sup>2</sup> but even so, a comparison between the experiences of two such geographically distant centers seems worthwhile.

In the article by Moreira et al., the authors present a retrospective study of 233 cases of definite or likely infective endocarditis (IE) observed at a single center, which, in the

Portuguese context, can be considered a substantial experience. To judge by its title, the main intention was to assess surgical therapy and prognostic predictors. Surgery of course has an important and sometimes crucial role to play in this condition; in some series half of all patients undergo surgical treatment, which is often a life-saver. Unfortunately, on this subject the article presents few details.

Nevertheless, it should be pointed out that the study presents a detailed description of the demographic and clinical characteristics of the study population, particularly regarding the site and extent of the disease and associated comorbidities. These data are valuable, improving the characterization of at-risk populations in Portugal, and may serve as a starting-point for further studies. In fact, a more accurate title might have been “Infective endocarditis: therapeutic options and prognostic predictors”.

The authors compare the results of the two therapeutic approaches, surgical and medical, focusing mainly on clinical aspects, particularly predictive factors and complications of the disease. They do not specifically address factors specific to surgery, such as surgical complications, the microbiological results of surgical biopsies, or the duration of postoperative antibiotic therapy. They also do not examine other issues, such as length of hospital stay or causes of in-hospital mortality in medically vs. surgically treated patients.

Length of hospital stay is important not only because of its implications for quality of care but also due to its impact on costs,<sup>3</sup> which is a significant issue in Portugal. It

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is well known that IE usually results in prolonged hospitalization, with antibiotic treatment generally lasting 4-6 weeks.<sup>4</sup> Mean length of stay can therefore provide information on quality of treatment, as well as on complications that may have prolonged hospital stay and on antibiotic regimens, among other factors. These data can also be correlated with medium- and long-term complications, such as recurrence or mortality.<sup>2</sup>

Indications for surgery are clearly defined in the guidelines,<sup>4</sup> and the prognostic factors to be taken into account are well known, with regard to both indication and timing of surgery. However, even if surgery is clearly indicated according to the guidelines, it may sometimes not actually be practical to operate; the decision depends on a number of factors, such as the patient's physical and mental status, comorbidities and surgical risk, and these may be prohibitive. In the series presented, for example, 35% of patients were indicated for surgery but were not operated. It would have been interesting to examine the reasons for this: was it prohibitive risk, patient refusal, death while awaiting surgery?<sup>5</sup> While it is not always easy in retrospective trials to determine why a procedure was not performed, this information could affect future decisions by the same parties or by others, particularly in the management of surgical timing or information given to the patient when obtaining consent.

An important finding of this study is that surgery is only beneficial in patients who are indicated for surgery according to the criteria in the guidelines, and that this benefit is maintained during hospital stay and in the long term. This finding is in agreement with the results of other studies,<sup>6,7</sup> and highlights the importance of identifying patients who do in fact fulfill criteria for surgery, rather than making hasty decisions.

The article is also somewhat sketchy with regard to analysis of postoperative complications and causes of in-hospital mortality. There is no description of the complications observed (respiratory infection, stroke, cardiac tamponade, arrhythmias, valve dysfunction, or others)<sup>2,4</sup> or of their frequency. We are also not told of the causes of in-hospital death, whether cardiogenic shock, sepsis, or other causes that may not even be related to IE at all.<sup>2</sup>

With regard to the group that underwent surgical treatment, the results of surgical biopsies would be an interesting point to explore. According to the European Society of Cardiology guidelines, pathological examination of surgical material is the gold standard for the diagnosis of IE,<sup>4</sup> and when blood cultures are negative, it may help to identify to the microorganism involved and to determine the duration of antibiotic therapy after surgery, and may prompt a new course of treatment, with the choice of antibiotic being based on the susceptibility of the isolate. Still on the subject of antibiotic therapy, the article does not mention which regimens were used and whether they were considered appropriate in the light of current or previous guidelines.

Concerning follow-up, the mean duration in this study was >2 years and the follow-up rate was 95%, which are excellent figures; this is one of the largest IE series reported in Portugal, and the follow-up may be among the longest.<sup>2,8</sup> Identifying complications and the causes of cardiac and non-cardiac mortality during follow-up can be complicated,

if not impossible, especially since patients may be followed at different centers. However, the data published relate only to mortality, and do not even specify the cause of death or whether it was cardiac or non-cardiac. Other interesting data are not explored, including significant late complications such as recurrence of endocarditis or need for surgery or reoperation.<sup>4,5,8</sup>

The above aspects of the study are indications of the quality of the surgical treatment provided in this series, and analyzing them would contribute significantly to improving care. All of these data – although difficult to obtain in retrospective trials, as the authors make clear – are of considerable value. They can lead to changes in surgeons' attitudes, especially when it comes to accepting borderline cases or bringing forward the procedure in high-risk or otherwise unfavorable conditions. They are also useful for cardiologists, helping them optimize postoperative treatment and follow-up after the initial surgical or non-surgical treatment of IE.

Finally, the article needs to be put into context, taking into account the available data. Undoubtedly, it is to be commended for including cardiologists and cardiac surgeons among its authors, a relatively uncommon collaboration in such studies. In fact, the 'heart team' – an increasingly popular concept – plays an ever greater role in the management of IE, and frank and comprehensive discussions between its members, clinicians and surgeons alike, are an essential part of its work. These discussions take into account different points of view concerning the best approach to each patient, covering the patient's comorbidities, the various medical and surgical treatment options, and the patient's wishes. The importance of the heart team throughout the process of decision-making and treatment in IE may in fact be one of the implicit messages of this paper – and, indeed, one of the reasons for its acceptance for publication in the *Journal*.

## Conflicts of interest

The authors have no conflicts of interest to declare.

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