Reviewer's report

Title: Long-term outcome of infective endocarditis: a study on patients treated in a Finnish teaching hospital during 25 years

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Reviewer: Ana Revilla

Reviewer's report:

General

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

The aim of the present study is to delineate factors potentially associated with the long-term outcome of endocarditis and the authors define long-term outcome as “the outcome # 1 year after the admission for the index episode of IE”. To analyse this fact, analysis should include only one year survivors. Authors first include the whole population of 303 patients consecutively diagnosed of endocarditis and surely this analysis is absolutely influenced by patients with events within one year. In a second part, when they analyse what they called “in-hospital survivors”, they include all the patients which survive the acute episode, even those patients who die within one year (n=53). But the most interesting analysis to demonstrate the objective of the study (predicting factors among patients which survive more than one year) is lacking.

Recently, these authors have published the early and one year predicting factors of mortality and/or need of surgery in the same group of patients. Results are very similar to the present article: heart failure is the more powerful predicting factor of mortality. The goal of the present study is to analyse if heart failure still influences the prognosis of patients with infective endocarditis that survive more than one year after the acute episode. 33.4% of deaths and 54% of surgeries account within one year. After this period, 105 patients died and 17 needed surgery. Probably the global results are very influenced by patients who died or underwent surgery during the first year (they have a lot of clinical events) and therefore, one year survivors are not so influenced by the characteristics of the acute episode. So, in our opinion, authors should analyse the predicting factors of those patients which survived more than one year, an again, this analysis is lacking.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

As authors state, influence of cardiac surgery in the prognosis of patients with
endocarditis is still a matter of debate. Some papers point out that surgery improves the prognosis of these patients but it is not a constant finding. The results of the present article, suggest that patients that underwent surgery during admission have a better prognosis. But to make these results more robust, it is needed to clear out more data: were all patients that fulfil the criteria for surgery operated on? Or in contrast, were patients with surgery indication rejected for surgery because for example an excess of morbidity? Probably they were, and these patients were included in the non-surgical group with the consequent increase in this group mortality. To avoid this bias, authors should compared two groups: patients operated on versus patients without indication for surgery which only received medical treatment. In other words, they should have excluded patients which should be operated and were not.

Authors should comment the percentage of losses during follow-up. One should expect losses during such a long period.

Authors should comment the causes of mortality during follow-up and if they were related to endocarditis or not.

Authors should discuss why long-term mortality among survivors was lower in patients operated on because of heart failure. One possible explanation is that heart failure is a local valvular problem that can be solved with a local valvular solution, as cardiac surgery is, whereas other surgical indications (sepsis) have a worse prognosis.

It is sticking that patients with recurrent episodes of IE had significant lower mortality rates than those with no recurrences. Authors should discuss this finding.

Late valve-surgery: the most powerful predicting factor of long-term mortality is heart failure. Heart failure in endocarditis is due to valvular dysfunction and subsequent myocardial impairment. Nonetheless, only 17 patients needed surgery after one year of the episode of endocarditis, a very small percentage. What were the indications of late surgery? Were patients with heart failure and valvular dysfunction not operated on? If not, why?

Why early surgery was associated with more late surgery? Is it because of recurrences? It should be cleared out.

We find expectedly that neurological manifestations and systemic embolisms during the active phase of the disease are neither not associated with long-term follow up mortality in survivors of an endocarditis episode. Both clinical complications are associated with high mortality during hospitalization (that’s why it is a predicting factor of mortality in the whole patient population), but once solved, it is logical that they do not influence the prognosis.

Discretionary Revisions (which the author can choose to ignore)

In this manuscript, authors analyse the predicting factors of long-term mortality
among 303 patients from a Finnish population during 25 years of follow-up.

We have 3 main comments for this manuscript:

The main criticism of this paper is that they include a very heterogeneous group of patients which in our opinion should be independently analysed because the different epidemiological, clinical, microbiological and echocardiographic characteristics and the different outcome of patients with right and left-sided endocarditis. This heterogeneity makes difficult to take out conclusions applicable to the daily clinical practice.

Other main comment to this manuscript is that it is not well structured which makes it difficult to read and understand.

Finally, the results found are not new and do not help to increase the body of knowledge of the endocarditis.

Early surgery was defined as that performed during the index hospitalisation, and late-surgery as that after one year of admission. Surgery in endocarditis is often performed after few months of hospitalisation, once the septicaemia is solved, to treat the valvular sequel of the infection. So in which group was this surgery included and how often was it needed?

Discussion, line 3: 34% instead of 43%.

What next?: Reject because scientifically unsound

Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests