

## Observational Analysis of Patients with Infective Endocarditis Managed with a Multidisciplinary Approach

### *Análisis observacional de pacientes con endocarditis infecciosa abordados multidisciplinariamente*

GUILLERMO S. GUTIÉRREZ<sup>1</sup>, NICOLÁS A. TORRES<sup>1</sup>, RENZO E. MELCHIORI<sup>1</sup>, NÉSTOR M. CLUSA<sup>1</sup>, SERGIO J. BARATTA<sup>1,MTSAC</sup>, GUILLERMO N. VACCARINO<sup>1,MTSAC</sup>

Currently, the mortality rate due to infective endocarditis (IE) remains high, with an incidence of 25.5% in our country, as reported by the EIRA III registry. This percentage applies to both medically and surgically treated patients. (1)

The indication for surgery in IE is usually reserved for patients with heart failure (HF), refractory sepsis, embolism prevention or complications such as abscess or fistula. All these situations are associated with high clinical risk. (2) The percentage of patients undergoing surgical treatment in the acute phase is close to 30%; however, a non-negligible percentage undergo surgery during follow-up. (3) Early surgical intervention may offer benefits that surpass those of conservative medical treatment. (4) We decided to evaluate the results in our population with both treatments. For this purpose, we used a comprehensive criterion based on the clinical, surgical and imaging findings to determine the characteristics of the population of patients with active IE, the rate of complications and treatment outcomes, considering early surgery when it was indicated.

We conducted a single-center retrospective cohort study in a high-complexity hospital center. We included patients > 18 years admitted with a diagnosis of IE according to modified Duke criteria between March 2012 and January 2020. All patients were managed by a multidisciplinary team made up of cardiologists, internists, infectious disease specialists, imaging specialists, and cardiovascular surgeons ("IE team").

The following criteria were considered an indication for surgery: fungal endocarditis, endocarditis associated with implantable catheters with a definite diagnosis of vegetation, new acute severe aortic or mi-

tral regurgitation, HF, high pure embolic risk or associated with another criterion, perivalvular extension or persistent sepsis without extravalvular focus. For patients with high surgical risk, the indication for surgery was determined by the "IE team." Early surgery was defined as a procedure that was performed during hospitalization with < 7 days after the diagnosis was made. The risk was assessed using global surgical risk scores (EUROSCORE II) and specific scores for IE surgery (RISKE). The study was approved by the institutional review board of Hospital Universitario Austral.

A total of 64 patients with a diagnosis of acute IE were included. In total, 45.3% (n = 29) of the subjects received exclusive medical treatment (MT), while 54.7% (n = 35) received surgical treatment (ST). The early surgery rate was 68.5%. Of the 29 patients with MT, 23 (79%) presented valve involvement: 14 in the aortic valve and 9 in the mitral valve. Among the 35 patients with ST, 28 (80%) had valve involvement: 17 in the aortic valve and 11 in the mitral valve. Valve replacement with mechanical prostheses was more common (47.1%) in the ST group. In the mitral valve group, while mechanical valve replacements were prevalent (45.5%), a significant number of valve repairs (36.4%) were also performed. A special section should be considered for the removal of leads and stimulation devices, which accounted for a total of 9 cases, representing 25.7% of the total number of surgical procedures.

Thirty-one patients (48.4%) exhibited a clinical event on initial presentation. The most common complications were embolism (n = 11), predominantly peripheral, HF (n = 10) and acute renal failure (n = 4).

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*Correspondence:* Guillermo S. Gutiérrez. Email: [gsgutierrez.cx@gmail.com](mailto:gsgutierrez.cx@gmail.com)



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<sup>1</sup> Department of Cardiovascular Surgery, Department of Cardiology, Hospital Universitario Austral

The main indications for ST were extravalvular involvement/persistent sepsis in 12 patients, HF in 11 and risk of embolism in 7.

In patients undergoing surgery, the overall results of EUROSCORE II and RISKE preformed for preoperative risk assessment were 18.7 and 24.3, respectively.

Of the 35 patients who underwent surgery, 11 developed postoperative complications; of these, vasoplegic shock was the most common, occurring in 3 patients. Total mortality was 4.7% (n = 3, 2 patients with MT and 1 with ST).

There were no significant differences in the baseline characteristics between patients with IE in the MT group and those in the ST group, except for age, with a higher incidence of young patients in the ST group. This could indicate a selection in the ST group, with a direct impact on the results. The percentage of mechanical valve replacements was high due to the significant number of young patients. Regarding the surgical approach employed in mitral valve surgery, a significant proportion of patients underwent mitral valve repair, as is currently recommended in the literature. (5)

Despite the rate of complications was around 30%, total mortality rate among patients diagnosed with IE and treated at our institution using an interdisciplinary approach was 4.7%, even when most patients (54%) underwent cardiovascular surgery.

The operative mortality of 2.9% is well below the average mortality of 15-20% published in the literature (1) and below the predicted mortality assessed by the current risk scores.

These results reflect the need for a multidisciplinary approach in patients with IE, considering early surgery as a feasible alternative in patients with IE in teams with low operative mortality. (6) Addition-

ally, the study calls for a modification of scores in high complexity centers.

It is necessary to increase the number of patients in order to determine whether the findings are consistent with those published for the overall population.

#### Conflicts of interest

None declared.

(See conflicts of interest forms on the website).

#### Ethical considerations

Not applicable.

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