

Late Survival of Aortic Valve Replacement in a Community Hospital

Long-term outcomes of aortic valve replacement are the best standard of quality to compare new techniques of endovascular prosthesis implantation. A recent study on surgical patients aged 55-65 years showed that actuarial 15-year survival of traditional aortic valve replacement was 46.4% in the biological valve group versus 60.6% in the mechanical valve group. (1) Another study, this time on patients aged >70 years, revealed that the 10-year survival was 46.1% with mechanical and 57.8% with biological prostheses, with major bleeding rates of 37.0% and 18.8%, respectively. (2)

Given that there are not many local studies with more than 10 years of follow-up, the purpose of this study was to analyze the 20-year overall survival and cardiovascular event-free survival of aortic valve replacement in a community hospital with electronic medical records. Late outcomes of isolated aortic valve replacements or combined with coronary artery by-pass grafting, operated on between 1999 and 2002 in a community hospital, were retrospectively studied. The 20-year follow-up was done through the institution's electronic medical records and telephone contact. Since it was mostly a population of patients affiliated with the hospital, a high follow-up rate could be obtained. Baseline data at the time of surgery were included, and cardiovascular events (myocardial infarction, stroke, major bleeding or prosthetic dysfunction) as cause of death were considered. Long-term all-cause and cardiovascular mortality were evaluated. Follow-up was analyzed with Kaplan-Meier curves, and comparisons were made with the log-rank test. Continuous variables were expressed as mean \pm standard deviation (SD) or standard error (SE). Among 80 aortic patients undergoing surgery, a mean follow-up of 94 months (SE 9.6) (range 6-253) was achieved in 63 of them (79%). Follow-up of 496 patient-years was obtained with 4.8% annual risk of all-cause death. Mean age at the time of surgery was 70.3 years (SD 8.4), and 60% were male patients. A total of 44% mechanical prostheses were used –the rest were biological prostheses–, whose sizes were n19, n21, n23, and n25 or larger in 21%, 35%, 25% and 19% of cases, respectively. Overall survival at mean follow-up was 0.691 (SE 0.07), 0.467 (SE 0.09) at 15 years and 0.389 (SE 0.10) at 20 years (Figure 1), whereas, considering cardiovascular mortality alone, survival at mean follow-up was 0.855 (SE 0.05) and 0.658 (SE 0.10) at 15 years and 20 years (log-rank $p = 0.042$) (Figure 2). In turn, cardiovascular event-free survival at

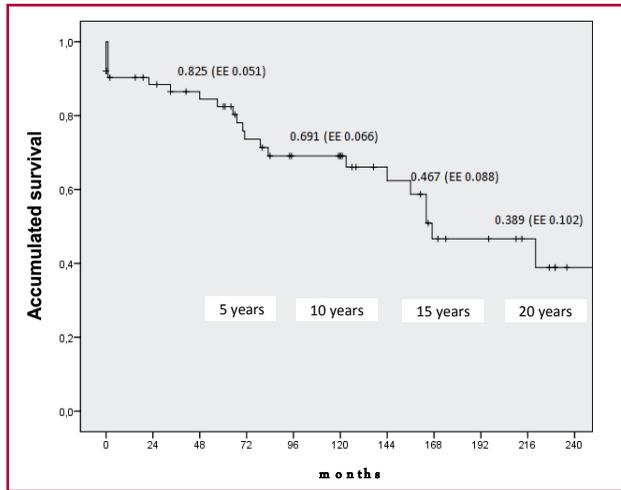


Fig. 1. Late survival from all-cause mortality of single or combined aortic valve replacement.

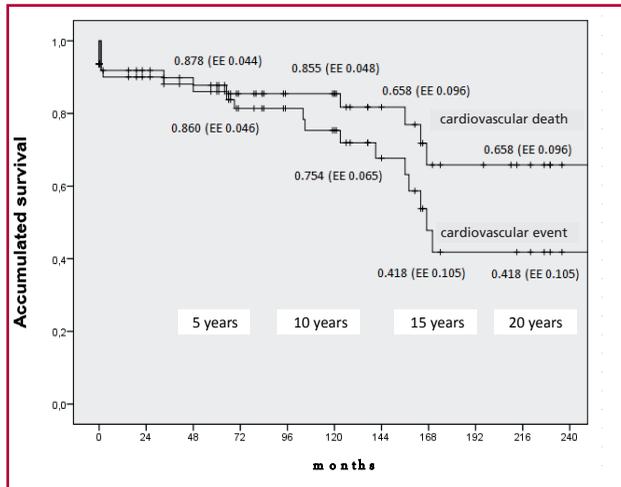


Fig. 2. Late survival from cardiovascular and cardiovascular event-free mortality (death, infarction, stroke, major bleeding, or prosthetic dysfunction) of single or combined aortic valve replacement.

mean follow-up time was 0.814 (SE 0.05) and 0.418 (SE 0.11) at 15 years and 20 years (Figure 2). Total follow-up revealed 4% prosthetic dysfunction, 16% gastrointestinal bleeding or stroke, but no prosthetic endocarditis.

Over the past decade, several local studies have published long-term survival outcomes from aortic valve surgery, although none of them exceeded 7 years of follow-up. Overall survival rates of 94.8%, 88.6%, 85%, and 82.4% were reported at 1, 3, 5, and 7 years, respectively, for aortic valve replacements with biological prostheses. Considering only death of cardiac

origin, survival rates in those periods rose to 97.2%, 94.6%, 91.2%, and 89.4%. (3) In patients >80 years, those same authors found that survival at the first year was 98.6%, at three years 87.65%, at 5 years 77.3%, and at 7 years 48.6%. (4) Also in octogenarians, another local study showed survival rates of 88% at one year, 85% at two years, and 69% at six years. In turn, when patients were divided into low and intermediate risk, the 5-year survival rate was 88.5% and 67.8%, respectively. (6) In comparison, our results on cardiovascular deaths were similar to those published by other local centers.

In conclusion, complete electronic records of community hospital affiliates operated on more than 15 years ago allowed for the analysis of overall and event-free long-term survival of aortic valve replacement. These results will serve as evidence for decision making in the surgical management of aortic valve disease, and as a standard when choosing between surgery and percutaneous valve implantation.

Conflicts of interest

None declared.

(See authors' conflicts of interest forms on the website/ Supplementary material).

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Cardiovascular health status in 3,168 outpatients attended for the first time in a Cardiovascular Center of Guayaquil - Ecuador from 2012 to 2018

Cardiovascular diseases are the leading cause of morbidity and mortality worldwide, and particularly in low-income countries it contributes to increase death rates despite the lower risk-factor burden compared with high-income countries. (1) In Latin America, cardiovascular diseases represent billions of dollars in hospitalization and healthcare costs annually. (2)

Because of epidemiological transition, diseases such as Chagas disease or rheumatic valve disease have been replaced by other non-communicable chronic diseases. (3) Cardiovascular risk factors among the general population are highly prevalent, and reducing its burden would result in reduction of cardiovascular events. (4, 5) However, ideal cardiovascular health in Latin America is not as good as desired. (6)

Therefore, we aim to determine the cardiovascular health status in ambulatory patients who consult in a single cardiology center of Guayaquil, Ecuador.

Records of outpatients attended from 2012 to 2018 in a single cardiology center were reviewed. Clinical profile, comorbidities as well as demographics were extracted from medical records. Patients aged 18 or older were included in the analysis, and those with incomplete data were excluded. Redundant files were also excluded.

Categorical data were presented as frequencies and percentages, and compared using the chi square test. Numerical data were expressed in terms of mean with standard deviation, and compared between groups using ANOVA or the Kruskal-Wallis test. All statistical analyses were carried out using SPSS 24 software.

A total of 5,135 patients were attended from 2012 to 2018. Among these, 1,296 were excluded because of incomplete data and 671 for redundant data. After exclusion, 3,168 patients were included for the analysis. Mean age was 54 ± 18 years and 40.6% were male (See Table). The body mass index revealed that 40.2% were overweight and that only 29.2% had normal BMI.

Mean abdominal circumference was 91.6 ± 14.2 cm, and 65.4% had abdominal obesity defined as ≥ 102 cm in men and ≥ 88 cm in women.

Prevalence of cardiovascular risk factors were as follows: hypertension (defined as $\geq 140/90$ mmHg) 38.5%; diabetes 8.9% and dyslipidemia 27.9%. All these risk factors were associated with increasing age.

Heart failure (HF) was present in 2.3% of patients and coronary heart disease (CHD) in 5.1%. Other less common comorbidities were atrial fibrillation (1.7%), stroke/TIA (0.9%) and chronic kidney disease (CKD) (4.5%). As described with cardiovascular risk factors, the prevalence of all these comorbidities increased with aging.

Unhealthy habits such as smoking, alcohol abuse, poor diet and lack of physical activity were found in 7.4%, 2.1%, 7.9%, and 10.7% of patients, respectively.