Rev Clin Esp. 2015;215(3):148–155

Revista Clínica Española

www.elsevier.es/rce

ORIGINAL ARTICLE

Aortic valve surgery in octogenarians: Risk factors and long-term impact☆

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Received 13 May 2014; accepted 29 July 2014
Available online 7 October 2014

KEYWORDS
Extracorporeal circulation;
Surgery;
Geriatric medicine;
Aortic valve

Abstract
Background and objectives: To understand the risk factors and long-term impact and results of aortic valve surgery in patients over age 80.
Patients and methods: We consecutively evaluated 255 octogenarians who were operated on between 2000 and 2013 and referred for aortic valve disease (isolated or combined with coronary artery disease), which, even when associated with other diseases, was the primary cause of the patient's functional limitation.
Results: The mortality rate decreased from 14.08% (2000–2004) to 7.7% (isolated valve surgery, 4.4%; with coronary bypass, 3.3%) (2010–2013). The independent risk factors associated with mortality were urgent surgery, combined procedures, peripheral vascular disease, a postsurgery hematocrit level <24% and the need for transfusion. More than 50% of the patients experienced a postoperative complication. Blood product transfusions were associated with renal and respiratory failure, and preoperative anemia was associated with an increased rate of myocardial infarction and stroke. Survival at 1, 3, 5 and 10 years was 79.5, 74.3, 63.6 and 30.5%, respectively, with 91.5% of the patients in NYHA functional class I–II. Long-term survival was lower for cases of preoperative left ventricular dysfunction. The EuroSCORE I logistics score was not useful for our population as a predictor of mortality or of medium to long-term survival.
Conclusions: The morbidity and mortality of aortic valve surgery for patients over age 80 has decreased in recent years, although it remains higher when valve surgery is combined with coronary surgery. The presence of preoperative left ventricular dysfunction decreases long-term survival.

☆ Please cite this article as: Carrascal Y, Valenzuela H, Laguna G, Pareja P, Blanco M, Ortega C. Cirugía de la válvula aórtica en octogenarios: factores de riesgo e impacto a largo plazo. Rev Clin Esp. 2015;215:148–155.

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PALABRAS CLAVE
Circulación extracorpórea;
Cirugía;
Geriatría;
Válvula aórtica

Cirugía de la válvula aórtica en octogenarios: factores de riesgo e impacto a largo plazo

Resumen
Antecedentes y objetivos: Conocer los factores de riesgo, resultados e impacto a largo plazo de la cirugía valvular aórtica en pacientes con más de 80 años.
Pacientes y métodos: Evaluamos 255 octogenarios consecutivos, intervenidos entre 2000 y 2013, y remitidos por valvulopatía aórtica (aislada o combinada con enfermedad coronaria) que, aun asociada a otras patologías, era la causa principal de limitación funcional del paciente.
Resultados: La mortalidad se redujo del 14,08% (periodo 2000–2004) al 7,7% (cirugía valvular aislada, 4,4% y con bypass coronario, 3,3%) (periodo 2010–2013). La cirugía urgente, los procedimientos combinados, la enfermedad vascular periférica, un hematocrito postquirúrgico <24% y la necesidad de transfusión, fueron factores de riesgo independientes asociados a la mortalidad. Más del 50% de los pacientes presentó alguna complicación postoperatoria. La transfusión de hemoderivados se asoció a insuficiencia renal y respiratoria, y la anemia preoperatoria a mayor frecuencia de infarto de miocardio e ictus. La supervivencia a 1, 3, 5 y 10 años fue del 79,5; 74,3; 63,6 y 30,5%, respectivamente, con un 91,5% de los pacientes en clase funcional NYHA I-II. La supervivencia a largo plazo se redujo en caso de disfunción ventricular izquierda preoperatoria. La puntuación EuroSCORE I logística no resultó útil en nuestra población como predictor de mortalidad ni de supervivencia a medio-largo plazo.
Conclusiones: La morbimortalidad de la cirugía valvular aórtica en los pacientes con más de 80 años ha descendido en los últimos años, aunque sigue siendo superior cuando la cirugía valvular se asocia a cirugía coronaria. La presencia de disfunción ventricular izquierda preoperatoria disminuye la supervivencia a largo plazo.

Background

More than 25% of the octogenarians are functionally limited by a cardiovascular disease. Among these diseases, aortic stenosis is the most common.[1,2] Despite the good results of aortic valve surgery, the morbidity, mortality and associated costs are increasing among the most elderly patients. In the Euro Survey registry,[3] comorbidity was the reason for contraindicating the surgery in a third of octogenarians with symptomatic aortic stenosis. A number of authors have reported rates of contraindication for this reason of 40%–80%.[4,5]

Aortic valve disease for octogenarians is beginning to be a common disease in our community. In our center, the number of surgeries went from 2% to 13.5% between 2000 and 2013. Decision making is complex, and the perceived risk of the intervention might not be realistic. There have been few Spanish series published in the last decade,[6] the number of analyzed patients is low and the profile of comorbidities has varied in recent years. Additionally, the emergence of percutaneous aortic bioprostheses represents a new alternative for this group, whose results should be compared only with those of the most recent surgical series.

Patient selection and inclusion criteria vary significantly among groups, as do the reported mortality rates.[7–16] The aims of our study were to assess the mortality results, identify the risk factors for morbidity and mortality, determine the medium to long-term survival and determine if there is a parameter that would recommend the use of alternatives therapies, all while providing updated data from a national series.

Patients and methods

Between January 2000 and July 2013, 255 patients aged 80 years or older diagnosed with aortic valve disease (associated with coronary artery disease in 36.5% of cases) were consecutively operated on with extracorporeal surgery (ECS). These patients represented 6.96% of the total number of patients who underwent surgery during this period. The surgical option was considered for patients with a life expectancy greater than 1 year and with functional class impairment due, exclusively or mainly, to the heart disease that was the reason for the surgery. Patients were not excluded if they had associated heart disease, which could have worsened as a result of the aortic valve disease and was, at least theoretically, reversible.

We retrospectively analyzed the influence of a number of variables (collected prospectively) and their relationship to postoperative morbidity and mortality and medium to long-term survival.

Definitions

Hospital mortality: that which occurs during the first 30 days after surgery or during the hospital stay, whichever is greater. Urgent surgery: that conducted within 24 h of the surgical indication. Emergency: that which is performed immediately. Preoperative anemia (WHO criteria): hemoglobin levels <13 g/dL in men and <12 g/dL in women. Preoperative renal failure: creatinine levels >2 mg/dL. Chronic obstructive pulmonary disease is considered only