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Aortic valve reparability in aorta dissection patients: insight from the AVIATOR registry

Objective of the study

Aim of this study is to evaluate the rate of aortic valve repair in patients presenting with aortic dissection in the AVIATOR registry, to identify the techniques used in this particular settings. Secondly we sought to compare the early and late outcomes (depending on the missing data) between repair and replacement of the aortic valve.

Background

In the last two decades valve-sparing root replacement demonstrates excellent long-term clinical outcomes in different clinical and anatomical settingsⁱ. Patients with acute Type A aortic dissection (AAD) frequently present with varying degrees of associated aortic insufficiency, due to varying factors as dilatation of the sino-tubular junction, commissural disruption causing cusp prolapse or impingement of the leaflet by the dissection flap^{ii,iii}. In the majority of cases, the cusp tissue is normal and associated cusp pathology is observed infrequently. The primary objective of the operation is to save the patient's life by eliminating the potentially fatal complications of rupture and organs malperfusion. Therefore the decision to repair or replace the aortic valve can be quite complex and depends on several factors, balancing the risk of long term valve related events (theoretically better with aortic valve repair) against early perioperative risks augmenting the procedure complexity in case of valve sparing procedure.

A recent meta-analysis on this topic^{iv}, reveals a good result of aortic valve sparing in case of type A dissection, with moderate risk of aortic valve re-operation but low risk of thromboembolism, bleeding and endocarditis.

The more standardized approach to aortic valve insufficiency obtained from pioneering centres, permitted a spreading of this technique and confirmed its reproducibility^v. However in the setting of aortic dissection the reparability of the valve remain not so standardized and the parameters influencing the decision to spare the aortic valve are not well defined.



Study endpoints

Primary endpoints:

- Analysis of the aortic valve repair techniques used in patients presenting with acute or chronic aortic dissection.
- Difference between patients undergoing aortic valve repair and replacement (if patients available for the replacement group).

Secondary endpoints

- early outcomes (depending on missing data) in repair and eventually in replacement group: mortality, cerebrovascular accident, aortic valve function
- late outcomes: mortality, re-operation rate, aortic valve function, cerebrovascular accident and major bleedings.

Study design

Source of data: Patients enrolled in AVIATOR registry

Study design: multicentric, retrospective analysis of prospectively collected data.

Inclusion criteria: patients presenting with aortic dissection at the moment of the surgery.

Analyzed predictors

- Clinical: age, gender, height, weight, NYHA class, rhythm, previous cardiac surgery, COPD, IDDM, Dialysis, poor mobility, extra-cardiac arteriopathy, recent MI, critical state, creatinine value, pulmonary hypertension, connective tissue disease
- echocardiographic: EF, LVEDD, LVESD, AV regurgitation degree, AV regurgitation jet direction, maximal size ascending aorta, mitral insufficiency.
- operative: annulus size (Hegar dilator size), aortic valve anatomy, type of aortic valve repair/replacement, Type of prosthesis (in case of replacement), Valve sparing replacement, graft type, graft size, cus repair technique, commissural orientation post repair, annuloplasty, additional procedure, duration first cross clamping, more than one clamp session.



Statistical analysis

Descriptive analysis: continuous variable will be expressed as mean \pm standard deviation, nominal as count and percentage.

T-test analysis will be performed to identify difference between valve repair and replacement group (if data available). Statistical significance was considered present with $P < 0.05$.

References

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