

Early outcome of minimally invasive aortic valve replacement through mini sternotomy and mini thoracotomy versus conventional approach

Athesis by:

AHMED OTHMAN ALI ELASHEERY

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MD degree of Cardiothoracic Surgery

Under supervision of:

PROF. DR. MOHAMED AHMED HELMY

Professor of cardiothoracic surgery

Faculty of medicine Cairo University - Kasr Alaini

PROF. DR. MOHAMMED IBRAHIM SEWIELAM

Professor of cardiothoracic surgery

Faculty of medicine Cairo University – Kasr Alaini

ASS. PROF. DR. AHMED NABIL KHALLAF

Assisstant professor and head of cardiothoracic surgery unit

Faculty of medicine Fayoum University

ASS.PROF.DR. YASER AHMED BORAYEK

Assisstant professor of cardiothoracic surgery

Faculty of medicine Cairo University – Kasr Alaini

Faculty of medicine

Cairo University

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Abstract

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Aim of work

Aim of this study is to compare early morbidity and mortality during the in-hospital stay after aortic valve surgeries using minimally invasive approaches through mini sternotomy and right anterior thoracotomy, and conventional full median sternotomy approach

Patients and Methods

A **prospective study** conducted between August 2014 and August 2016 including 60 patients who were candidate for isolated aortic valve replacement through 3 surgical approaches, the conventional full median sternotomy versus 2 minimally invasive approaches, mini sternotomy and right anterior mini thoracotomy, 20 patients for each approach, organized in 3 groups, **A**: conventional, **B**: ministernotomy, **C**: minithoracotomy approach.

Inclusion criteria:

- Patients with rheumatic or degenerative chronic isolated aortic valve disease.
- Age: 20-70 years old.
- Operation type: isolated aortic valve replacement.
- Operation classification: elective.
- LV function: more than 40 %.
- Preoperative general condition: good with no major comorbidities.
- Body mass index: less than 30.

Results

- The mean age of was 43.7 years. The study included 31 males & 29 females.
- The mean **cross clamp time** for group A, B and C was 50.4, 66.9 and 95.7 minutes respectively.
- The mean **bypass time** for group A, B and C was 80.8, 95, and 125.3 minutes respectively.
- The mean **post-operative mechanical ventilation time** for group A, B and C was 8.7, 7.7 and 8.3 hours respectively.
- The percentage of patients requiring **inotropic support** post-operatively for group A,B & C was 55%, 45% and 50% respectively.
- The mean **ICU stay** for group A, B and C was 2.95, 2.8, 2.85 days respectively.
- The mean **in-hospital stay** for group A, B and C was 9.95, 8.65, 9.55 days respectively.
- The percentage of patients suffering from **wound infection** post-operatively for group A was 10% and 5% for group B & C.
- There was only one **early mortality** in a patient treated by conventional method (group A).

Conclusion:

Data analysis affirmed that ministernotomy and right anterior minithoracotomy did not endanger the quality of the procedure, and that these techniques are safe, effective and reproducible therapeutic options that can be compared with conventional treatment.