Ministernotomy aortic valve replacement vs full sternotomy approach: Comparing the need for blood transfusion and clinical outcomes

Najah Adreak [1], Defen Peng[2], Yinshan Zhao[2], Bruce McManus[3], Anson Cheung[1]

1 Division of Cardiothoracic Surgery, University of British Columbia, Vancouver, Canada
2 ICV Health, University of British Columbia, Vancouver, Canada
3 Department of Pathology and Laboratory Medicine, University of British Columbia, Vancouver, Canada

THE UNIVERSITY OF BRITISH COLUMBIA
Department of Surgery
Faculty of Medicine

Contact Information:
najahaldreak@gmail.com
@NajahAdreak

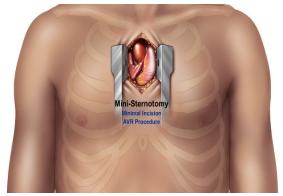
BACKGROUND

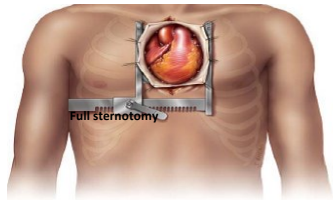
- The **mini-sternotomy aortic valve replacement** (MSAVR) improved cosmetics; reduced postoperative pain, blood loss, and length of stay (LOS); and had better wound healing.
- However, **MSAVR** is not widely adopted by surgeons and the clinical outcomes of MSAVR have not been reported in British Columbia (BC).
- We studied the outcomes of MSAVR at our institution in BC in comparison to full sternotomy aortic valve replacement (FSAVR).

METHOD

- Retrospective analysis of Cardiac Service BC database for all isolated AVR performed at our institution from **Jan 2007** to **Dec 2016**
- **910** patients were identified (**776** FSAVR and **134** MSAVR)
- Exclusion criteria:
  - Other AVR approaches
  - Any concomitant procedure
  - Redo or emergency surgery
  - Infected valve
- Univariate and multivariate regression analyses were conducted to explore the risk factors for the **outcomes of interest**.

Surgical Procedures





RESULTS

- **Baseline variables** between the two surgery groups were similar with **a mean age of 70 years and 42% were females**
- The median follow-up was 6.2 years.
- **Freedom from blood product transfusion** in the MSAVR group was higher than FSAVR (65.7% vs 49.6%, p<0.001).
- There was no significant difference in **30-day** (**p=0.79**) and **long-term mortality.**
- However**, pump time** was **shortened by 8 min** and **LOS** was **shortened by one day** in the MSAVR vs FSAVR groups. All other **short-term outcomes** were **not significantly different** between the two groups.

Predictors of Blood Product Transfusion Post AVR

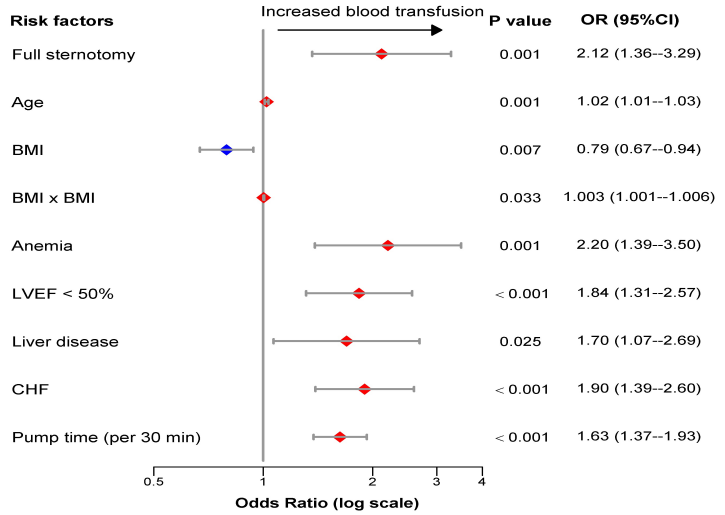


Figure 1. Forest plot of Odds ratio from multivariate logistic regression analysis

CONCLUSIONS

- Ministernotomy AVR is proven to be a safe and effective treatment for aortic stenosis with decrease in blood product transfusion rate, and hospital stay with equivalent 30-day mortality and long-term survival rate.
- It should be considered as part of the armamentarium of cardiac surgeons in the modern era.