

Yacoub versus Bentall procedure in a nationwide propensity-matched long- term comparison



Background / Study Objective

- Aortic root replacement with mechanical composite valve graft (Bentall procedure) is a standard of care in non-elderly patients with aortic root aneurysm with/without aortic valve regurgitation.
- Valve-sparing root replacement may provide similar or better freedom from long-term mortality and valve-related events. However, the evidence is limited, especially for aortic root remodelling (Yacoub procedure).
- We aimed to compare these two procedures on a multi-center nationwide basis with the use of propensity-score matching.

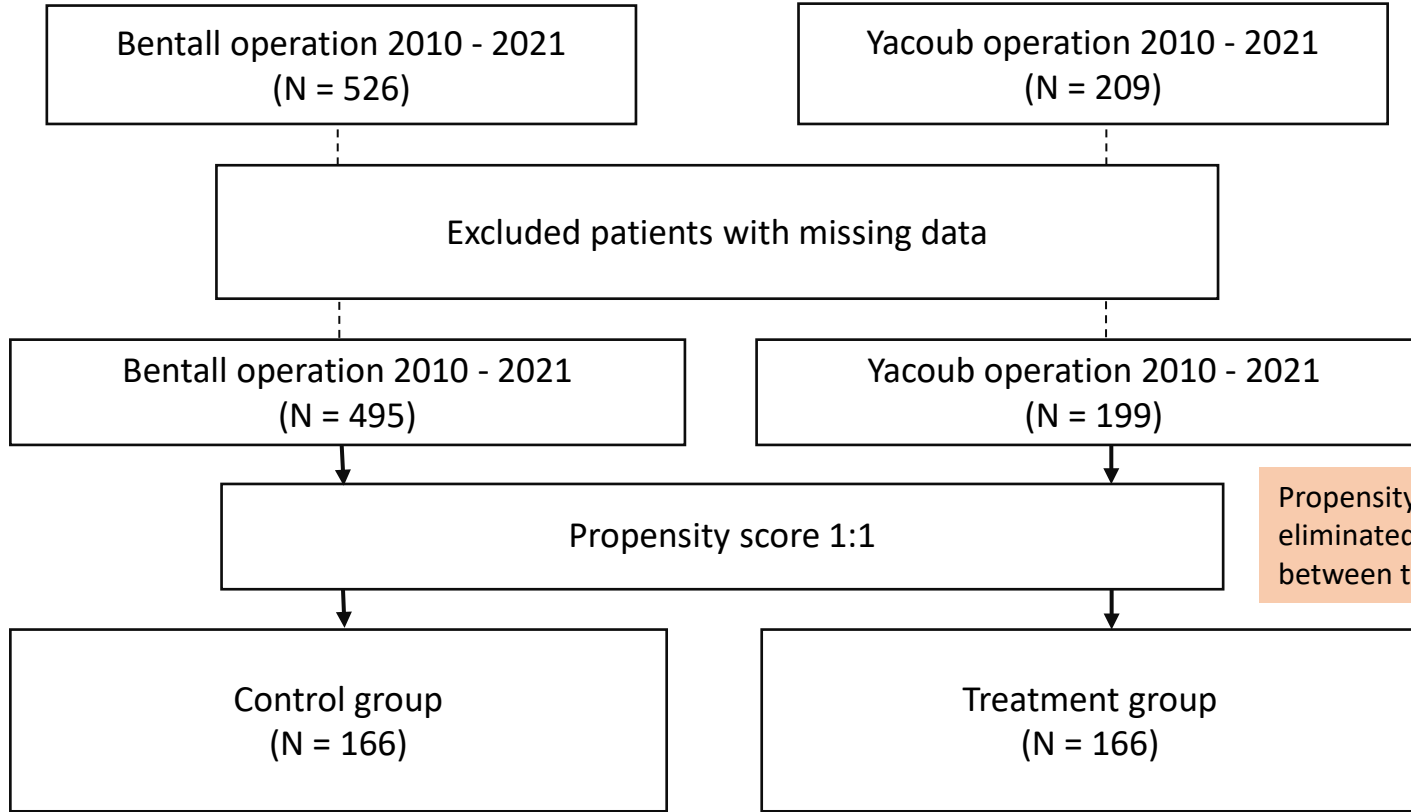


Methods

- This was a retrospective study of data from the compulsory national registry of cardiac surgery.
- The outcomes of patients undergoing Yacoub procedure at 4 expert centers were compared with patients undergoing Bentall procedure throughout the country.
- Propensity-score matching with 21 preoperative covariates was used to adjust for potential confounders.
- Perioperative outcomes were analysed together with the long-term survival, risk of reintervention and other major valve-related events.



Patients



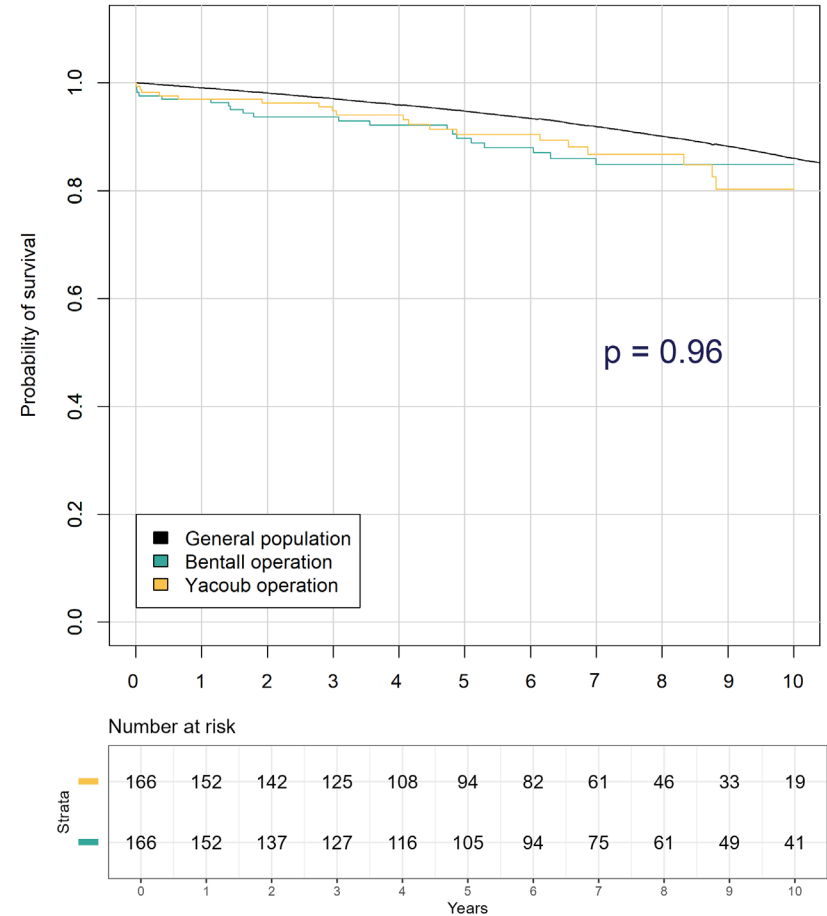
Propensity-score matching successfully eliminated all preoperative differences between the groups.



Results 1

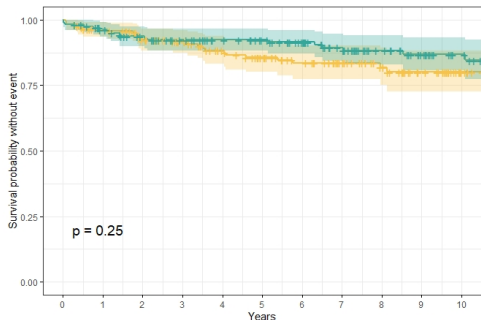
Longer cross-clamp time in Yacoub group (137 vs 110 minutes, $p < 0.001$), otherwise equal short-term outcomes.

There was no difference in the freedom from all-cause mortality between the groups over the follow-up of 5.8 vs 6.4 years. Cardiovascular diseases were a dominant cause of death (73.7 vs 72.8 %). Valve-related mortality was also equal ($p = 0.71$).

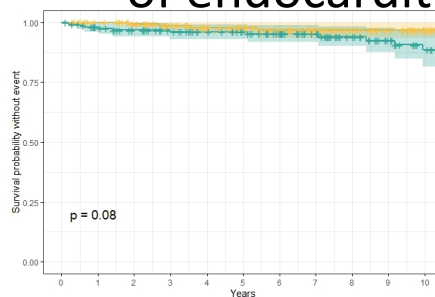


Results 2

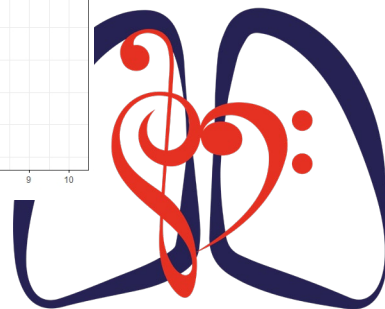
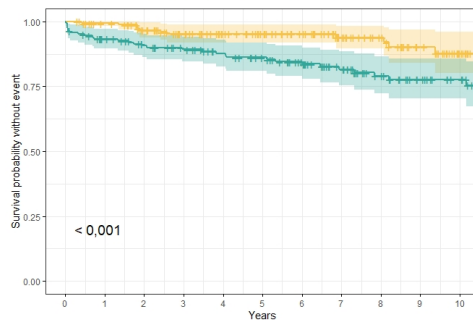
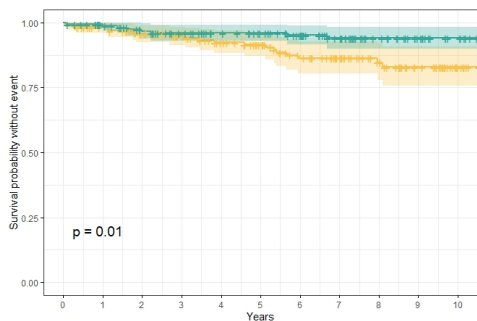
No difference in the risk of reintervention.



No difference in the risk of endocarditis.



Significantly more thrombembolism and bleeding in Bentall group.
Significantly more rehospitalizations for valve failure in Yacoub group.



Conclusion

In a nationwide multi-center propensity-matched comparison both Yacoub and Bentall procedure yielded excellent long-term survival similar to that of general population.

Yacoub procedure was associated with higher risk of aortic valve failure requiring rehospitalization and a trend towards higher risk of reintervention.

Mechanical Bentall procedure lead to more thrombembolism and bleeding complications in the long-term.

