

MINIMAL ACCESS (ART) AVR AS AN OPTION FOR TAVI TURNDOWN PATIENTS

Ravi Ghatanatti, Joseph Zacharias

Blackpool Teaching Hospitals NHS Foundation Trust, Blackpool, United Kingdom

NHS

Blackpool Teaching
Hospitals
NHS Foundation Trust

SUMMARY

Transcatheter aortic valve intervention (TAVI) is contraindicated in several unfavorable conditions and high risk AVR remains as only option when guideline directed medical therapy fails to provide symptomatic benefits¹. Anterior right thoracotomy AVR (ART-AVR) is associated with less surgical trauma and inflammatory response which hastens post operative recovery and early return to routine activity, especially in the elderly population.

We present four successful ART-AVR in patients who were turned down by TAVI team due to unfavorable factors. There were no conversions to sternotomies, no blood transfusion and the mean ventilation time was 4.04hrs. All the four patients were discharged within seven post operative days without any significant post operative events. We recommend that ART-AVR should be offered to selected TAVI turned down cases and this approach is associated with good early outcomes and one year survival.

BACKGROUND

Transcatheter aortic valve intervention (TAVI) has evolved from treating inoperable or prohibitive risk cases of aortic stenosis since its inception in 2002 through high, intermediate, and even in low-risk cases as encouraged by the clinical trials. But according to industry standards and guidelines¹, there are some situations where TAVI is not an option, and conservative or surgical therapy is required. Minimally invasive aortic valve replacement (MIAVR) has been shown to have benefits, including shorter hospital stays, enhanced cosmetics, lower expenses, less discomfort, less surgical trauma, less bleeding, earlier functional recovery, decreased incidence of chest and sternal wound infections, and lower incidence of arrhythmias.^{2,3}

METHODOLOGY

Case 1: An 82-year-old male, who was on chronic renal replacement therapy for end stage renal failure presented with severe aortic stenosis (AS), moderate to severe tricuspid regurgitation (TR), severe pulmonary artery hypertension, EF of 14% but reserved LV function demonstrated on testing and normal coronary angiogram. He underwent ART-AVR with a 23mm bioprosthetic valve.

Case 2: A 71-year-old male who had a previous endovascular stenting to abdominal aorta, celiac artery, superior mesenteric artery and both renal arteries presented with severe calcific AS, impairment of LV function. Protruding visceral stents precluded TAVI and he underwent ART-AVR with 23mm bioprosthetic valve (Image 1).



Image 1: Coronal multiplanar reformation image showing post EVAR renal artery stents in the lumen



Image 2: CT coronary angiogram showing aberrant circumflex artery arising from right coronary artery

Case 3: An 86-year-old female presented with severe TR, moderate AS, AF and normal coronaries. She underwent an ART-AVR with a 19mm bioprosthetic valve and tricuspid repair with 30mm annuloplasty ring and left atrial appendage occlusion.

Case 4: A 70-year-old male presented with AS of bicuspid aortic valve and normal LV function. His coronary angiogram showed anomalous origin of circumflex artery from RCA running within the non-coronary cusp. He received a 21mm bioprosthetic valve through ART access (Image 2).

RESULTS

There were no conversions to sternotomy and the mean post-operative ventilation time was 4.04 hours. The mean CPB and cross clamp times were 129 and 91.25 minutes respectively. All four patients had an uneventful recovery and did not need blood transfusion and were discharged within 7 days. The third patient returned to sinus rhythm and anticoagulation therapy was stopped during follow up. There was no mortality at one year follow-up.

CONCLUSION

- ART-AVR should be considered as an option in selected TAVI turn down cases
- The early outcomes even in high-risk cases shows promising results.

REFERENCE

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