

Validity of Ascending Aortic Replacement under Moderate Hypothermic Circulatory Arrest with Retrograde Cerebral Perfusion

Objective:

Brain protection during ascending aortic replacement (AAR) for thoracic aortic aneurysms (TAA) and cooling temperatures is a critical issue. The usefulness of retrograde cerebral perfusion (RCP) has already been reported, but safety reports on moderately cooled RCP are lacking. We therefore compared early and mid-term results of AAR with aortic clamping and open-distal AAR with moderately cooled RCP.

Methods:

A single-center retrospective analysis was performed for all patients who underwent AAR, and not dissection, for only TAA. A total of 310 patients who underwent either clamped AAR (n=88, Group C) or non-clamped open-distal AAR (n=222, Group O) between April 2011 and May 2023 were included. Concomitant procedures were also included. Primary endpoints were perioperative stroke and five-year survival, whereas secondary endpoints included 30-day mortality and remote arch re-intervention.

Results:

The mean age of all patients was 65 ± 13 years. The lowest rectal temperature was 23.4 ± 0.9 , and circulatory arrest time was 17 minutes in Group O. One case of perioperative stroke was recorded in Group C, while there was none in Group O ($P=0.284$). Thirty-day mortality was observed in three and two patients (2% vs 1%, $P=0.141$) for Group C and Group O, respectively. Five-year survival was $90.8 \pm 3.3\%$ and $88.7 \pm 3.4\%$ ($P=0.950$) and avoidance rate of arch re-intervention was $94.6 \pm 3.1\%$ and $97.5 \pm 2.5\%$ ($P=0.414$) for Group C and Group O respectively.

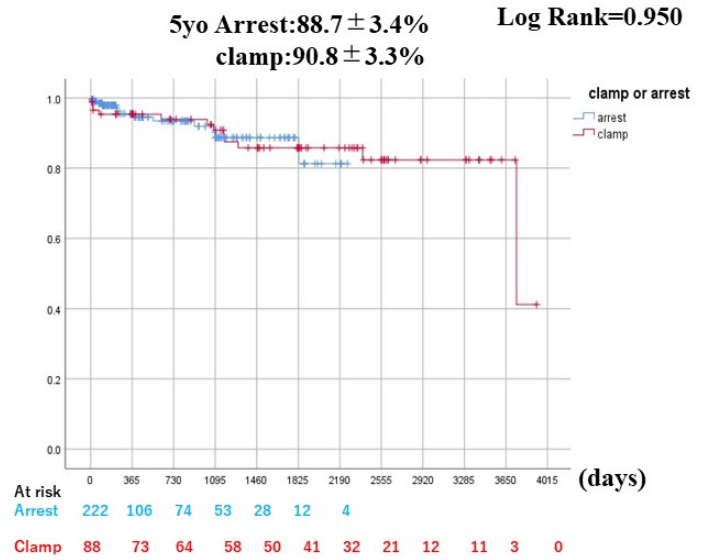
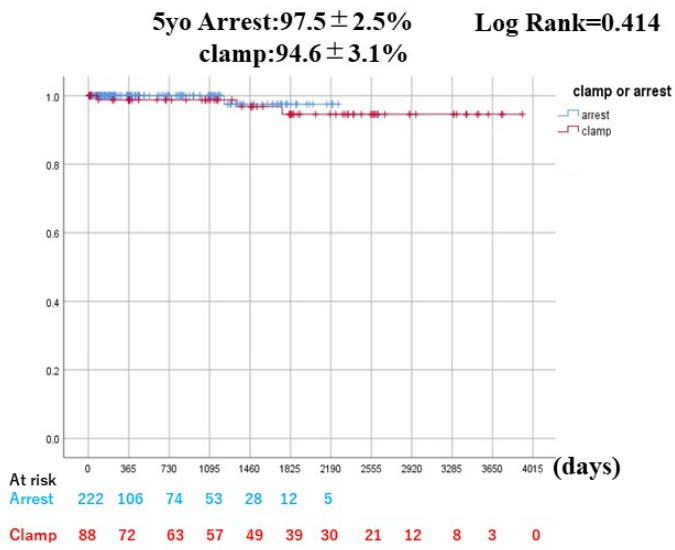
Conclusion:

Ascending aortic replacement under moderate hypothermic circulatory arrest using retrograde cerebral perfusion in patients with ascending aortic aneurysms did not cause any permanent neurological dysfunction. Therefore, ascending aortic replacement may be safe and feasible under moderate hypothermic circulatory arrest with retrograde cerebral perfusion.

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Avoidance rate of arch re-intervention

Overall survival



Additional Resources

- [Array](#)
- https://files.aievolution.com/prd/aat2101/abstracts/abs_8829/2024abstractPPT.pptx