

Effects of Concomitant Non-Aortic Trauma on Follow-up Among Patients After Endovascular Repair for Blunt Thoracic Aortic Injury.

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Background

- Long-term follow-up is essential in endovascular aortic repair to prevent morbidity and mortality due to late complications¹.
- Yearly follow-up and imaging after endovascular stent graft placement screen for complications, such as endoleak, that may require re-intervention.
- Loss to follow-up (LTFU) is a well-documented problem in clinical research on blunt thoracic aortic injury (BTAI). Previous systematic review of trials involving endovascular repair for BTAI estimate an average LTFU rate at 1 year of between 26-57%².

Hypothesis

- We aimed to characterize follow-up rates among BTAI patients with and without concomitant trauma. We hypothesize that poly-trauma patients have better follow-up than isolated aortic injuries.

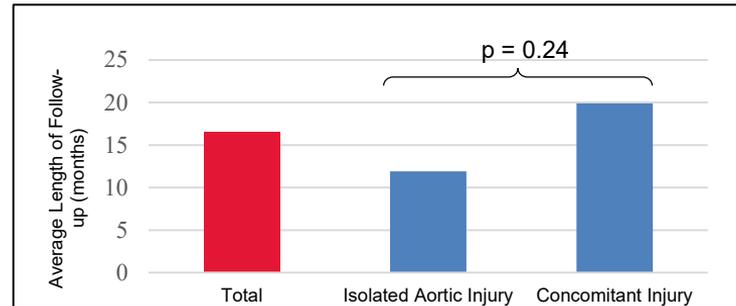
Methods

- A retrospective analysis was performed of 55 patients who received thoracic endovascular aortic repair at a Level 1 Trauma Center for BTAI between 2013 and 2020.
- Data was collected regarding the date of repair and serial post-operative follow-up with a vascular surgeon.
- Data was collected on concomitant non-aortic trauma, including either abdominal or head trauma. Abdominal trauma was defined as any evidence of hepatic, splenic, or renal laceration. Head trauma included any evidence of intracranial hemorrhage, subarachnoid hemorrhage, or subdural hematoma.
- T-test analyses of loss to follow-up and mean length of follow-up were performed to identify differences between cohorts.

Results

	Number of Patients	Number LTFU after 1 year	LTFU %	Average Length of Follow-up (months)
Isolated Aortic Injury	20	12	60	11.90
Concomitant Injury	28	16	57.14	19.89
Total	48	28	58	16.56

LTFU and average follow-up length between BTAI cohorts—20 BTAI patients had an isolated aortic injury, compared to 28 patients with either concomitant abdominal or head trauma. 7 patients had no serial follow-up due to unknown cause or death—these patients were excluded from analysis. There was no significant difference in LTFU percentage ($p = 0.84$) or average length of follow-up ($p = 0.24$) between cohorts.



Average length of follow-up among BTAI patients—BTAI patients with isolated aortic injuries had an average follow-up length of 11.9 months, compared to 19.89 months in patients with concomitant injuries ($p = 0.24$).

Discussion

- BTAI patients have poor follow-up at one year, regardless of if there is isolated or poly-trauma. LTFU rate was high, with 58% of all patients being lost to follow-up after 1 year. Average length of follow-up was also poor, at an average of 16.56 months.
- There is a weak trend showing longer follow-up among poly-trauma patients.

Future Directions

- Poor follow-up rates underscore the importance of future efforts to improve longitudinal follow-up among BTAI patients receiving endovascular repair. Future studies could further elucidate linkage between poly-trauma BTAI patients and follow-up rates.
- Strategies to improve follow-up could include improving health care access and patient outreach, as well as addressing socioeconomic factors.

References

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- ² Kidane B, Plourde M, Chadi SA, et al. The effect of loss to follow-up on treatment of blunt traumatic thoracic aortic injury. *Journal of Vascular Surgery.* 2015;61(6):1624-1634. doi:10.1016/j.jvs.2015.02.017