Impact of Timing of Aortic Valve Replacement Relative to Cancer Therapy on Clinical Outcomes in Patients With Hematologic Malignancy and Severe Aortic Stenosis: A Real-World Propensity-Matched

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Disclosure of Relevant Financial Relationships

I, Hasnan Ijaz, MD, DO NOT have any financial relationships to disclose.

Background/Method

- Optimal sequencing of aortic-valve replacement (AVR) and chemotherapy in patients with severe aortic stenosis (AS) and hematologic malignancy is undefined.
- We queried the TriNetX US Collaborative Network (69 health-system EHRs) for adults (≥18 years) with severe AS who received guideline-based AVR (surgical or TAVR) and chemotherapy for leukemia, lymphoma, or myelodysplasia. Two propensity-matched (1:1) cohorts were created: AVR-First (AVR < 3 months before first chemotherapy) and Chemo-First (AVR < 3 months after chemotherapy start). Outcomes were assessed from day +1 to 365 after the index using risk, Kaplan-Meier, and Cox models.

Result

- After matching, 1,092 patients (mean age 79 ± 10 yr; 36 % female) were analyzed. One-year mortality was numerically higher when AVR preceded chemotherapy (16.4 % vs 13.3 %; HR 1.25, 95% CI 0.91–1.70, p = 0.17). Rates of stroke, acute heart failure, post-procedural infection, and major bleeding were similar between strategies (all $p > 0.20$). Pacemaker implantation rates trended lower with an AVR-first approach (8.0% vs. 9.9%; HR 0.80, 95% CI 0.52–1.23). No outcome demonstrated a statistically significant benefit for undertaking valve intervention before oncologic therapy (Table 1).
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Clinical outcome	Incidence rate /100 PY	HR (95 % CI)	p
All-cause mortality	19.4 vs 15.6	1.25 (0.91–1.70)	0.17
Post-op infection	2.2 vs 2.1	0.60 (0.14–2.52)	0.68
Major bleeding	12.4 vs 10.4	1.23 (0.84–1.80)	0.30
Acute heart failure	7.2 vs 6.9	1.02 (0.63–1.67)	0.47
Atrial fib/flutter	8.0 vs 7.3	1.07 (0.67–1.72)	0.78
Stroke (ischemic/hemorrhagic)	6.6 vs 6.4	1.03 (0.62–1.72)	0.91
Pacemaker implantation	8.1 vs 10.9	0.80 (0.52–1.23)	0.31

Conclusion

- When clinically feasible, initiating cancer therapy without delaying for valve replacement is not associated with excess early mortality or cardiac complications. Prospective studies are warranted to refine patient selection and determine whether specific cancer subtypes, chemotherapy regimens, or valve technologies modify these results.