1-Year Outcomes of Early Discharge Following Transcatheter Aortic Valve Implantation

Results from the POLESTAR trial

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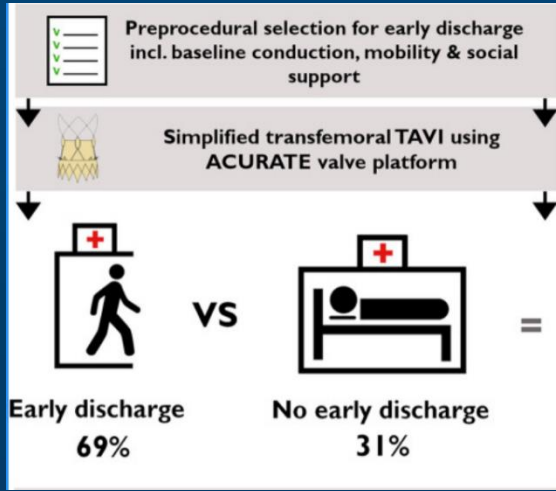
Disclosure of Relevant Financial Relationships

I, Lucas Uchoa de Assis DO NOT have any financial relationships to disclose.

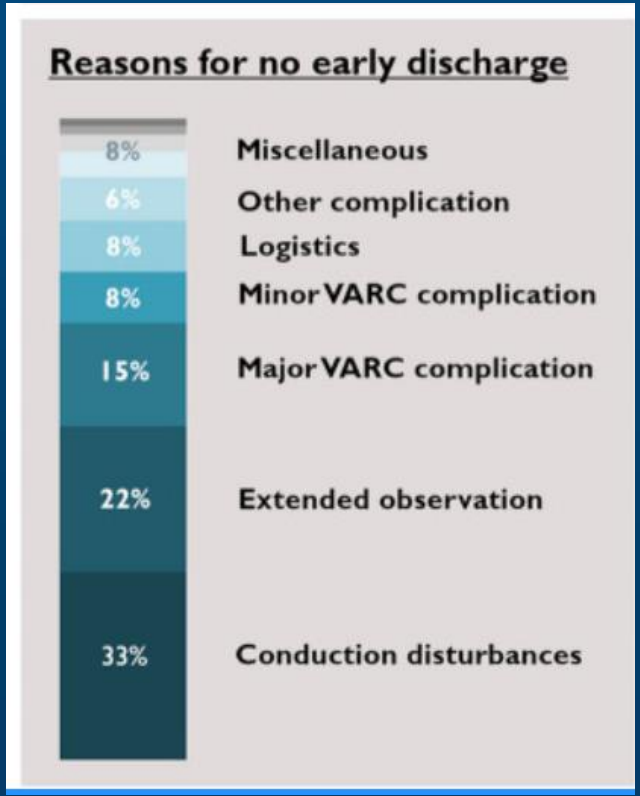
Background

- Early discharge (ED) after TAVR optimizes hospital resource utilization and is increasingly regarded as feasible and safe, in appropriately selected patients (3M, BENCHMARK, POLESTAR)
- POLESTAR trial
  - Prospective, multicenter, observational, single-arm including 252 patients in Netherlands, Belgium, Canada, and the UK (2019 – 2022)
  - ACURATE Neo platform
  - Favourable outcomes in early discharge patients



POLESTAR STUDY

- Pre-TAVR ED eligibility
  - Key exclusion criteria: LVEF<35%, severe PH, non-TF access, pre-existent RBBB, COPD GIII
- Identified patients requiring prolonged hospitalization (1/3 of patients)
- Longer term outcomes are unknown
  - Differences between the early discharge and delayed discharge group



Methods

- Primary analysis: Landmark analysis at 30 d, comparing outcomes between ED (<48 hours) vs non-ED.
- Endpoints:
  - **MACE**: all-cause mortality, stroke, myocardial infarction, and rehospitalization for cardiac-related causes
  - **Rehospitalizations**: all-cause
  - **QoL**: KCCQ overall summary score change (baseline→30 d→1 y).

Key Baseline Characteristics

Characteristic	Overall (N=252)	ED ≤48 h (N=173)	Non-ED >48 h (N=79)
Age, years	82 [78–85]	82 [78–84]	82 [76–85]
Female, n (%)	133 (53)	89 (51)	44 (56)
STS-PROM, %	2.2 [1.6–3.3]	2.3 [1.7–3.3]	2.2 [1.4–3.3]
NYHA class III or IV, n (%)	113 (45)	80 (47)	33 (42)
LVEF, %	60 [55–62]	60 [55–63]	60 [55–62]
Atrial fibrillation, n (%)	46 (18)	27 (16)	19 (24)
LBBB, n (%)	17 (8)	10 (7)	7 (10)
eGFR <60 mL/min/1.73m², n (%)	90 (36)	64 (37)	26 (33)

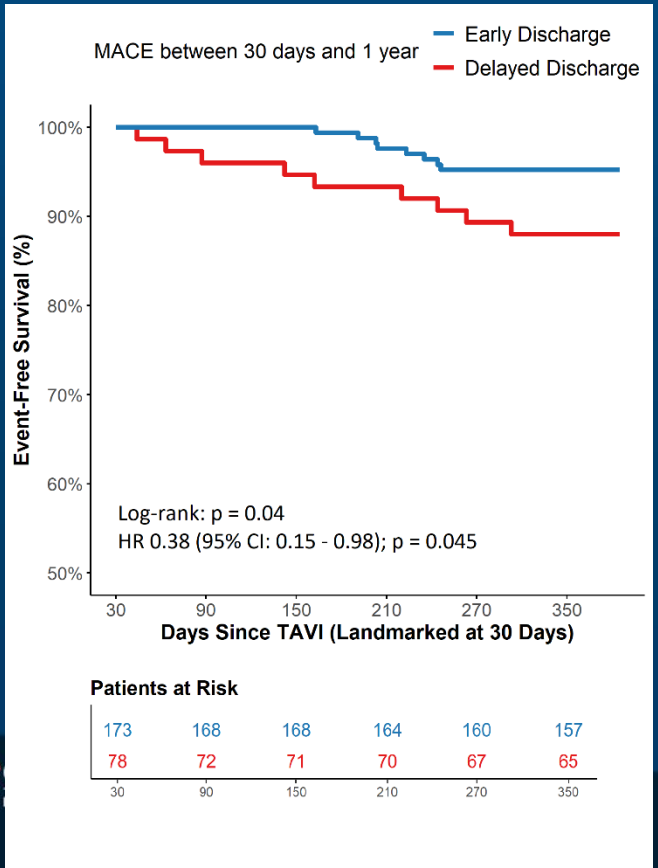
Outcomes at 30 days

	Overall $n=251$*	Early discharge $n=172$	No early discharge $n=79$	p-value
All-cause death	2 (1)	1 (1)	1 (1)	0.53
Cardiovascular death	2 (1)	1 (1)	1 (1)	0.53
Stroke	4 (2)	1 (1)	3 (4)	0.09
VARC 2–4 bleeding	8 (3)	2 (1)	6 (8)	0.01
Acute kidney injury stage 3–4	1 (1)	-	1 (1)	0.32
Major vascular complication	10 (4)	3 (2)	7 (9)	0.01
Major access related complication	1 (1)	-	1 (1)	0.32
Major cardiac structural complication	2 (1)	-	1 (1)	0.10
Moderate or severe AR[†]	7 (3)	6 (4)	1 (1)	0.43
New permanent pacemaker	9 (4)	3 (2)	6 (8)	0.03
New conduction disturbances[‡], on discharge ECG	52 (21)	25 (15)	27 (34)	<0.01
Surgery or intervention related to valve	2 (1)	-	2 (3)	0.10
All-cause rehospitalization	18 (7)	11 (6)	7 (9)	0.48
Rehospitalization for procedure or valve related cause	10 (4)	5 (3)	5 (6)	0.29
KCCQ OSS < 45 or decline > 10 points[§]	26 (11)	19 (12)	7 (10)	0.68
Endocarditis	2 (1)	1 (1)	1 (1)	0.53
Myocardial infarction	-	-	-	-

Clinical events between 30 days and 1 year follow-up

Outcome (Landmarked at 30 days)	Overall, n=249	Early Discharge, n=171	No Early Discharge, n=78
Major Adverse Cardiovascular Events	17 (6.8%)	8 (4.7%)	9 (11.7%)
All-cause death	5 (2.0%)	3 (1.7%)	2 (2.6%)
Stroke	3 (1.2%)	1 (0.6%)	2 (2.6%)
Myocardial infarction	4 (1.6%)	0 (0.0%)	4 (5.2%)
VARC type 2-4 bleeding event	1 (0.4%)	0 (0.0%)	1 (1.3%)
Acute kidney injury stage	1 (0.4%)	1 (0.6%)	0 (0.0%)
Major vascular complication	0 (0.0%)	0 (0.0%)	0 (0.0%)
New permanent pacemaker	2 (0.9%)	1 (0.6%)	1 (1.5%)
All-cause rehospitalizations	28 (11.2%)	16 (9.3%)	12 (15.6%)
Cardiac Rehospitalizations	11 (4.4%)	4 (2.3%)	7 (9.1%)
Endocarditis	2 (0.8%)	1 (0.6%)	1 (1.3%)

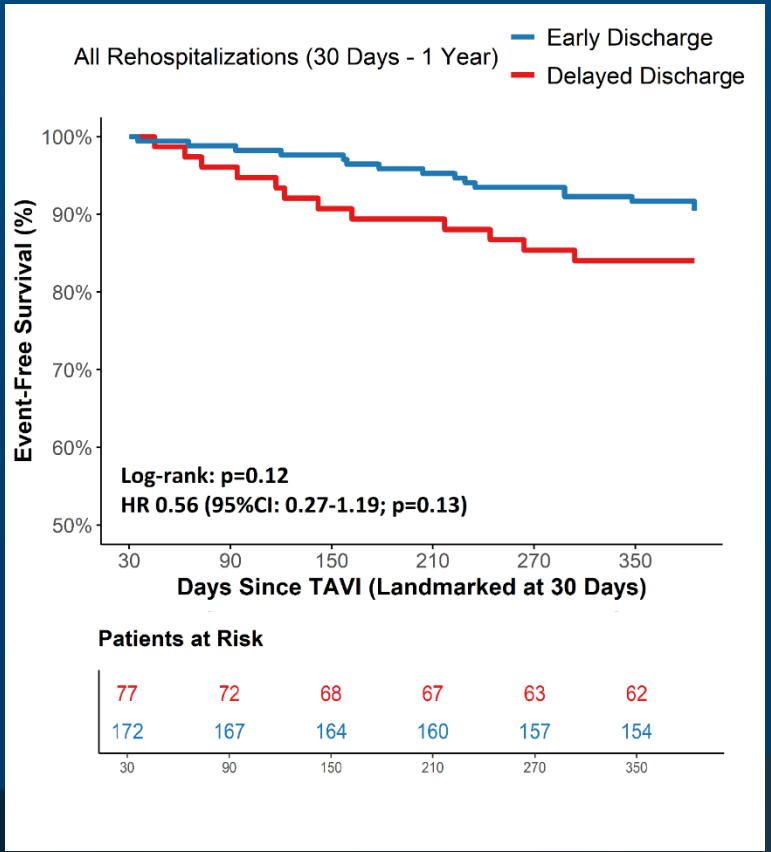
Kaplan Meier for MACE (Death, stroke, MI, cardiac rehospitalization)



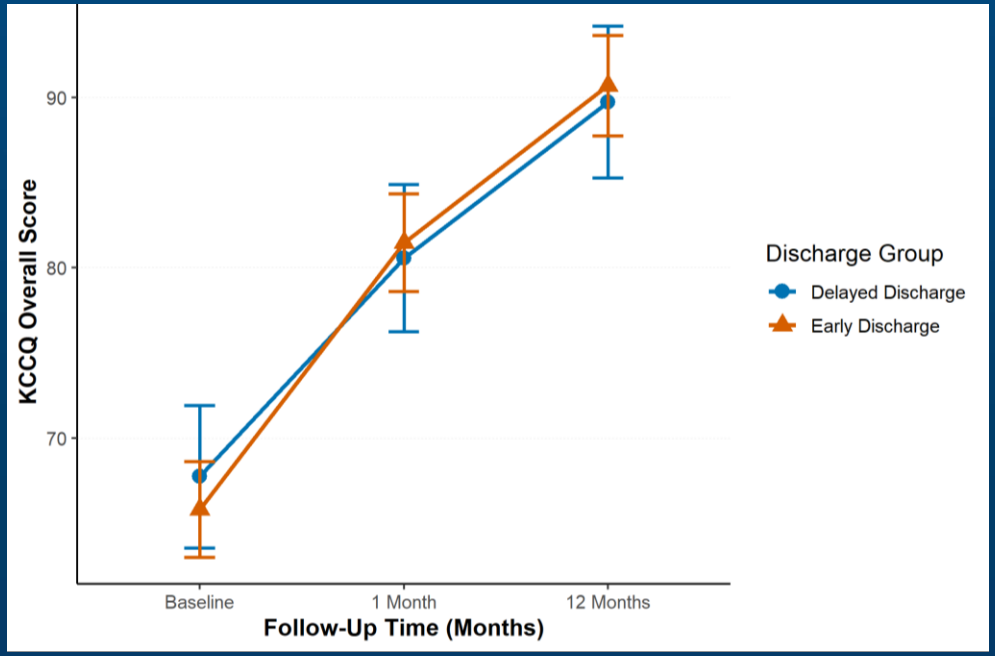
- Event-free survival from MACE was significantly higher in the ED group compared to the non-ED group

Kaplan Meier for All cause rehospitalization

- Freedom from all-cause rehospitalization showed a favorable trend for the ED group but did not reach statistical significance



KCCQ Changes Post-TAVR by discharge Strategy



- LMM: change in KCCQ of 18.48 points over 1 year (95% CI: 15.87 – 21.02; $p < 0.01$)
- No significant difference in KCCQ improvement between the ED and non-ED groups (p for interaction = 0.30)

Conclusion and Summary

- In selected patients, ED ≤48 h after ACURATE TAVR is safe and associated with favourable outcomes at 1 year.
- From 30 d → 1 y, MACE is lower in ED vs non-ED; rehospitalizations are not increased.
- Quality of life: KCCQ improves early and remains high at 1 year, without detriment from ED.
- **Clinical signal:** Non-ED patients are a higher-risk phenotype

  → prioritize closer clinical follow-up for non-ED patients?
- **Limitations**: Observational design, use of the ACURATE Neo platform, clinician-driven ED selection, COVID-era practice