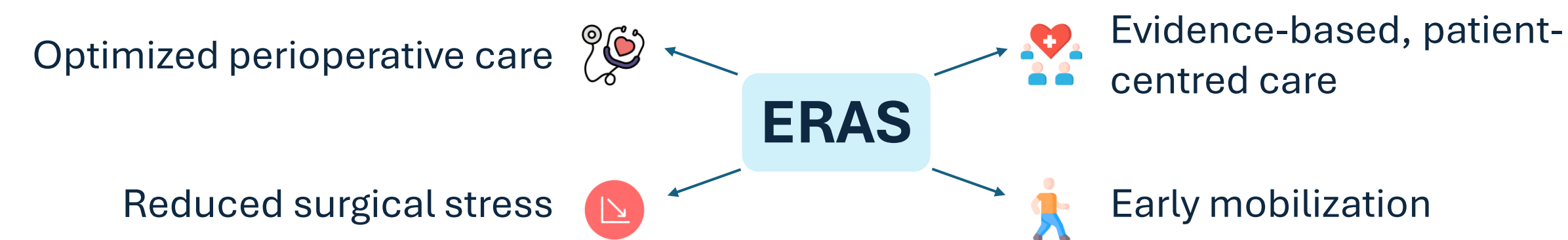


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Background



- Proven success in other domains
- Cardiac surgery adoption is limited** due to complexity and safety concerns.
- Robotically assisted MIDCAB is minimally invasive → ideal procedure for ERAS

Objective

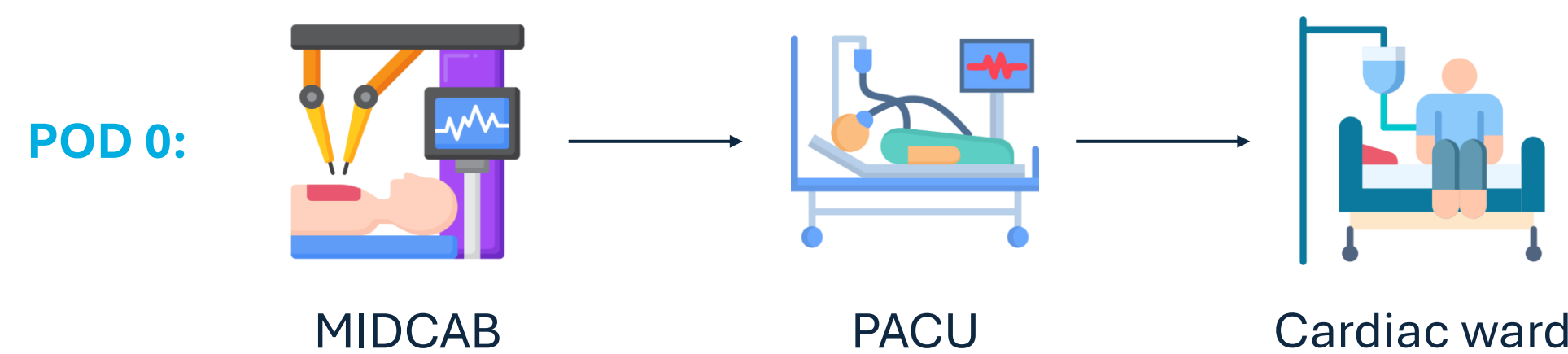
Exploring the **feasibility** and **safety** of an **ERAS-Day 0 protocol** in elected MIDCAB patients to enhance recovery and improve patient outcomes.

Methods

Study design: Subgroup analysis of a monocentric, prospective observational study

Patient selection:

- Elective single-vessel MIDCAB (morning case, uneventful procedure)
- Age > 18 years
- No COPD or lung disease, no diabetes mellitus, BMI < 35 kg/m²
- EuroSCORE II ≤ 3%



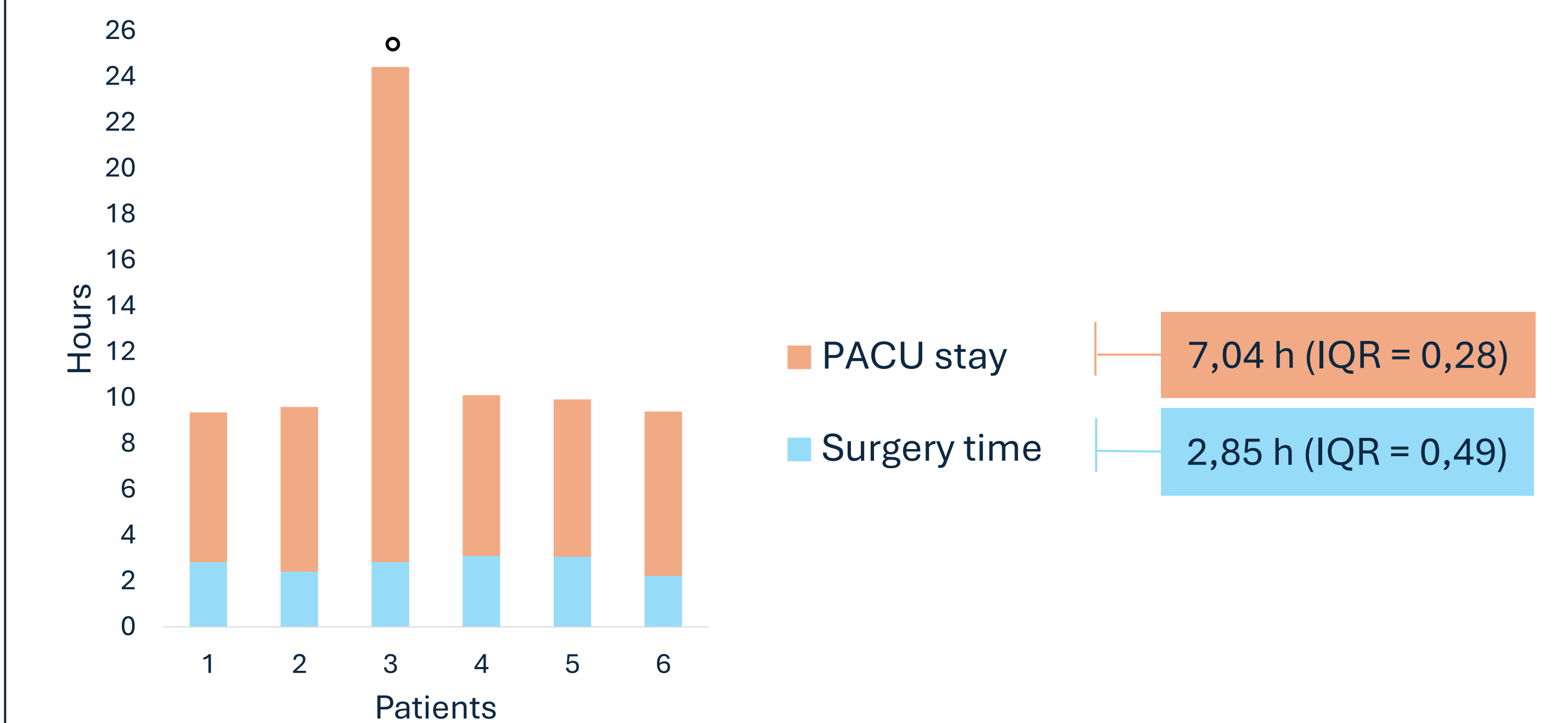
Readiness for ward transfer: Modified Aldrete Score

Nurse/patient ratio: PACU = 1/3, cardiac ward = 1/8

Key ERAS-Day 0 interventions

Phase	Intervention	Description
Preoperative	Clear liquids intake	Until transfer to operating theatre
	Carbohydrate loading	2h before surgery
Intraoperative	Surgical site infection reduction	Nasal mupirocin, chlorhexidine prep, antibiotics (24h)
	Antifibrinolytics	Tranexamic acid or epsilon aminocaproic acid
	Goal-directed fluid management	MAP ≥65 mmHg, CI 2.4–4, SvO ₂ ≥60%, urinary output ≥0.5 mL/kg/h; guided by echocardiography
Postoperative	Early extubation	On-table or within 2h (nurse-driven protocol)
	Early chest tube removal	After ambulation & output < 150 mL in last 4h
	Line removal	All lines removed 6h after PACU arrival (except 1 IV)
	Early enteral nutrition	Water/light meal on day 0, breakfast on day 1
	Early ambulation	Stand day 0, walk day 1, stairs day 2

Total time from surgery start to ward transfer



* Patient 3 remained in PACU on POD 0 due to room unavailability, though met all discharge criteria

Results

Patients initially selected		Postoperative	
Patients initially selected	6 (5M/1F)*	48 h pain score (NRS)	2,2 (±1,4)
Age	67 years (IQR = 6,6)	Peak nausea score POD 0	0 (IQR = 0)
BMI	30,5 kg/m ² (IQR = 7,4)	Fever > 38°C	0%
EuroSCORE II	0,97% (IQR = 0,51)	Blood transfusion during hospital stay	0%
Intraoperative		De novo atrial fibrillation	0%
Blood loss	150 mL (IQR = 75)	MI within 30 days	0%
On-table extubation	100%	Stroke within 30 days	0%
Intubation duration	3,71 h (IQR = 0,53)	Hospital stay (LOS)	3,5 days (IQR = 1)
Postoperative		30-day mortality	0%
Transfer to ward on POD 0	83,3% (5)	Rehospitalisation within 30 days	16,67% (1)
Chest tube time	5,91 h (IQR = 1,15)		
Chest tube output	60 mL (IQR = 46)		

* Eight patients were initially selected for the ERAS-Day 0 program. Two were eventually excluded (one due to intraoperative complications, one due to COPD and acute kidney insufficiency); the remaining six completed the full pathway and were included in the analysis.

Conclusion

- The ERAS-Day 0 program appears safe and feasible** for carefully selected MIDCAB patients.
- Strict patient selection** is essential to ensure safety and early recovery success
- Tailored ERAS strategies** remain key to meeting individual recovery needs.
- Telemonitoring** has potential to improve patient safety and ensure seamless follow-up.
 - Two patients were supported by **moveUP**, a digital health app currently being evaluated in our department.
- As a preliminary study**, these findings require validation in larger, controlled cohorts before broader implementation.
- “Less is more” may define the future of enhanced recovery in cardiac surgery.**