

BACKGROUND

- Left Internal Mammary Artery(LIMA) remains a conduit of choice for Coronary Artery Bypass Grafting (CABG).
- Robotic-Assisted LIMA harvesting¹
 - An alternative to open and Minimally Invasive techniques
 - enhanced vision, lower blood loss and lesser tissue trauma.
- Growing adoption of RA-CABG by emerging robotic centers
- Large randomized studies, long-term follow-up are needed²
- This study compares graft flow characteristics of robotic LIMA harvesting for RA-CABG with conventional open LIMA harvesting for conventional CABG(cCABG) using Transit Time Flow Measurement(TTFM).

METHODS:

- Retrospective single-center cohort study ; Feb 2024–June 2025
- Group A(n=70) : RA-CABG with robotic LIMA harvesting
- Group B(n=337) : cCABG with open LIMA harvesting
- TTFM parameters
 - Mean graft flow (MGF),Pulsatility index (PI)
 - Diastolic filling percentage (DF%)
- On follow up : readmission rates related to ischemia

COMPARATIVE ANALYSIS OF GRAFT PATENCY OF ROBOTIC VS OPEN INTERNAL MAMMARY ARTERY HARVESTING

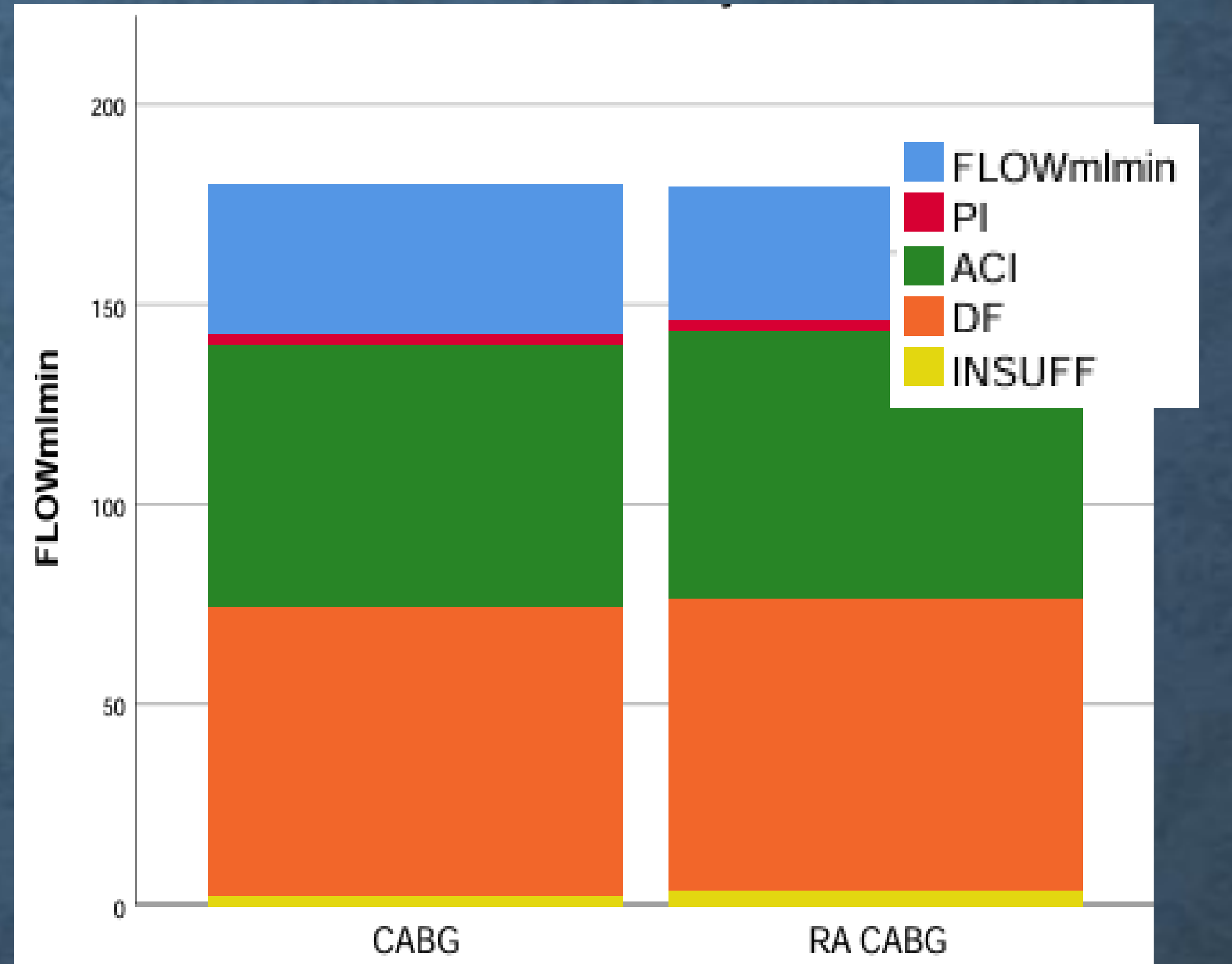
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RESULTS:

- No statistically significant difference in graft flow parameters
 - cCABG: Mean 37.6 ml/min (SD 20.2), median 31.0.
 - RA-CABG: Mean 33.5 ml/min (SD 18.7), median 26.5.
- Average PI (2.95 vs 3.03) and DF%(72.2% vs 72.9%), were similar within acceptable quality thresholds

- BLOOD LOSS: significantly lower in Robotic group
- ❑ Group A:
Port positioning:1 minimally soaked gauze
LIMA harvesting: median 1 gauze
- ❑ Group B: cCABG
After **sternotomy:** 2 surgical mops
LIMA harvesting: : median 9 gauze



GRAFT HARVESTING TIME

- Robotic group:
- 122 minutes in 1st patient
 - 35 minutes in the last patient.
- Readmission at 6 months related to ischemia:
- Group A : Nil
- Group B: 2

CONCLUSION:

- comparable TTFM assessment: Similar graft flow parameters
- Reduced blood loss
- Progressive improvement in harvesting efficiency.
- These findings support robotic LIMA harvesting as a safe and reliable alternative.

DISCUSSION

- TTFM findings in this study suggest preserved graft integrity with robotic harvesting
- Previous studies on Robotic assisted by angiographic findings
- Yang et al : IMA graft patency - 97.1% in TECAB and 96.4 % in MINICAB over 3 years³
 - Halkos et al: before discharge, LIMA patent 95.0%⁴
 - Curre et al: patency rate of LIMA to LAD was 93.4% at 8 years⁵
- Hwang B et al: **meta-analyses:** 96% at 5.2 years both RA-MIDCAB and TECAB⁶

Robotic LIMA harvest: Further studies are required to establish non-inferiority to conventional CABG²

Limitations:
Retrospective, Single center, short term study, limited data

Conflict of interest: Nil

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