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POSTER PRESENTATION

Impella versus Intra-Aortic Balloon Pump in Acute Myocardial Infarction-Complicated Cardiogenic Shock Among Patients With Chronic Kidney Disease: A Propensity Score-Matched National Analysis

Mohamed Hamouda Elkasaby[1], Ahmed Talkhan[2], Alaa Ayyadhah Alanazi[3], Mahmoud Hekal[4], Mazen Momtaz Shehata[5], Mariam Mahmoud Mohammed[6], Manar Khaled[4], Hussam Al Hennawi[7]

[1]Department of Medicine, Jacobs School of Medicine and Biomedical Sciences, University at Buffalo, State University of New York, Buffalo, NY, USA; [2]Faculty of Medicine, Mansoura University, Mansoura, Egypt; [3]College of Nursing, Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia; [4]Faculty of Medicine, Fayoum University, Fayoum, Egypt; [5]Faculty of Medicine, Modern University for Technology and Information, Cairo, Egypt; [6]Faculty of Pharmacy, Fayoum University, Fayoum, Egypt; [7]Department of Cardiology, Geisinger Wyoming Valley Medical Center, Wilkes-Barre, PA, USA

BACKGROUND

- CKD affects up to one third of patients with AMI-related cardiogenic shock (AMI-CS) and strongly predicts death.
- DanGer Shock showed benefit with Impella in selected STEMI-CS, with more bleeding and dialysis, but did not report CKD.
- Impella has never been compared with IABP in patients with CKD.

AIM

Compare Impella with IABP in AMI-CS with CKD across a national U.S. sample.

METHODS

- **NIS 2016-2022:** adults with AMI-CS and CKD on one device.
- **1:1 propensity matching** (all SMD < 0.10).
- **Co-primary:** in-hospital death; composite of death or major complication.

255,614 adult cardiogenic shock
87,354 AMI-CS
19,981 with CKD
3,390 one device, after exclusions
1,099 pairs 1:1 matched

KEY RESULTS

50.0% vs 43.1%
Mortality
OR 1.32 (1.12-1.56)

60.4% vs 52.0%
Composite
OR 1.41 (1.19-1.67)

16.2% vs 12.0%
New dialysis*
OR 1.41 (1.05-1.90)

24% → 45%
Impella share
2016 → 2022

*Impella vs IABP, 1,099 matched pairs. *Non-dialysis CKD.*

Figure 1. In-hospital outcomes, Impella vs IABP

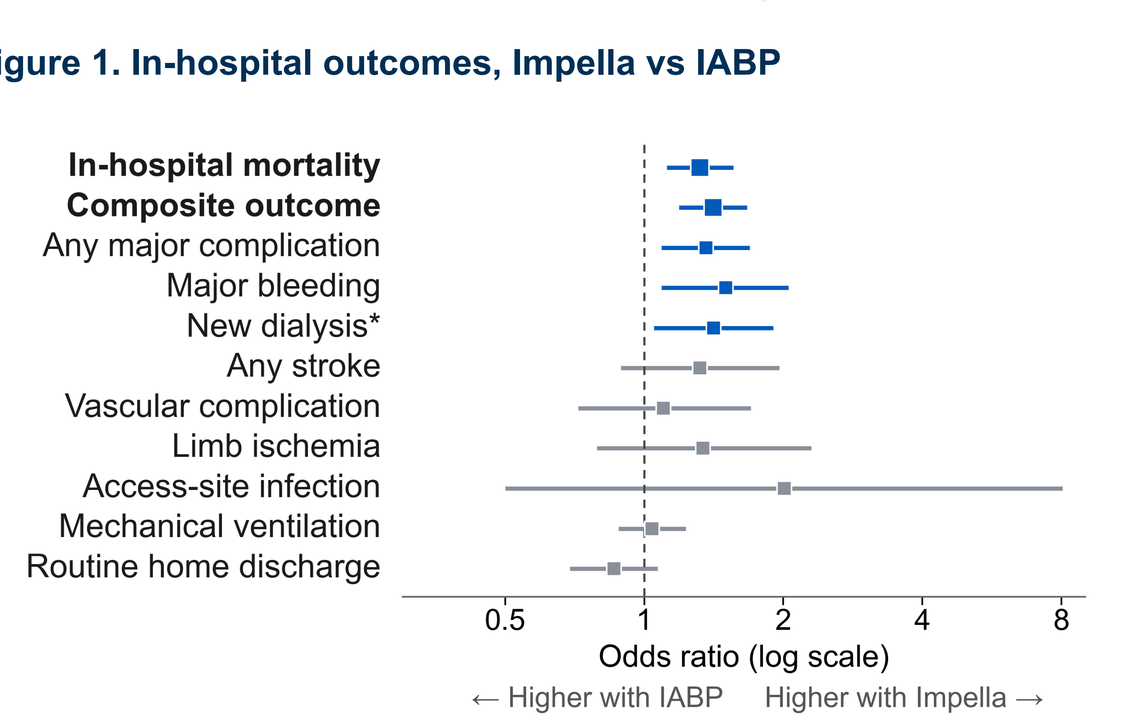


Figure 2. Event rates (%)

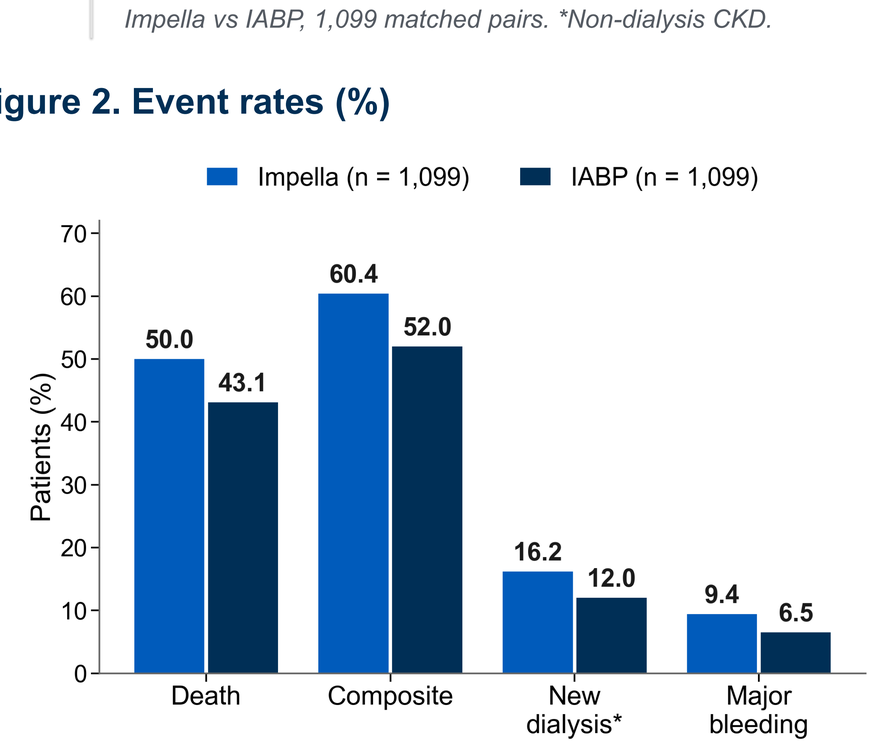


Figure 3. Mortality by subgroup (interaction by CKD category P = 0.037)

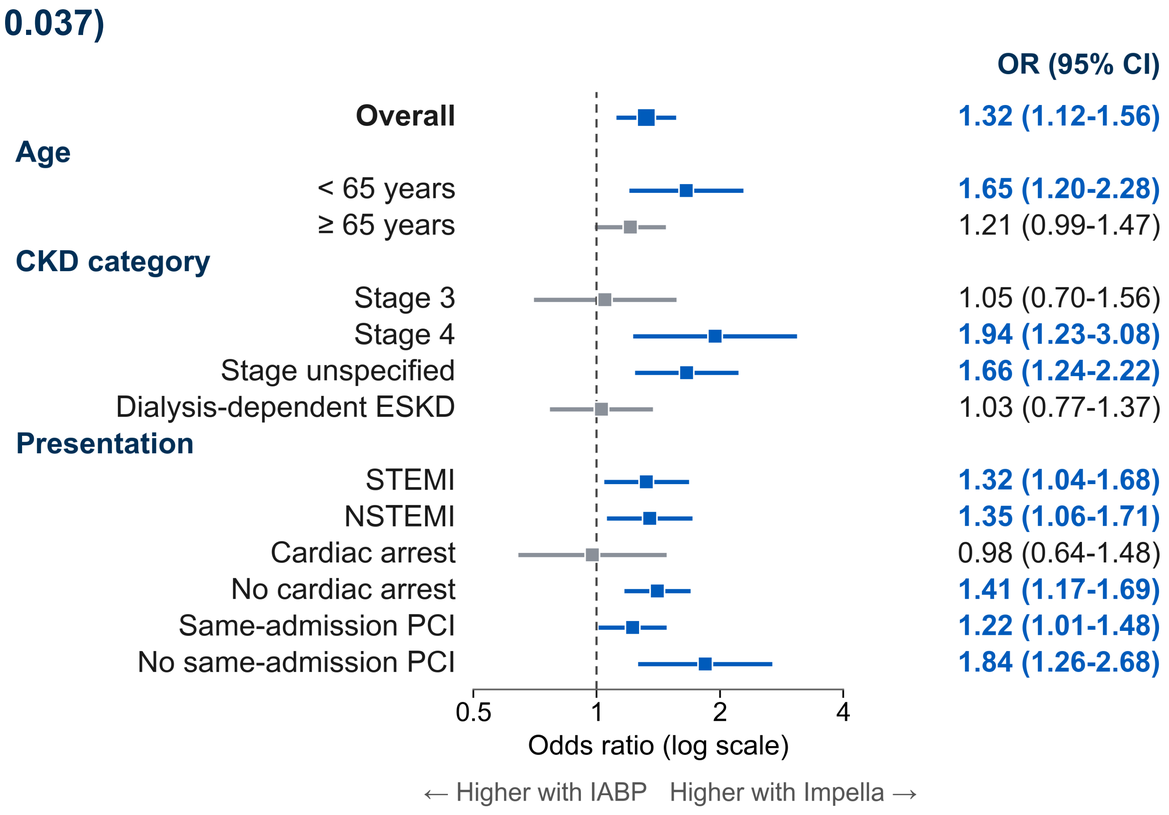
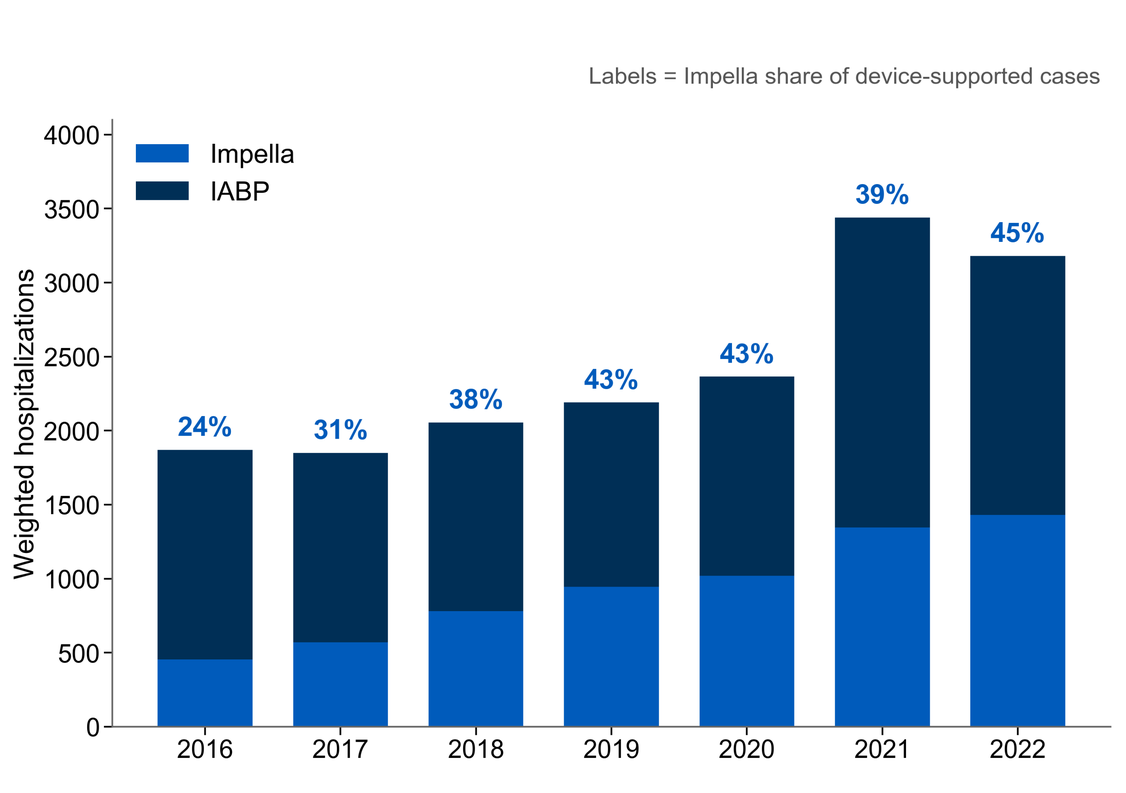


Figure 4. National device use, 2016-2022



CONCLUSIONS

- Impella was associated with higher in-hospital mortality, new dialysis and major bleeding than IABP in CKD patients with AMI-CS.
- The mortality excess was absent in dialysis-dependent patients.
- Impella use nearly doubled; device choice in the cardiorenal patient warrants caution and a randomized trial that pre-specifies CKD.

References Thiele H, NEJM 2012;367:1287. Møller JE, NEJM 2024;390:1382. Dhruva SS, JAMA 2020;323:734. Saito Y, JAHA 2023;12:e030819. Khera R, JAMA 2017;318:2011. Limitations: administrative data without lactate, ejection fraction or SCAI stage; index-admission outcomes only.

Mohamed Hamouda Elkasaby, MD · mohamedhamouda2182000@gmail.com · Department of Medicine, University at Buffalo