

Clinical Takeaways

- **Risk Awareness:** Advanced CKD (G4/5) independently predicts higher 30-day MACE after endovascular PAD revascularization.
- **Pre-op optimization** to reduce peri-op risk. Correct anemia, manage diabetes, control blood pressure
- **Multidisciplinary teams** for tailored care of high-risk patients. Coordinate cardio-renal-vascular teams

Introduction

- CKD and PAD frequently coexist, as high-risk cardio-reno-metabolic phenotype
- Endovascular lower-extremity revascularization (Endo-LER) is preferred for PAD
- **Objective:** Evaluate how CKD severity affects 30-day major adverse cardiac events (MACE) after LER for PAD.

Methods

- **Design:** Retrospective cohort, NSQIP data (2013–2022).
- **Population:** Adults, undergoing Endo-LER.
- **CKD stages:** Preop eGFR (CKD-EPI 2021) G1 ≥ 90 , G2 60–89, G3 30–59, G4 15–29, G5 < 15 or dialysis.
- **Outcome:** 30-day MACE (MI, CVA, death).
- **Analysis:** Multivariable logistic regression adjusted for age, sex, race, ASA class, admission status, symptoms, hematocrit.

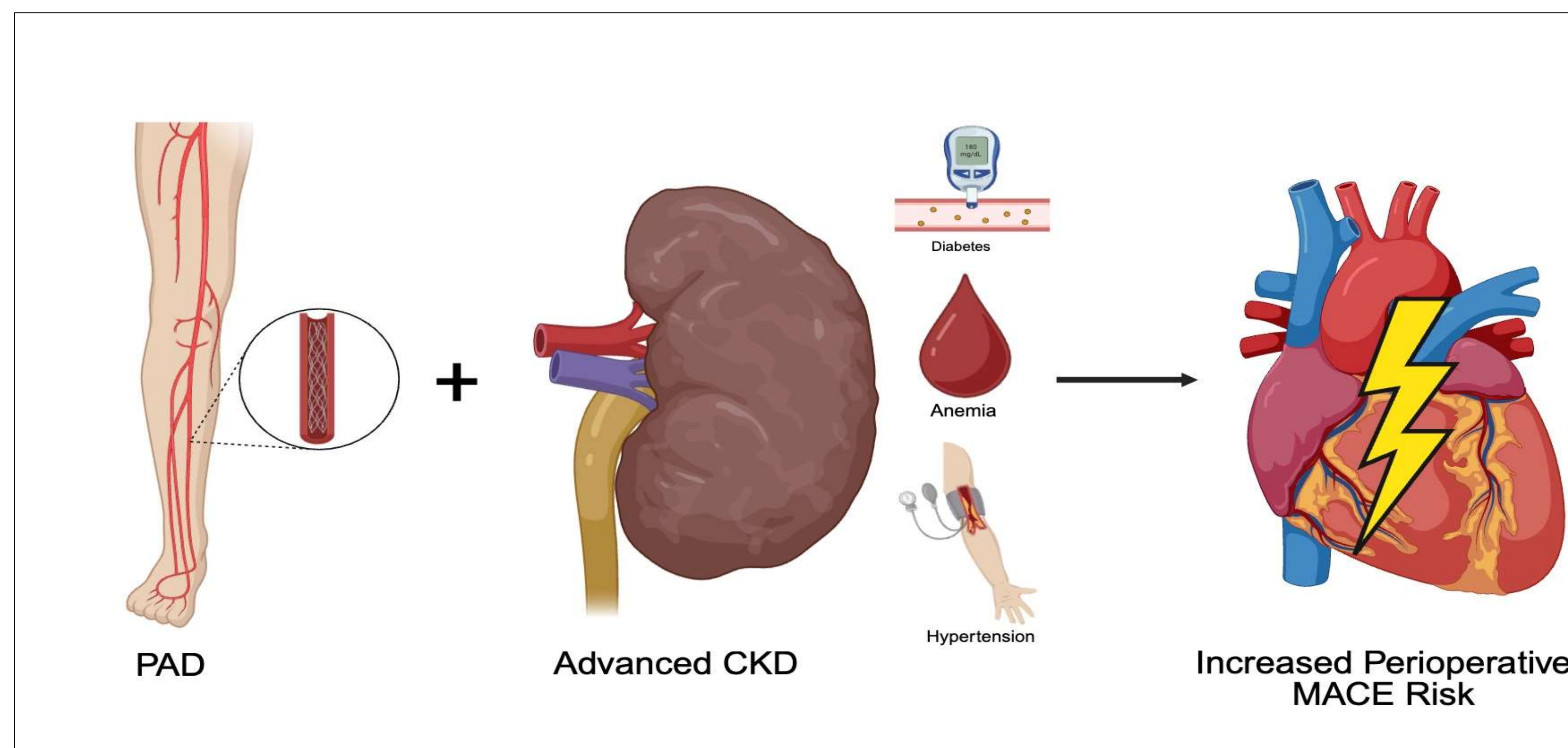
Stage-Specific Impact of Chronic Kidney Disease on 30-Day Cardiovascular Outcomes After Endovascular Revascularization for Peripheral Artery Disease

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Advanced CKD (G4–G5) independently confers **2-3x higher short-term MACE risk** following endovascular PAD revascularization.



Results

- **Rising severity with CKD:** In 22,424 PAD patients (64.6% ≥ 65 ; 36.1% women), comorbidities and procedural complexity increased by stage (e.g., critical limb ischemia 38.5% \rightarrow 74.9%; tibial interventions 21.0% \rightarrow 38.9%).
- **30-day outcomes:** MACE 2.5% overall, increasing from 1.5% (G1) to 6.0% (G5, $p < 0.001$); adjusted risk vs G1: OR 2.30 (G4) and 3.15 (G5), with G2–G3 not significant.

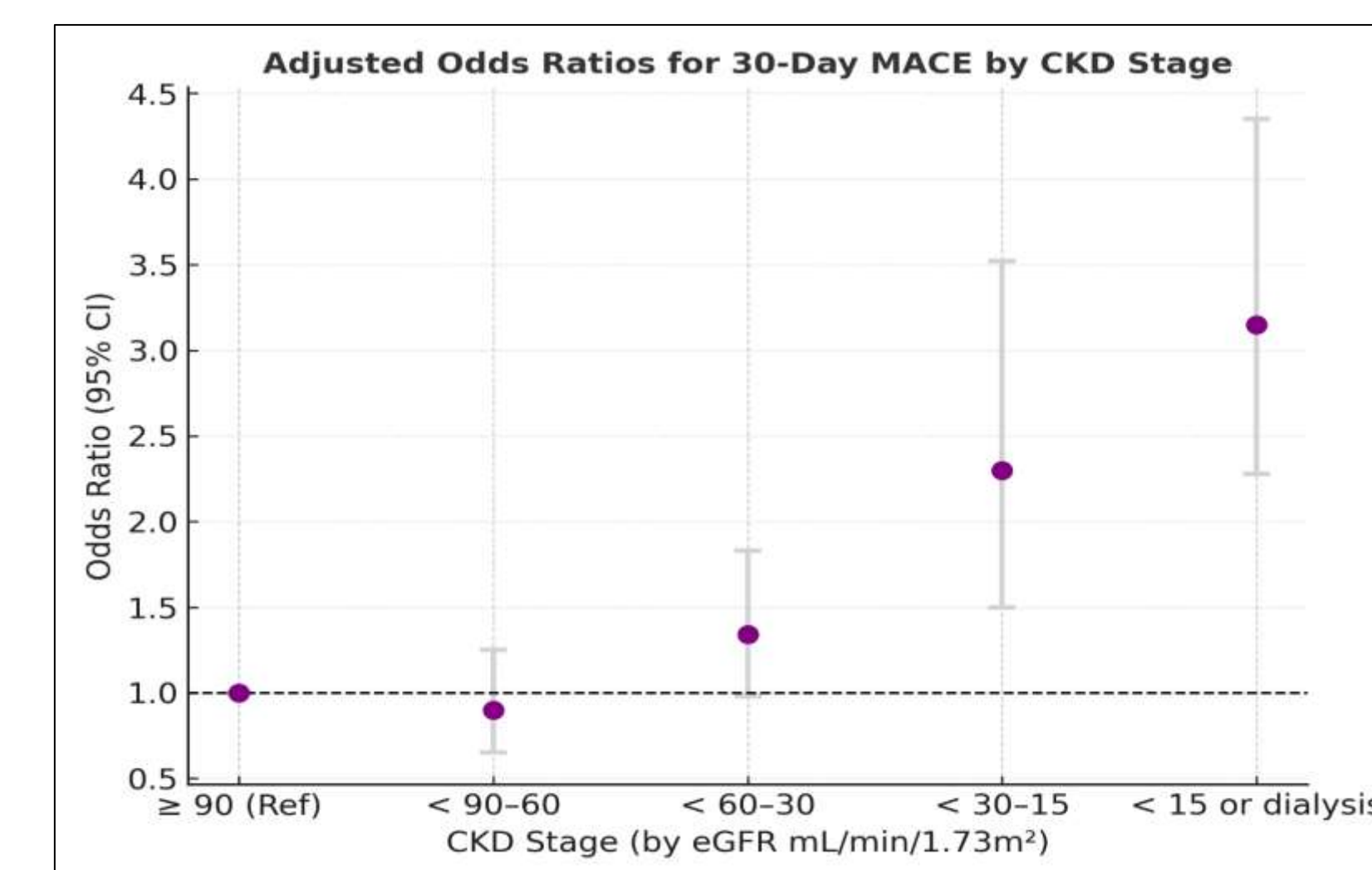


Figure 1. Adjusted odds ratio for 30-day MACE by CKD stages. Additional adjustment for age, sex, race/ethnicity, ASA class, admission status, symptom status (asymptomatic, rest pain, tissue loss), and preoperative hematocrit.

Discussion

- **Strengths:** large, nationwide data, CKD staging
- **Limitations:** residual confounding, no medication data
- **Mechanistic drivers:** uremic cardiomyopathy, endothelial dysfunction, vascular calcification, anemia
- Renal function, especially late G stages independently associated with higher MACE risk post Endo-LEE
- Future studies needed to evaluate targeted preoperative optimization strategies to mitigate this elevated risk.