Racial and Ethnic Disparities in Revascularization Options for Chronic Limb-Threatening Ischemia

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Background

- CLTI (non-healing wounds or ischemic rest pain) has a 1-2% prevalence amongst American adults
- One-year major amputation rates in CLTI patients are in the 15-20% range; 5-year mortality exceeds 50%
- Disparities in limb salvage outcomes amongst non-white patients with CLTI are well established, multi-factorial, and not explained by socio-economic factors alone

Objective

- To compare anatomic patterns of disease and limb-salvage outcomes among racial/ethnic minorities undergoing first-time revascularization for CLTI

Methods

- We identified all patients with CLTI underdoing first-time elective or urgent interventions from the VQI Peripheral Vascular Intervention (PVI; N=56,673) and Infrainguinal (INFRA; N=18,672) bypass registries (2012-2023)
- Demographic, comorbidity, intra-operative, and post-operative data were collected
- Exposure variables: White vs. Non-White Racial and ethnic groups
- Primary outcomes: anatomic levels of revascularization, one-year major amputation rates, and amputation-free survival (AFS) rates

Results

Table 1: Characteristics of Patient Cohort

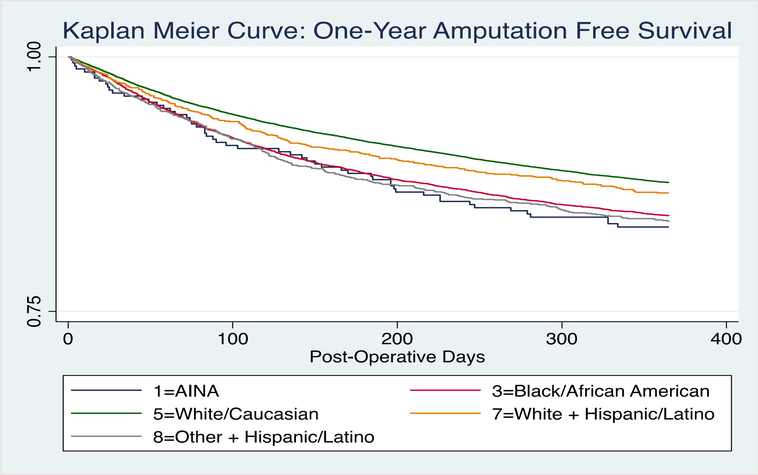
Race/Ethnicity Group	American Indian/Alaska Native Race	Black/African American Race	White Race (Non Hispanic/Latinx Ethnicity)	White Race (Hispanic/Latinx Ethnicity)	Other Race (Hispanic/Latinx Ethnicity	P-Value
PVI=56,673 INFRA=18,672 Total=75,345						
Total Number (%)	439 (0.58)	15,124 (20.1)	54,245 (72.0)	2,620 (3.5)	2,204 (2.9)	N/A
Age (Mean) (SD)	67.4 (11.5)	66.3 (11.8)	70.2 (11.6)	67.9 (12.2)	66.9 (12.2)	<0.001
Gender (% Male)	60.6	54.8	63.2	62.7	59.5	<0.001
Hypertension (%)	87.9	93.5	88.6	89.4	90.8	<0.001
Diabetes (%)	84.5	70.1	60.7	83.7	84.4	<0.001
COPD (%)	18	19.5	27.5	15.3	13.5	<0.001
CHF (%)	24.8	26.9	25.6	24.3	24.1	0.003
CAD (%)	29.9	26.9	34.3	28.6	31.7	<0.001
ESRD on Dialysis (%)	20.1	23.3	9.2	20.6	21.5	<0.001
Current Smoker (%)	20.7	32.6	31.7	18.9	17.9	<0.001
Tissue Loss (as operative indication) (%)	81.3	73.1	73	78.7	80.3	<0.001

Table 2: Risk-adjusted Outcomes from Logistic Regression Model

Race/Ethnicity Group	American Indian/Alaska Native (N=439)	BlackAfrican-American (N=15,124)	White + Hispanic/Latinx (N=2,620)	Other Hispanic/Latinx (N=2,204)
PVI				
Any tibial target	2.5 (1.90-3.1) (*)	1.6 (1.5-1.6) (*)	1.9 (1.7-2.1) (*)	1.8 (1.6-2.0) (*)
Any pedal target	2.9 (1.9-4.3) (*)	1.0 (0.9-1.2) P=0.622	1.6 (1.3-2.0) (*)	1.4 (1.1-1.8) P=0.008
>1 artery treated	1.4 (1.1-1.7) P=0.002	1.2 (1.1-1.2) (*)	1.4 (1.3-1.5) (*)	1.2 (1.1-1.3) (*)
Unsatisfactory technical result	1.4 (0.97-1.9) P=0.067	1.1 (1.0-1.2) P=0.024	1.1 (0.97-1.3) P=0.097	0.9 (0.8-1.1) P=0.434
INFRA				
Tibial target	1.3 (0.8-2.1) P=0.400	1.4 (1.3-1.5) (*)	1.5 (1.2-1.8) (*)	1.5 (1.2-1.8) P=0.001
Pedal target	2.0 (0.8-4.7) P=0.129	1.5 (1.3-1.8) (*)	1.4 (0.98-2.0) P=0.063	1.7 (1.2-2.5) P=0.006
Vein graft?	1.3 (0.7-2.1) P=0.408	1.2 (1.1-1.3) (*)	0.9 (0.7-1.1) P=0.235	1.0 (0.8-1.2) P=0.898
Return to OR (same admission)	1.4 (0.7-2.7) P=0.336	1.5 (1.4-1.7) (*)	1.2 (0.96-1.6) P=0.097	1.5 (1.1-1.9 P=0.011
				*= P<0.0001

*White/Non-Hispanic or Latinx (reference group)= 1.0

Results



Conclusions

- Non-white patients undergoing revascularization for CLTI are more likely to require tibial or pedal interventions
- Native American, Black, and Hispanic/Latinx patients have increased one-year major amputation rates
- Further research into specific risk factors for each minority group – and development of QI techniques for mitigating these risk factors – is needed

References

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