Analysis of Racial Differences in Multi-Arterial Coronary Artery Bypass Grafting

Phoebe Jollay-Castelblanco
Cardiovascular Sciences
East Carolina University
Brody School of Medicine
Greenville, North Carolina 27858
JollayCastelblanc22@students.ecu.edu

Phoebe N Jollay-Castelblanco, Benjamin C Degner, Linda C Kindell, Brandon S Peine, Shahab A Akhter, Michael J Bates

INTRODUCTION

Coronary Artery Bypass Grafting (CABG) is employed when coronary arteries are critically blocked to treat or prevent acute myocardial infarctions and heart failure. CABG procedures can utilize arterial or venous grafts, most commonly the left internal mammary artery and the greater saphenous vein.

OBJECTIVE

To assess racial differences in utilization of multiple arterial grafts for patients undergoing primary CABG between African Americans (AA) and Whites (W).

MATERIALS & METHODS

AA and W patients who underwent CABG at our institution from 2017-2022 were included in a retrospective analysis of our Society of Thoracic Surgeons Adult Cardiac Surgery Database. Chi-Square and Fisher's exact tests were performed with a *p* value less than .05 considered statistically significant.

ACKNOWLEDGEMENTS

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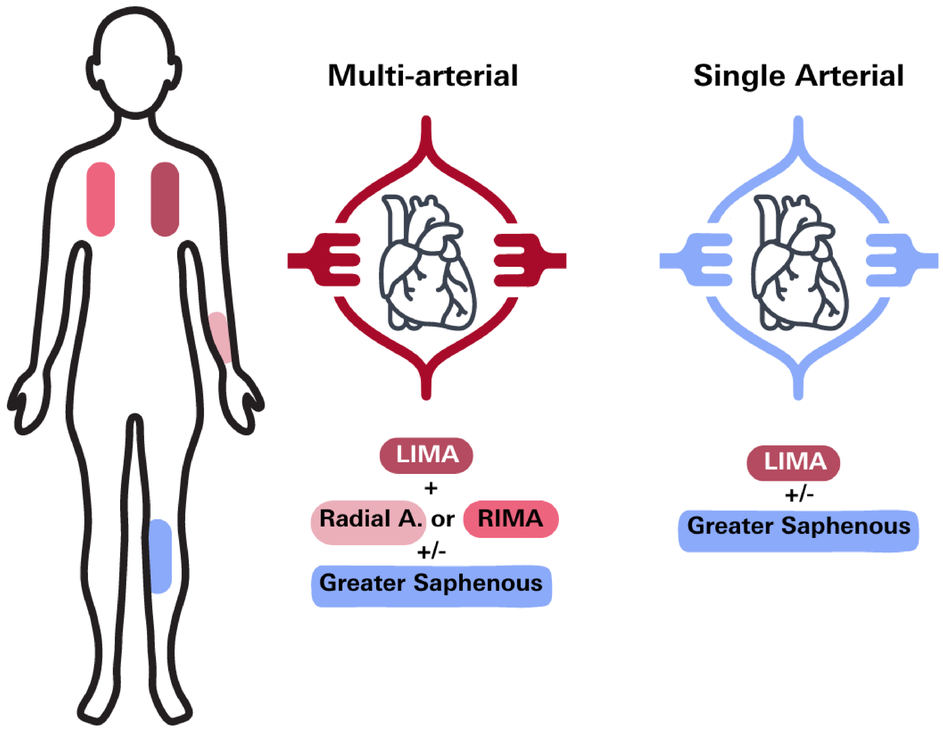
FUTURE DIRECTIONS

Exploration of Social Determinants of Health beyond race would potentially demonstrate more comprehensive relationships between the studied variables. This expansion of approach would be especially useful in consideration of additional surgical procedures beyond CABG.

RESULTS



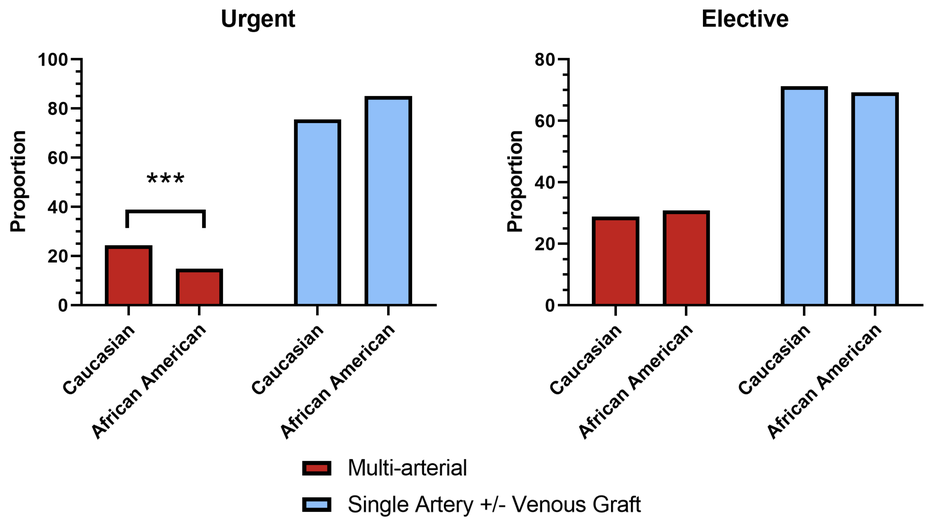
There were 1,934 AA and W patients who underwent CABG from August 2017-July 2022; 442 AA and 1,492 W. The majority of cases utilized single arterial grafting with the left internal mammary artery and greater saphenous vein grafts (79.9% AA and 74% W). Overall, 20.1% of AAs and 26% of Ws received multiple arterial grafts with RIMA and/or radial artery (p=0.013).

Of the patients undergoing urgent inpatient CABG, more W patients (24.4%) received multiple arterial grafts than AA patients (14.9%) (p=0.001). However, of the patients undergoing elective CABG, there was no difference in the proportion of W patients (28.8%) who received multiple arterial grafts in comparison to AA patients (30.8%) (p=0.642).

Patient Demographics

	Caucasian	African American	p-value
Total (n)	1492	442	
Multi-arterial	387	89	0.013
BMI ≥30	714	229	0.144
Age ≥65	833	225	0.068
MACE*	45	12	0.742
Operative Mortality	15	6	0.530
Readmission (30 days)	163	59	0.407

Multi-arterial graft usage stratified by race by case urgency



There were no statistically significant differences within the patient population between race and the following: BMI (p=0.144), age ≥65 (p=0.068), MACE (p=0.742), operative mortality (p=0.53), readmission (p=0.407), and case status (p=0.375).

CONCLUSIONS

There is increasing evidence that multi-arterial CABG has improved graft patency and better long-term survival than traditional single arterial CABG. However, in this study population, the utilization of multiple arterial grafts during first-time CABG procedures was less in AAs compared to Ws overall. Additionally, there was decreased multi-arterial graft utilization during urgent CABG for AAs compared to Ws. These trends suggest that further analysis of a national database would be beneficial in better characterizing racial disparities in multi-arterial coronary artery bypass grafting.