Contemporary Surgical Management of Ischemic Heart Disease

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University of Nebraska Medical Center

Nebraska Medicine

Disclosures

None

Ischemic Heart Disease in 2023

ISCHEMIA Trial

The NEW ENGLAND JOURNAL of MEDICINE

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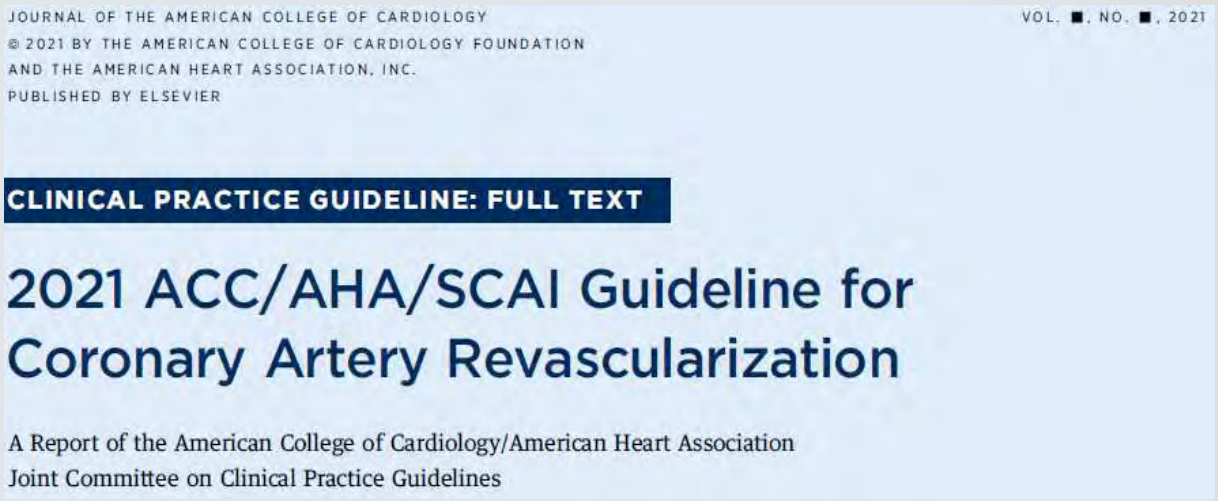
Initial Invasive or Conservative Strategy for Stable Coronary Disease

D.J. Maron, J.S. Hochman, H.R. Reynolds, S. Bangalore, S.M. O'Brien, W.E. Boden, B.R. Chaitman, R. Senior, J. López-Sendón, K.P. Alexander, R.D. Lopes, L.J. Shaw, J.S. Berger, J.D. Newman, M.S. Sidhu, S.G. Goodman, W. Ruzyllo, G. Gosselin, A.P. Maggioni, H.D. White, B. Bhargava, J.K. Min, G.B.J. Mancini, D.S. Berman, M.H. Picard, R.Y. Kwong, Z.A. Ali, D.B. Mark, J.A. Spertus, M.N. Krishnan, A. Elghamaz, N. Moorthy, W.A. Hueb, M. Demkow, K. Mavromatis, O. Bockeria, J. Peteiro, T.D. Miller, H. Szwed, R. Doerr, M. Keltai, J.B. Selvanayagam, P.G. Steg, C. Held, S. Kohsaka, S. Mavromichalis, R. Kirby, N.O. Jeffries, F.E. Harrell, Jr., F.W. Rockhold, S. Broderick, T.B. Ferguson, Jr., D.O. Williams, R.A. Harrington, G.W. Stone, and Y. Rosenberg, for the ISCHEMIA Research Group*

Ischemic Heart Disease in 2023



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VOL. ■, NO. ■, 2021

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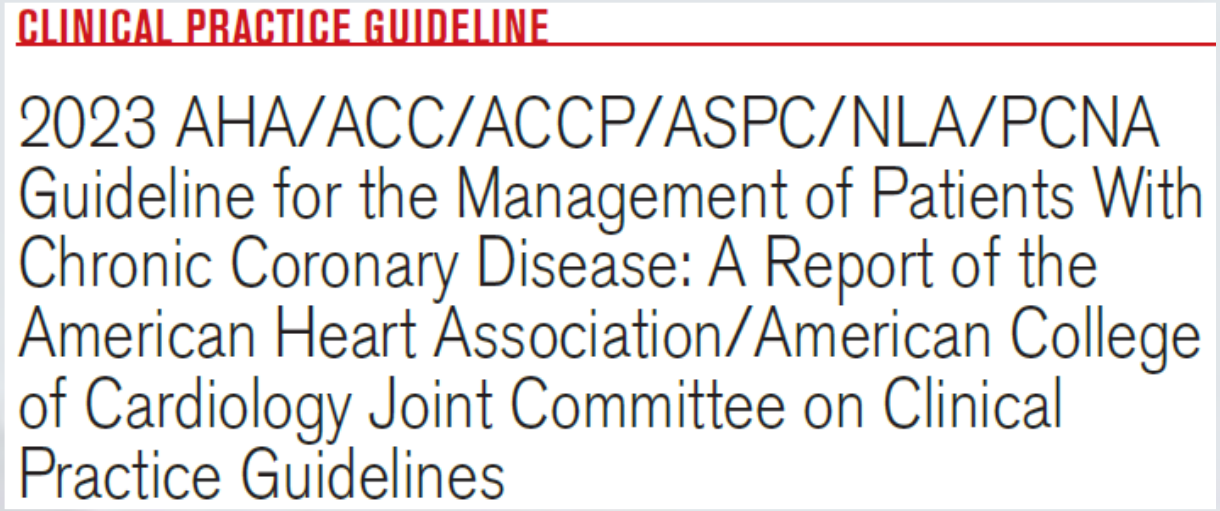
CLINICAL PRACTICE GUIDELINE: FULL TEXT

2021 ACC/AHA/SCAI Guideline for Coronary Artery Revascularization

A Report of the American College of Cardiology/American Heart Association
Joint Committee on Clinical Practice Guidelines



CLINICAL PRACTICE GUIDELINE

2023 AHA/ACC/ACCP/ASPC/NLA/PCNA Guideline for the Management of Patients With Chronic Coronary Disease: A Report of the American Heart Association/American College of Cardiology Joint Committee on Clinical Practice Guidelines

Surgical Management of Ischemic Heart Disease in 2024

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What is the latest and greatest in Coronary Artery Bypass Grafting (CABG) in 2024?

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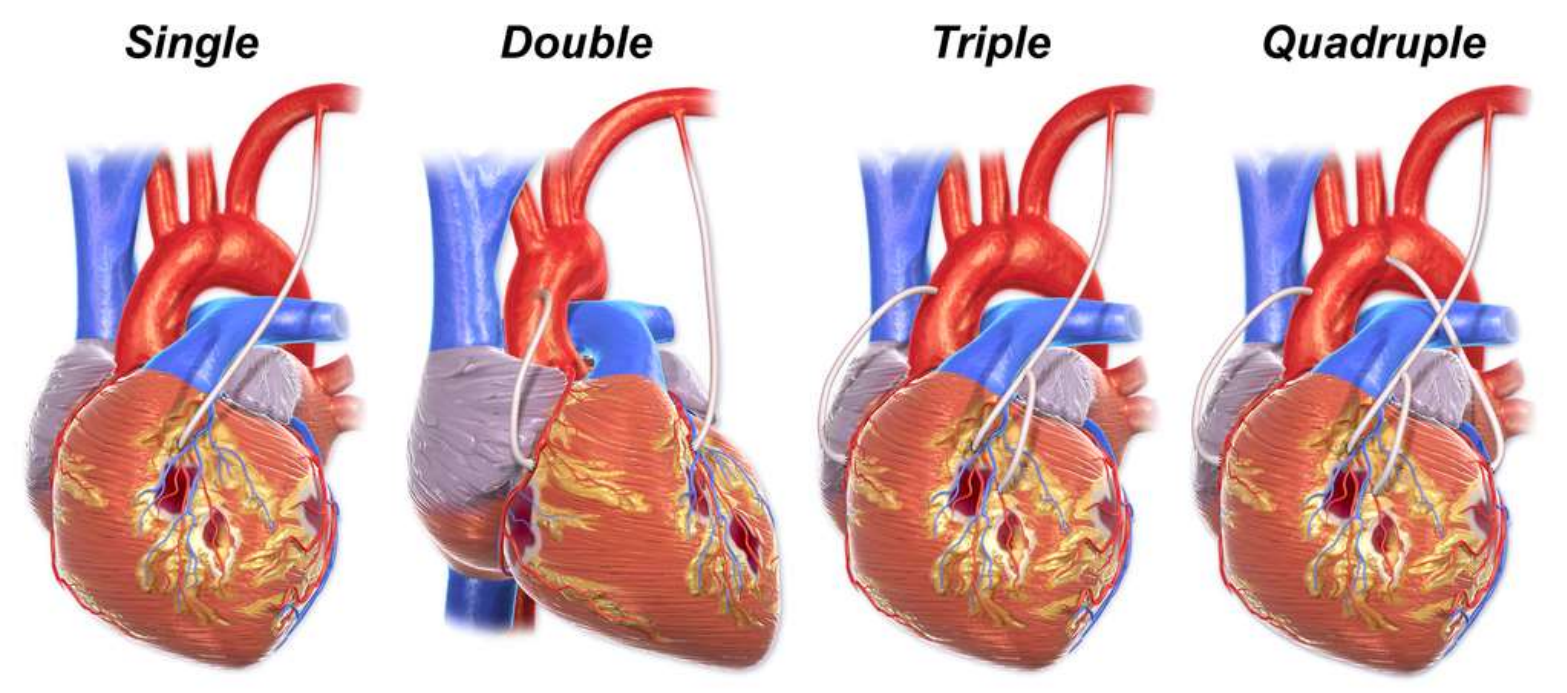

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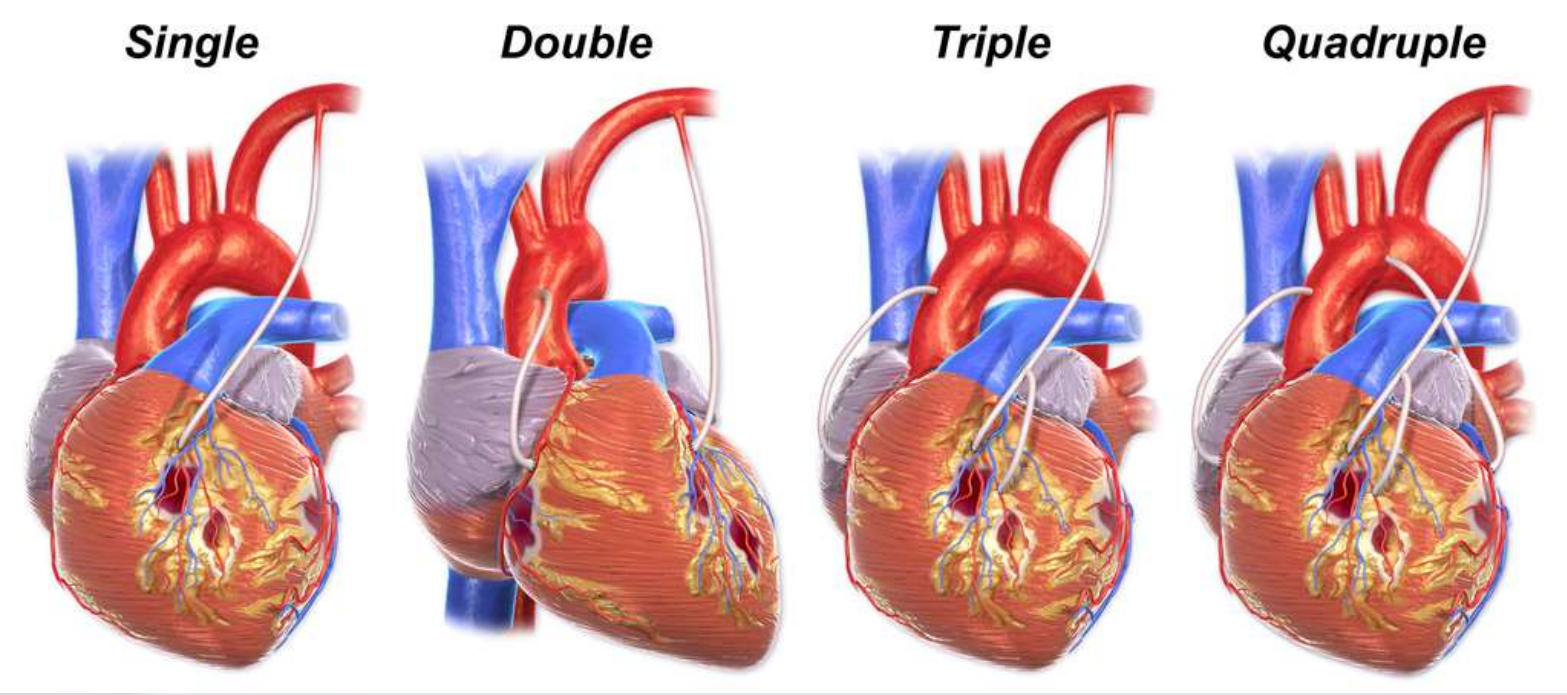
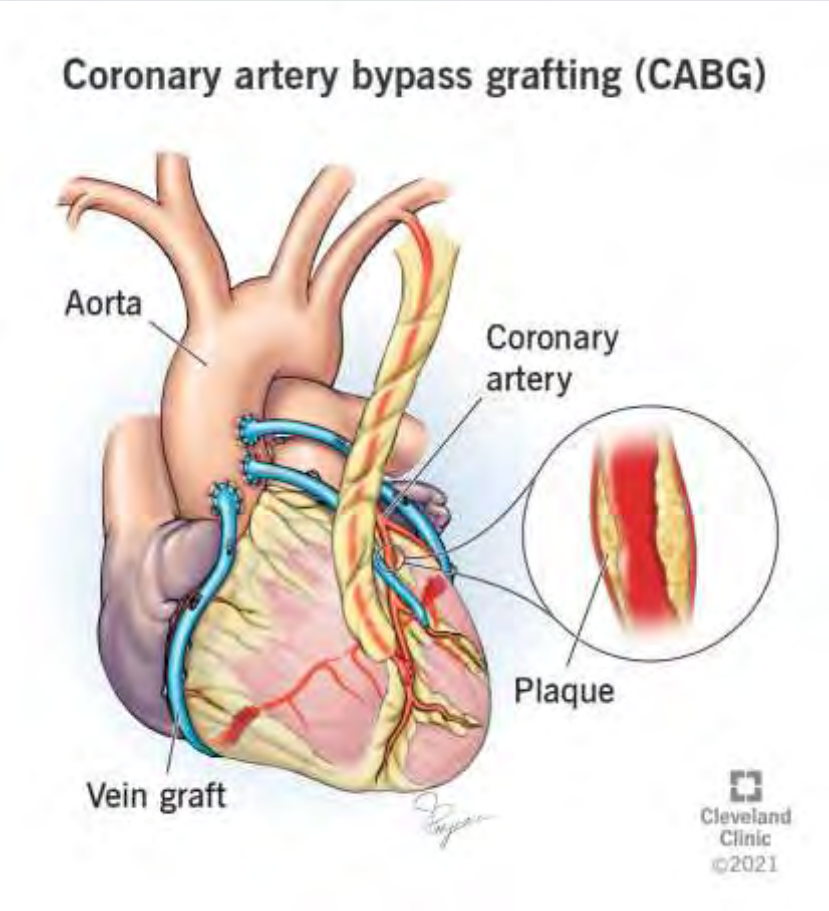
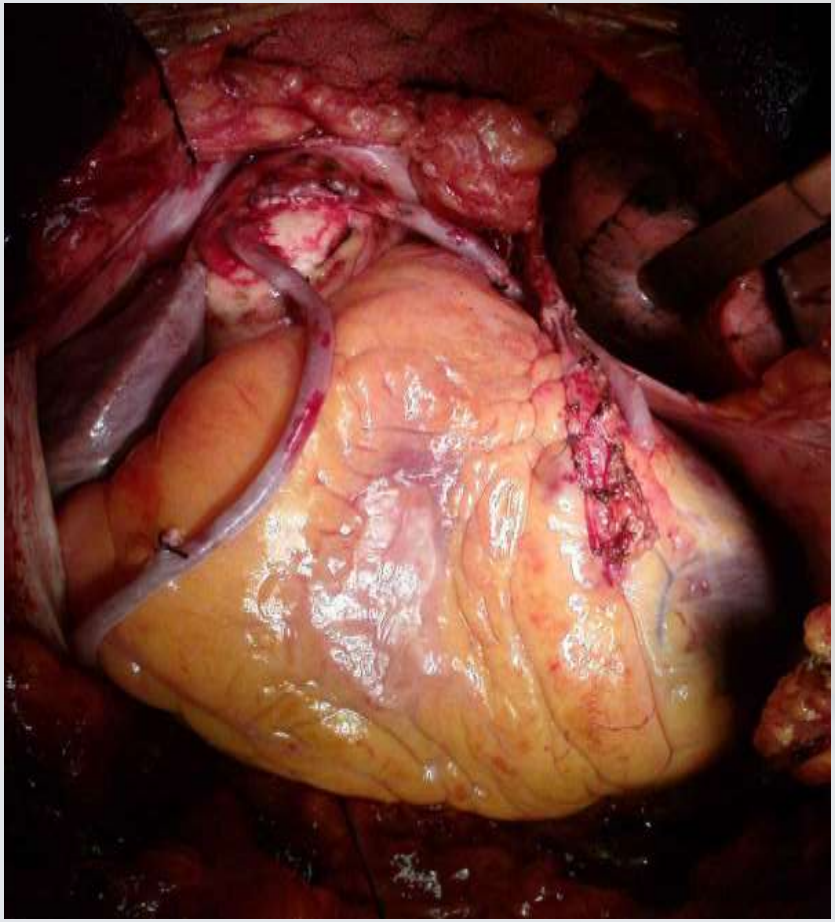


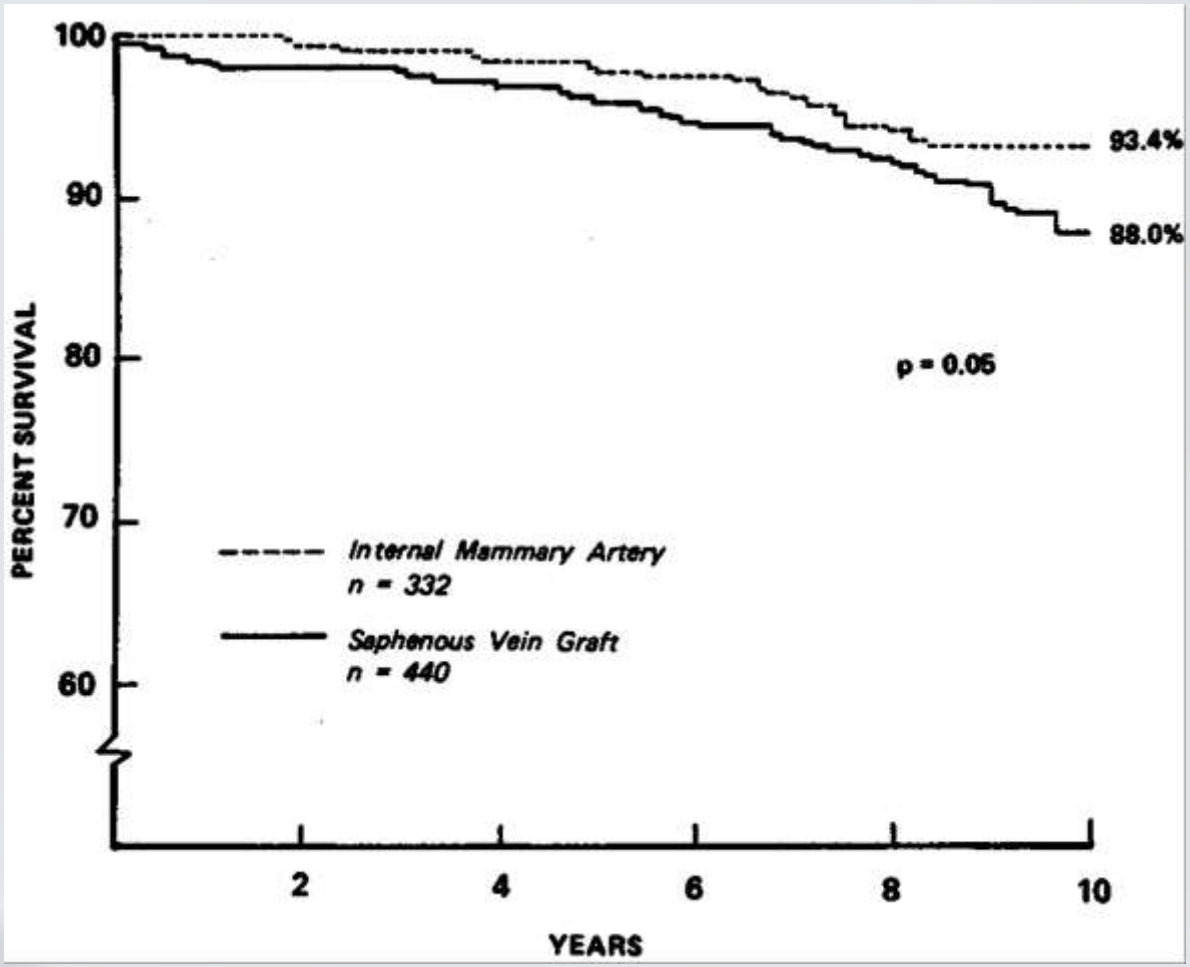
Multi-Arterial Grafting

Coronary Artery Bypass Grafting (CABG)





1986 NEJM - Established Left Internal Mammary Artery as conduit of choice

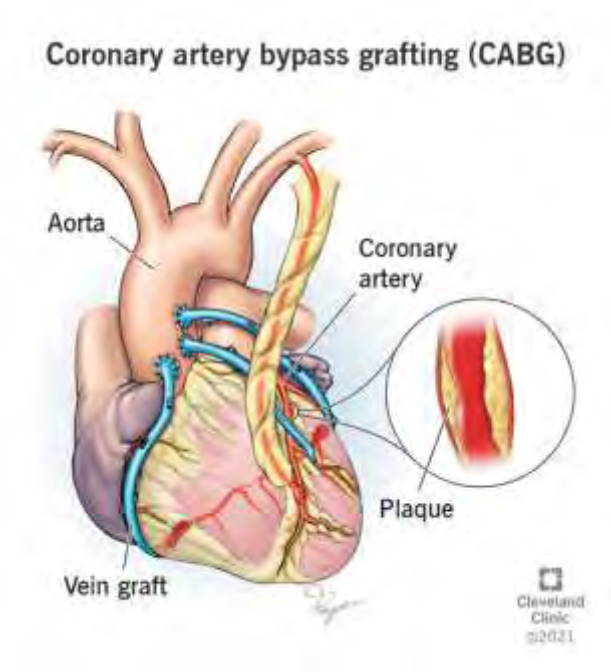


Loop FD, Lytle BW, Cosgrove DM, et al. Influence of the internal-mammary-artery graft on 10-year survival and other cardiac events. N Engl J Med 1986; 314: 1–6.

CABG Gold Standard

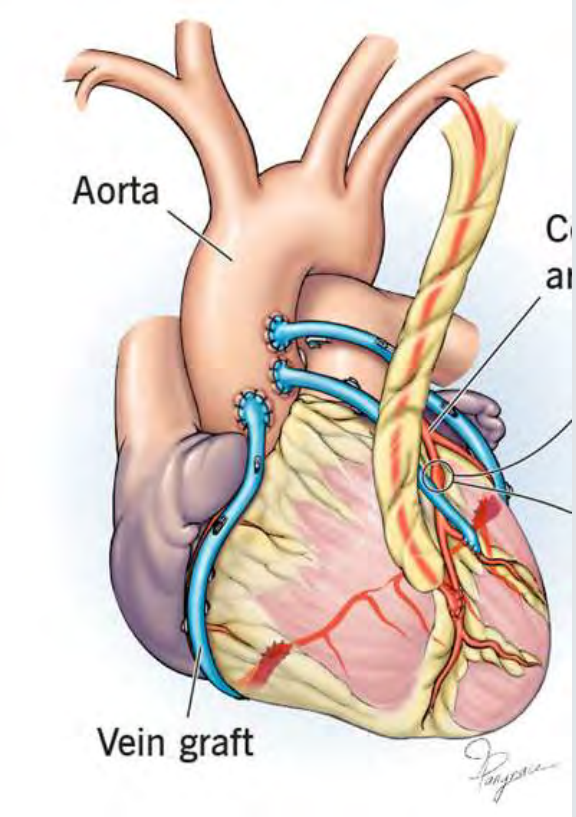
Left internal mammary artery (LIMA) to left anterior descending artery (LAD)

Saphenous vein grafts to other targets



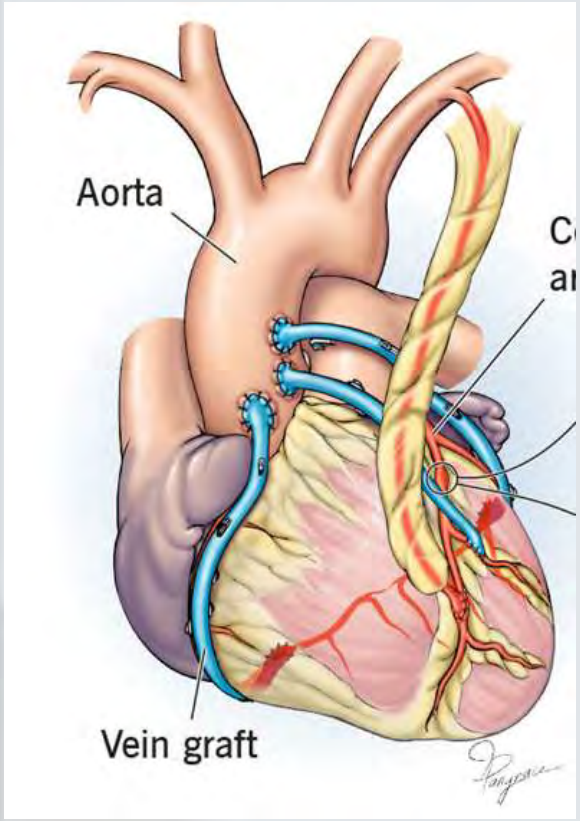
If one artery is good, are two arteries better?

Multi-Arterial Grafting (MAG)



Single Arterial Grafting (SAG)

Multi-Arterial Grafting (MAG)



Single Arterial Grafting
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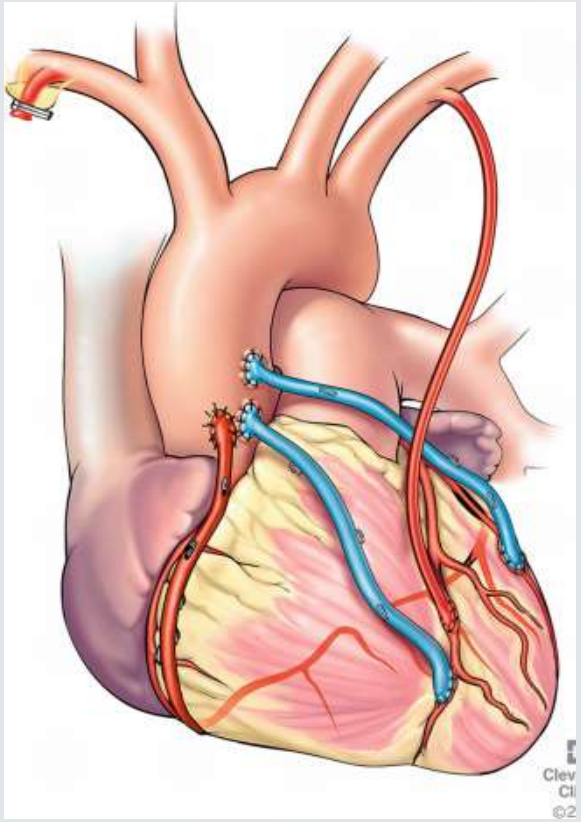

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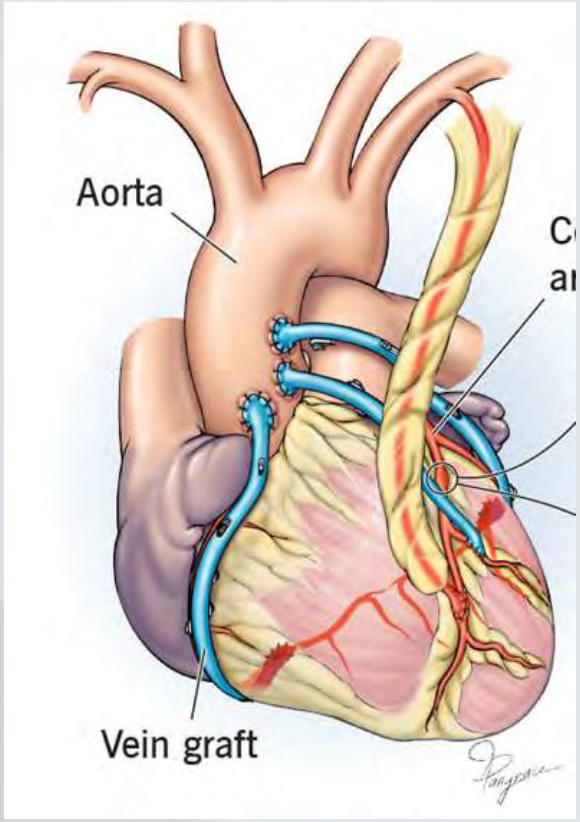

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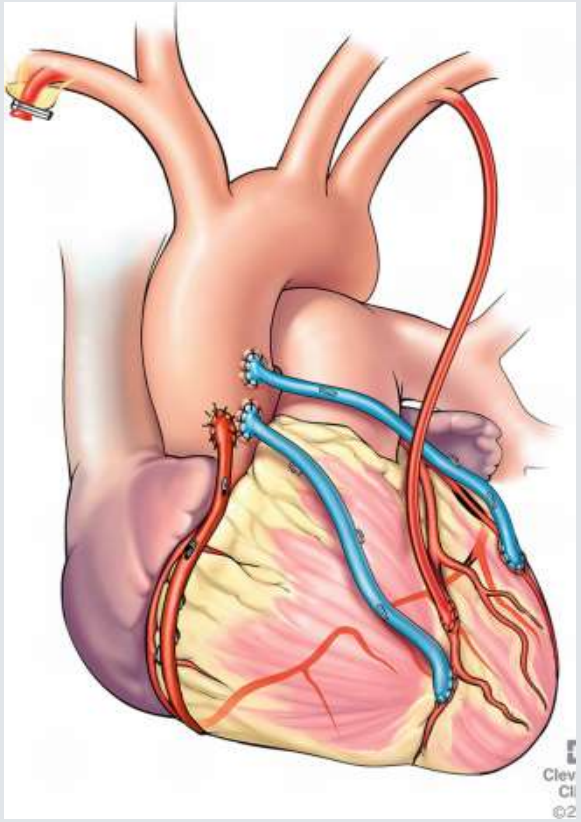

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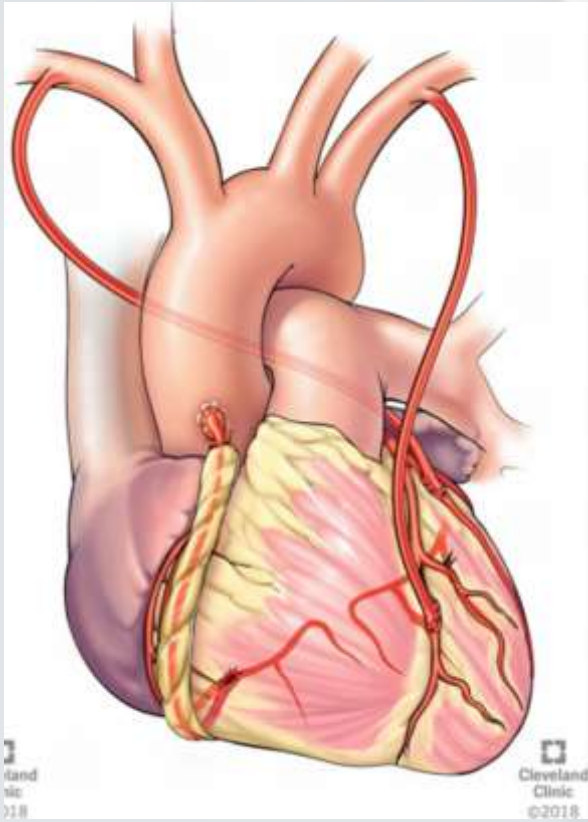


Total Arterial Grafting (TAG)

If one artery is good, are two arteries better?

Arterial Revascularization Trial

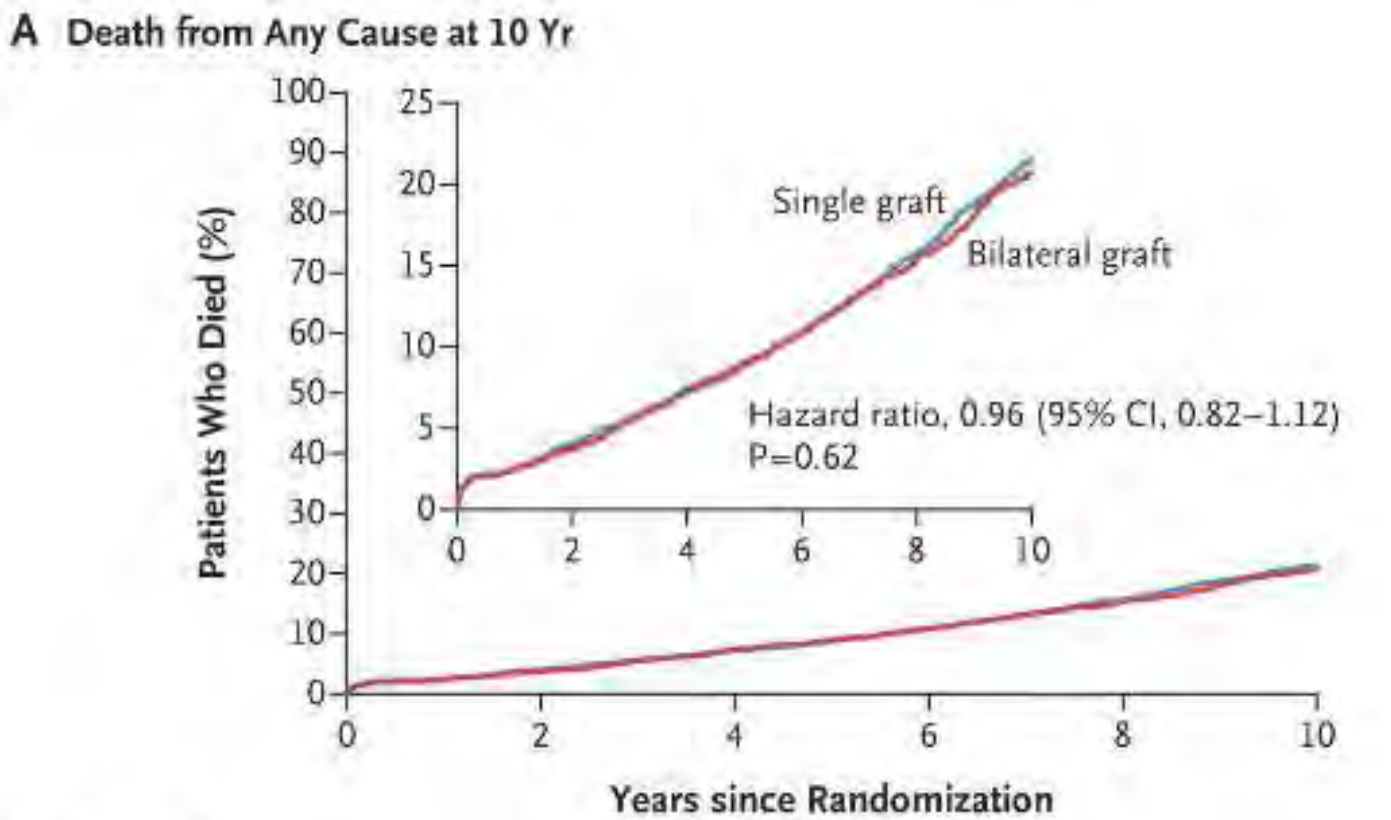
The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Bilateral versus Single Internal-Thoracic-Artery Grafts at 10 Years

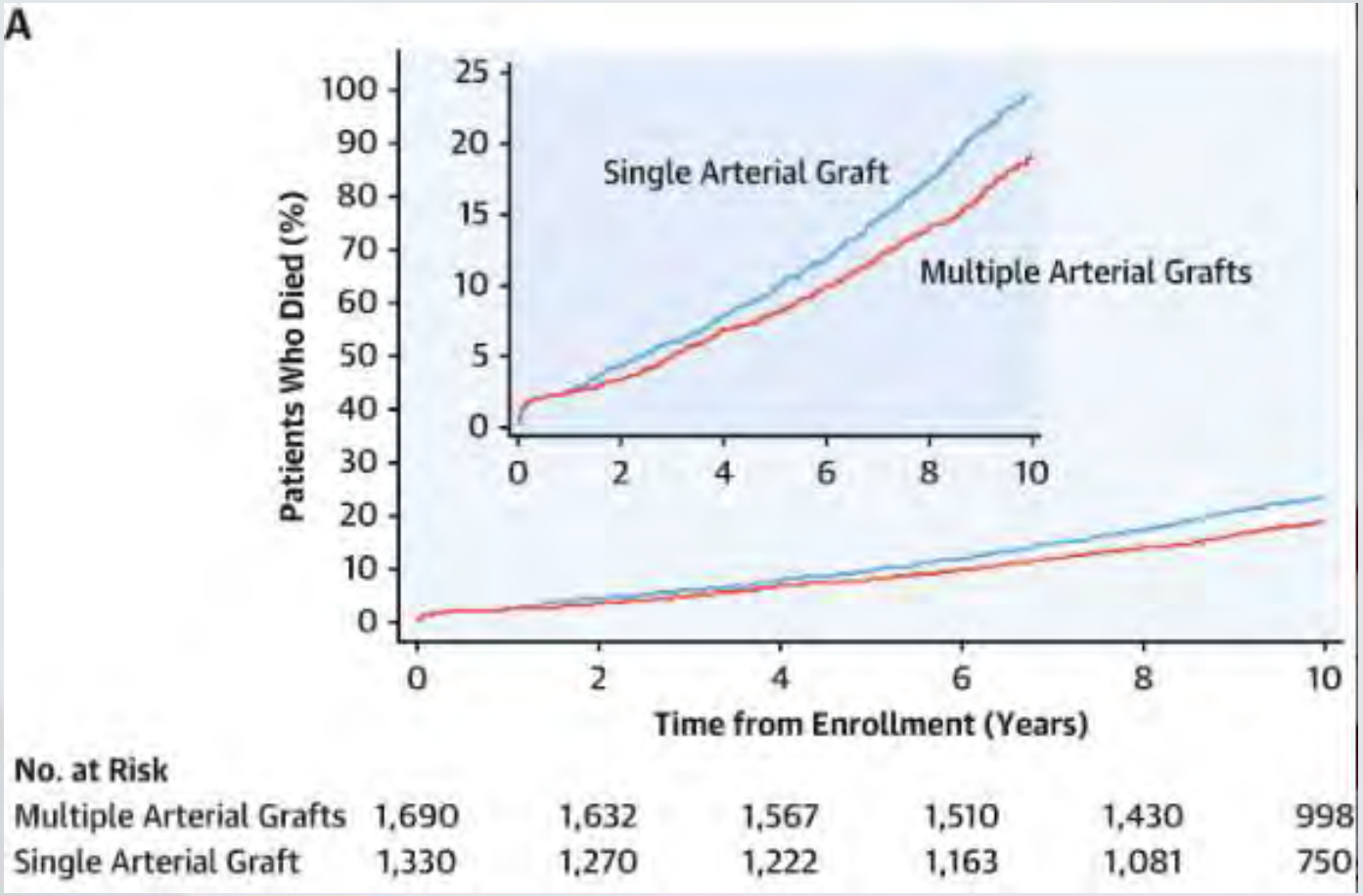
David P. Taggart, M.D., Ph.D., Umberto Benedetto, M.D., Ph.D., Stephen Gerry, M.Sc., Douglas G. Altman, D.Sc.,* Alastair M. Gray, Ph.D., Belinda Lees, Ph.D., Mario Gaudino, M.D., Vipin Zamvar, M.S., F.R.C.S., Andrzej Bochenek, M.D., Brian Buxton, M.D., Cliff Choong, M.D., Stephen Clark, M.D., Marek Deja, M.D., Jatin Desai, M.D., Ragheb Hasan, M.D., Marek Jasinski, M.D., Peter O'Keefe, M.D., Fernando Moraes, M.D., John Pepper, M.D., Siven Seevanayagam, M.D., Catherine Sudarshan, M.D., Uday Trivedi, M.D., Stanislaw Wos, M.D., John Puskas, M.D., and Marcus Flather, M.B., B.S., for the Arterial Revascularization Trial Investigators†

Arterial Revascularization Trial



Arterial Revascularization Trial

As treated analysis:



Arterial Revascularization Trial

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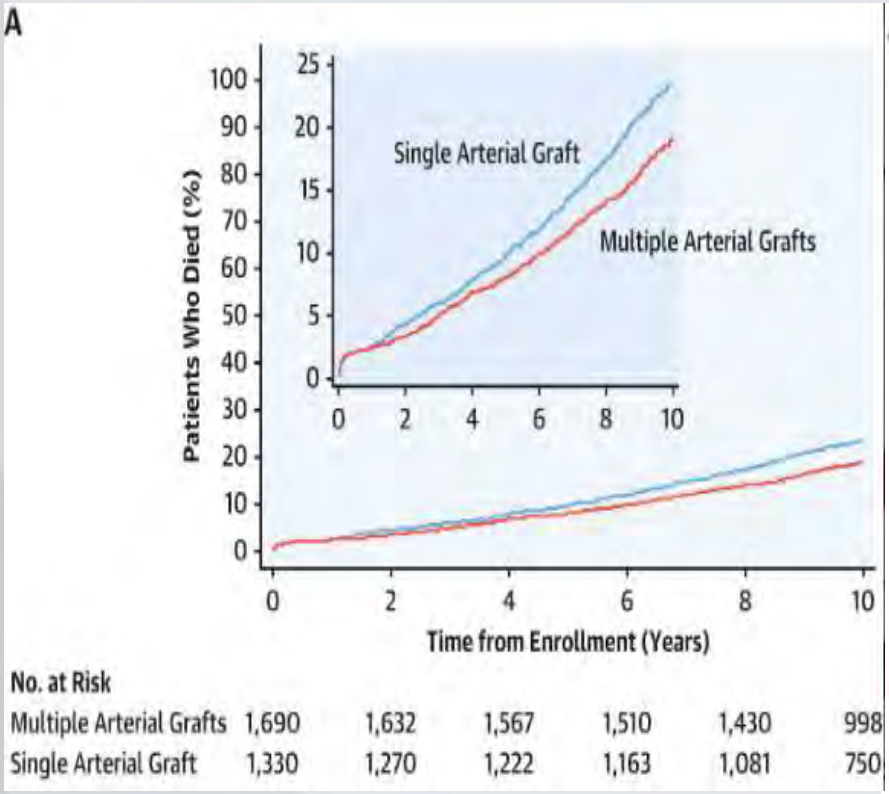
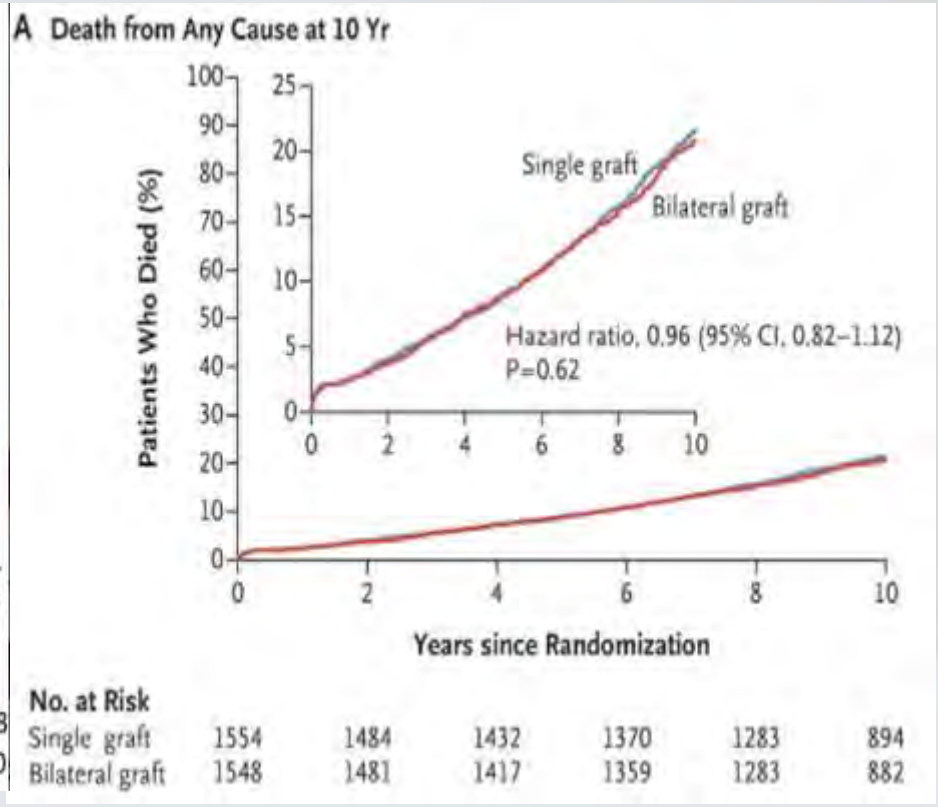
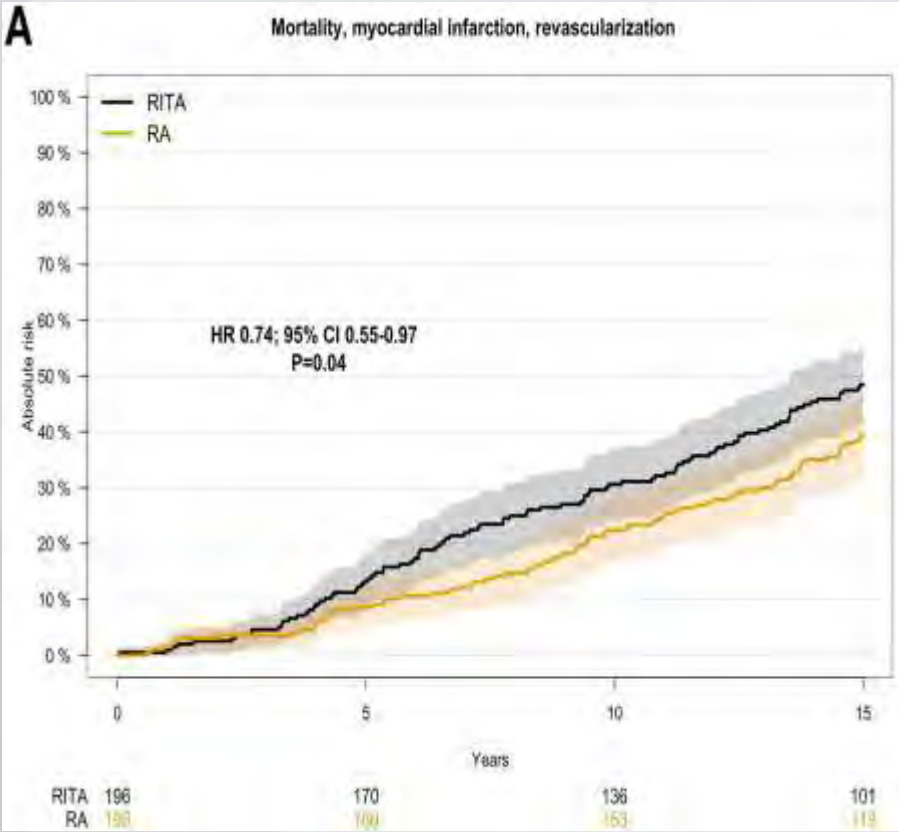
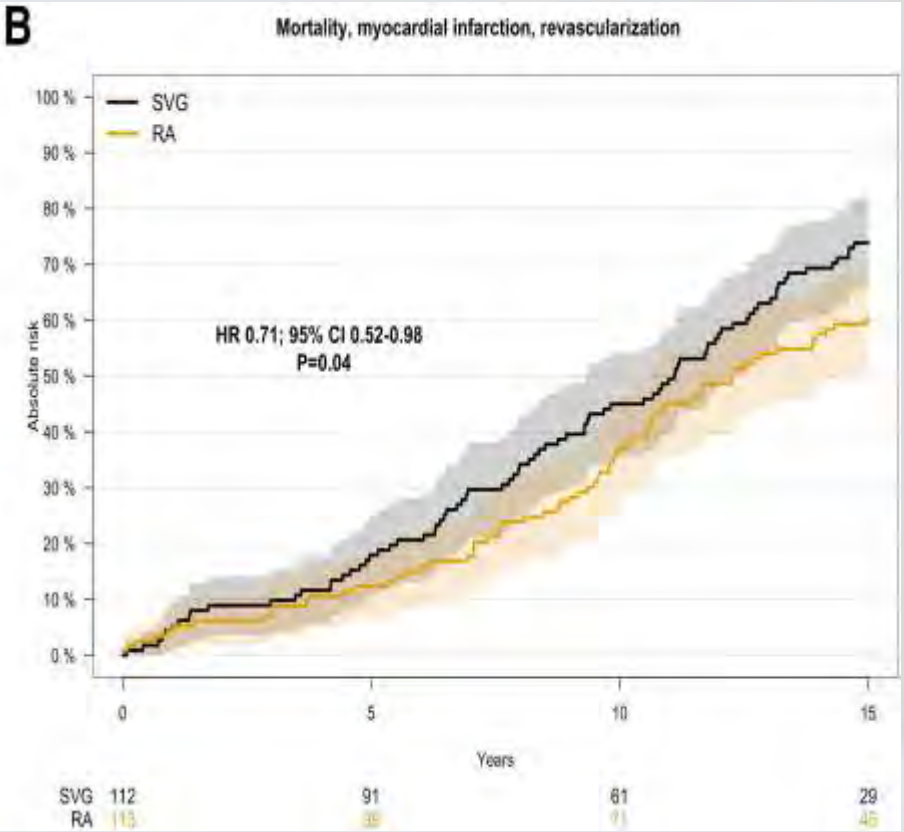


Intent to treat:



RAPCO - Radial Artery Patency and Clinical Outcomes program





Real World MAG

Coronary: Research

Multiarterial vs Single-Arterial Coronary Surgery: 10-Year Follow-up of 1 Million Patients

Joseph F. Sabik III, MD,[1] J. Hunter Mehaffey, MD,[2] Vinay Badhwar, MD,[2] Marc Ruel, MD,[3] Patrick O. Myers, MD,[4] Sigrid Sandner, MD,[5] Faisal Bakaeen, MD,[6] John Puskas, MD,[7] David Taggart, MD,[8] Thomas Schwann, MD,[9] Joanna Chikwe, MD,[10] Thomas E. MacGillivray, MD,[11] Abel Kho, MD,[12] and Robert H. Habib, PhD[13]

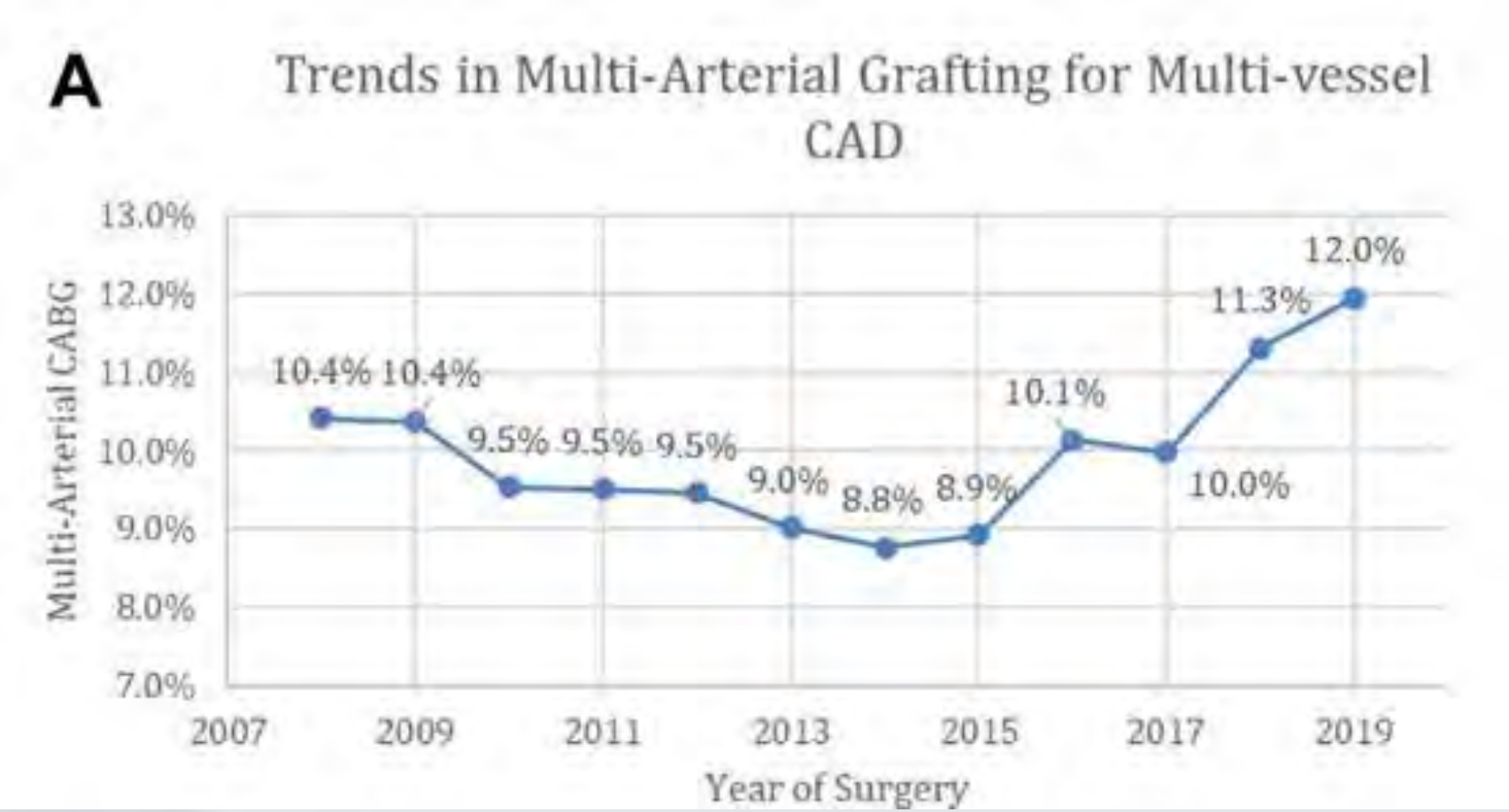
Multi-arterial grafting (MAG) vs. Single-arterial grafting (SAG)

- **Society of Thoracic Surgeons (STS) Adult Cardiac Surgery Database (ACSD) was linked to the Centers for Disease Control and Prevention National Death Index (NDI)**

- **The STS ACSD captures in-hospital and 30-day outcomes for 97% of CABG operations performed in the United States**

- **1,021,632 patients from 1108 programs, including 100,419 patients who underwent multiarterial CABG (9.83%) and 920,943 patients who underwent single-arterial CABG (90.17%)**

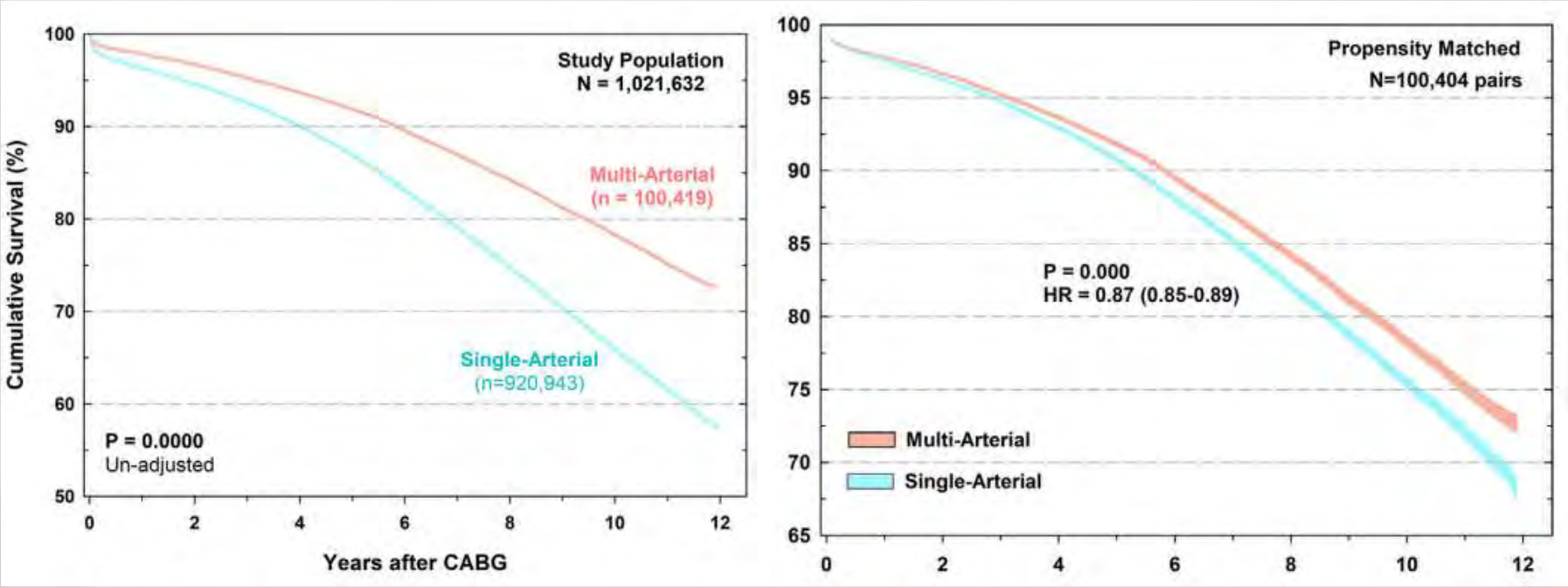
Multi-arterial grafting in the US



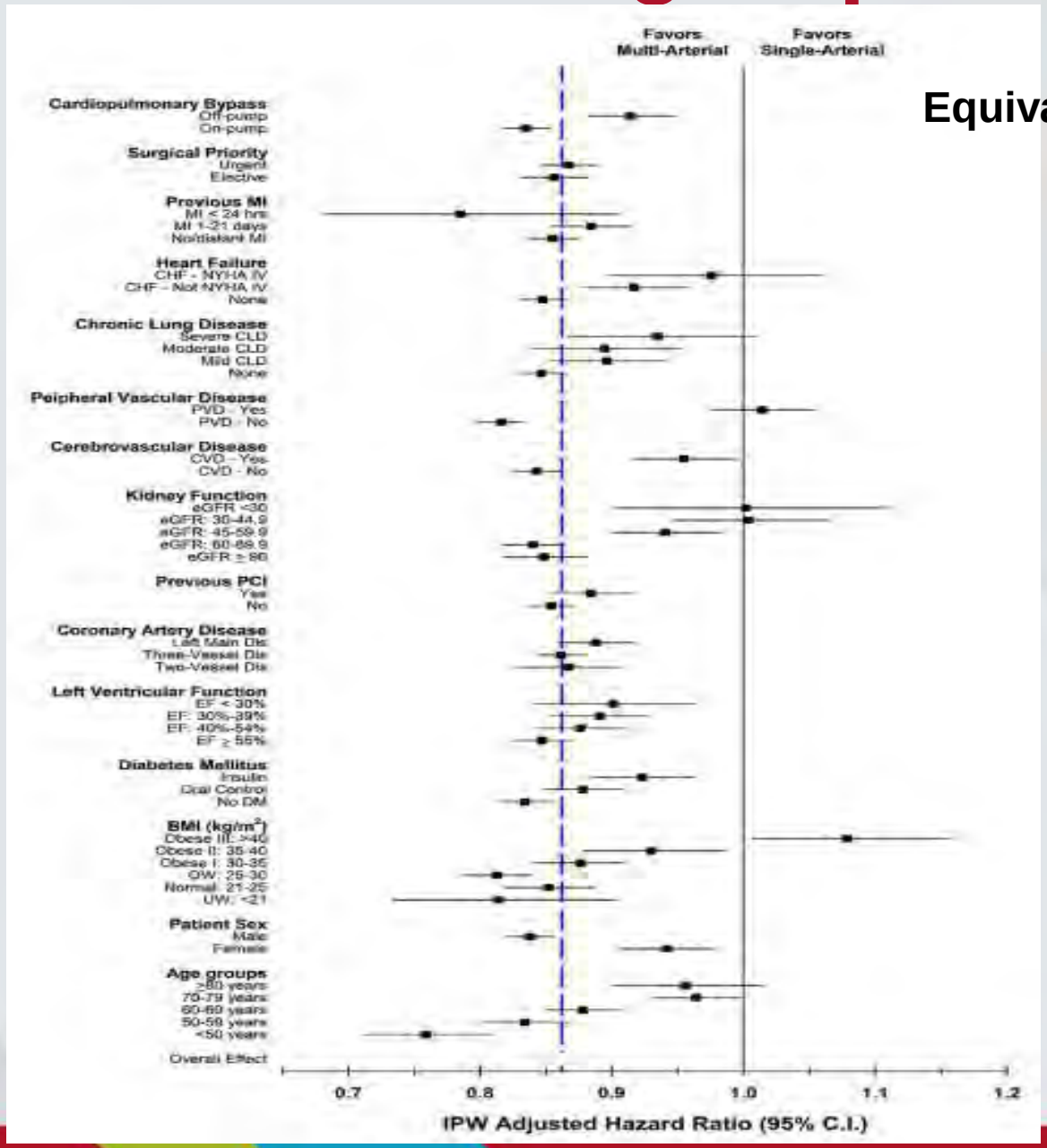
MAG vs. SAG

Patient Variables	All Cases			Propensity Matched		
	Single-Arterial (N = 920,943)	Multiarterial (N = 100,419)	Std Diff, %	Single-Arterial (N = 100,404)	Multiarterial (N = 100,404)	Std Diff, %
Radial	0 [0-0]	1 [0-1]	...	0.0 ± 0.0	0.7 ± 0.8	...
SITA/SVG	920,943 (100)	0 (0.0)	...	100,404 (100)	0 ± 0.0	...
SITA/RA	0 (0.0)	45,662 (45.5)	...	0 (0.0)	45,654 (45.5)	...
BITA/SV	0 (0.0)	47,222 (47.0)	...	0 (0.0)	47,216 (47.0)	...
BITA/RA/SV	0 (0.0)	7535 (7.5)	...	0 (0.0)	7534 (7.5)	...

MAG vs. SAG

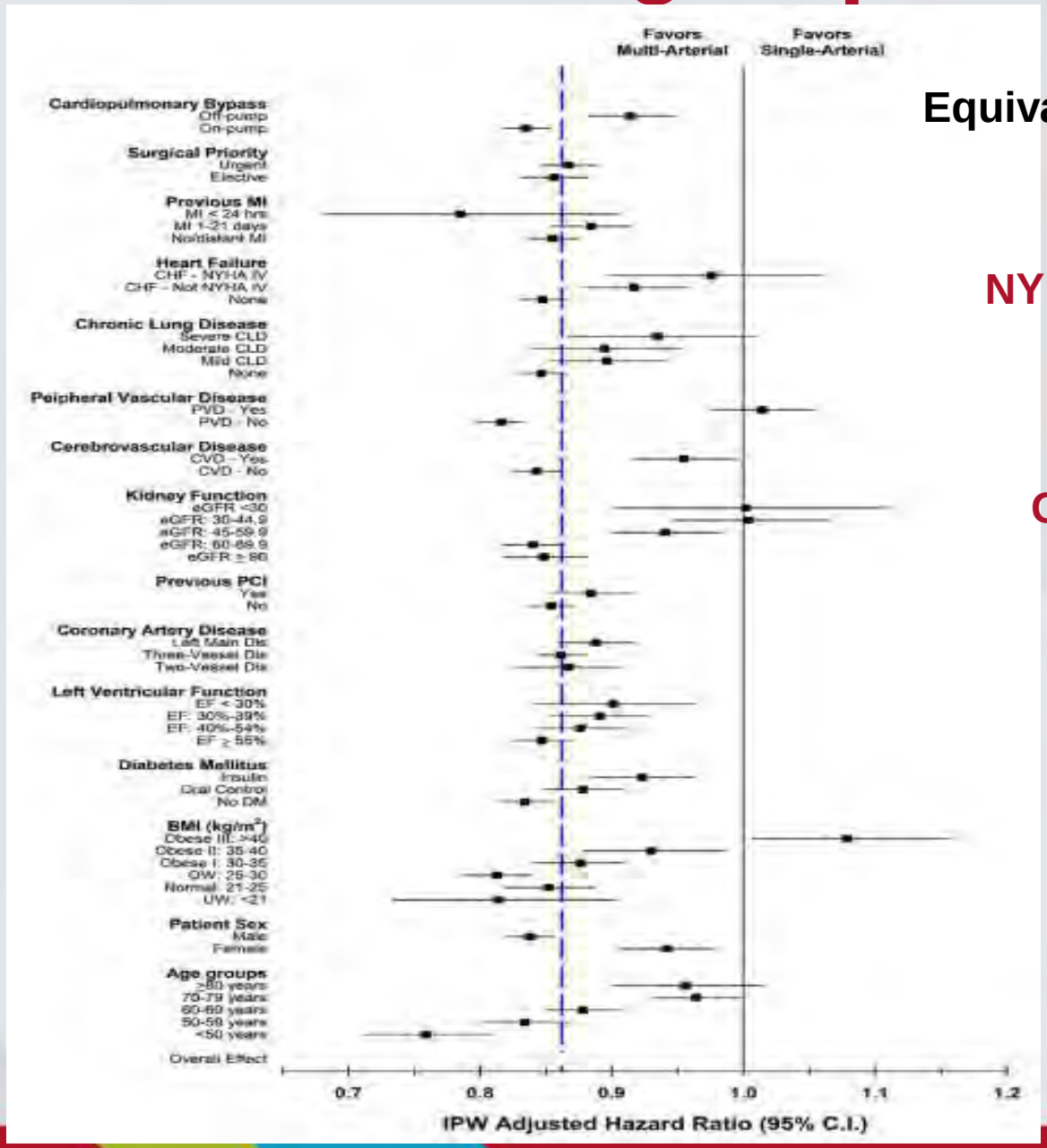

Study Population
N = 1,021,632
Multi-Arterial
(n = 100,419)
Single-Arterial
(n=920,943)
P = 0.0000
Un-adjusted
Cumulative Survival (%)
Years after CABG
Propensity Matched
N=100,404 pairs
P = 0.000
HR = 0.87 (0.85-0.89)
Multi-Arterial
Single-Arterial

MAG vs. SAG - Subgroups



Equivalent Survival

MAG vs. SAG - Subgroups



Equivalent Survival

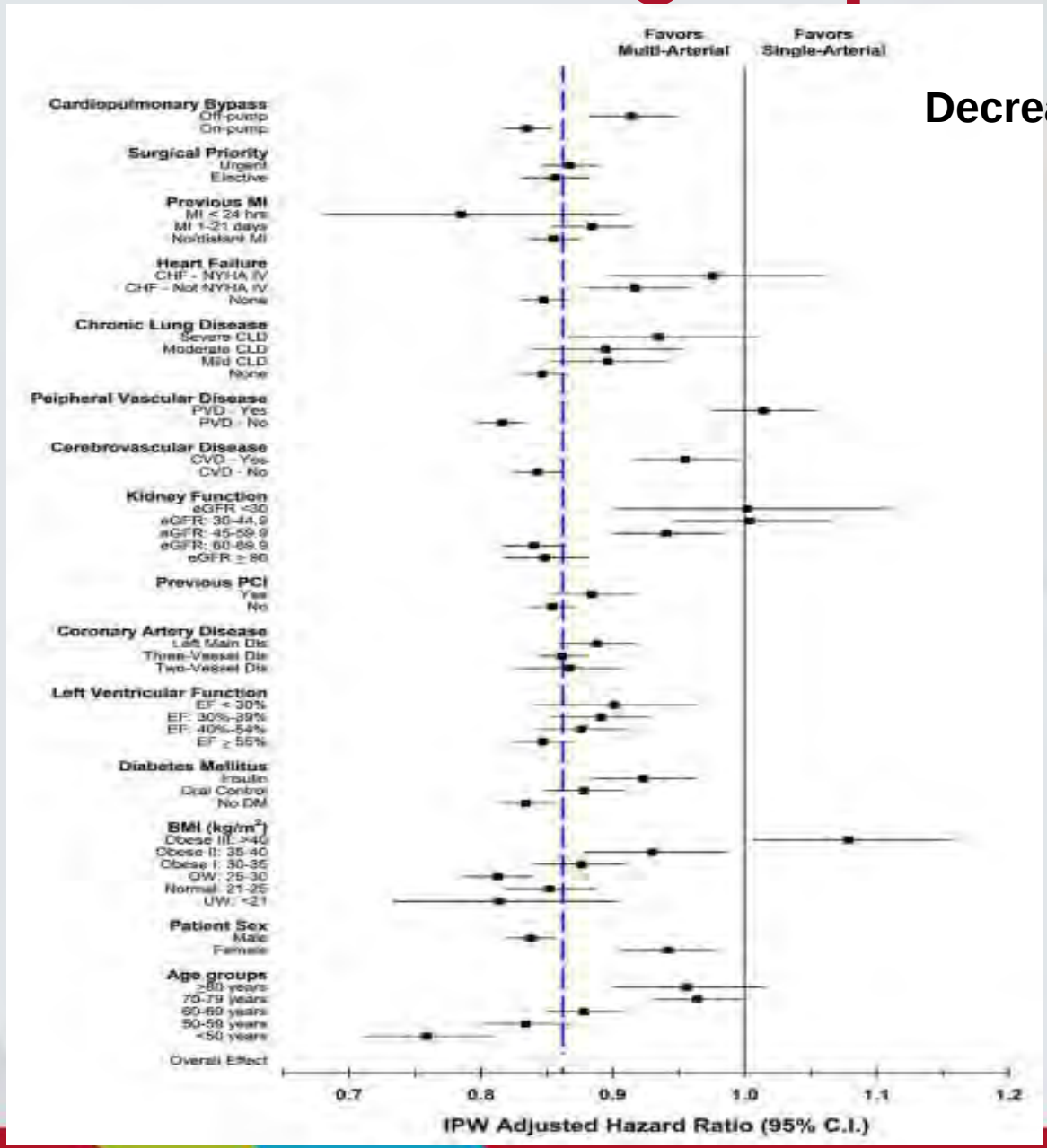
NYHA IV CHF

PVD

GFR <45

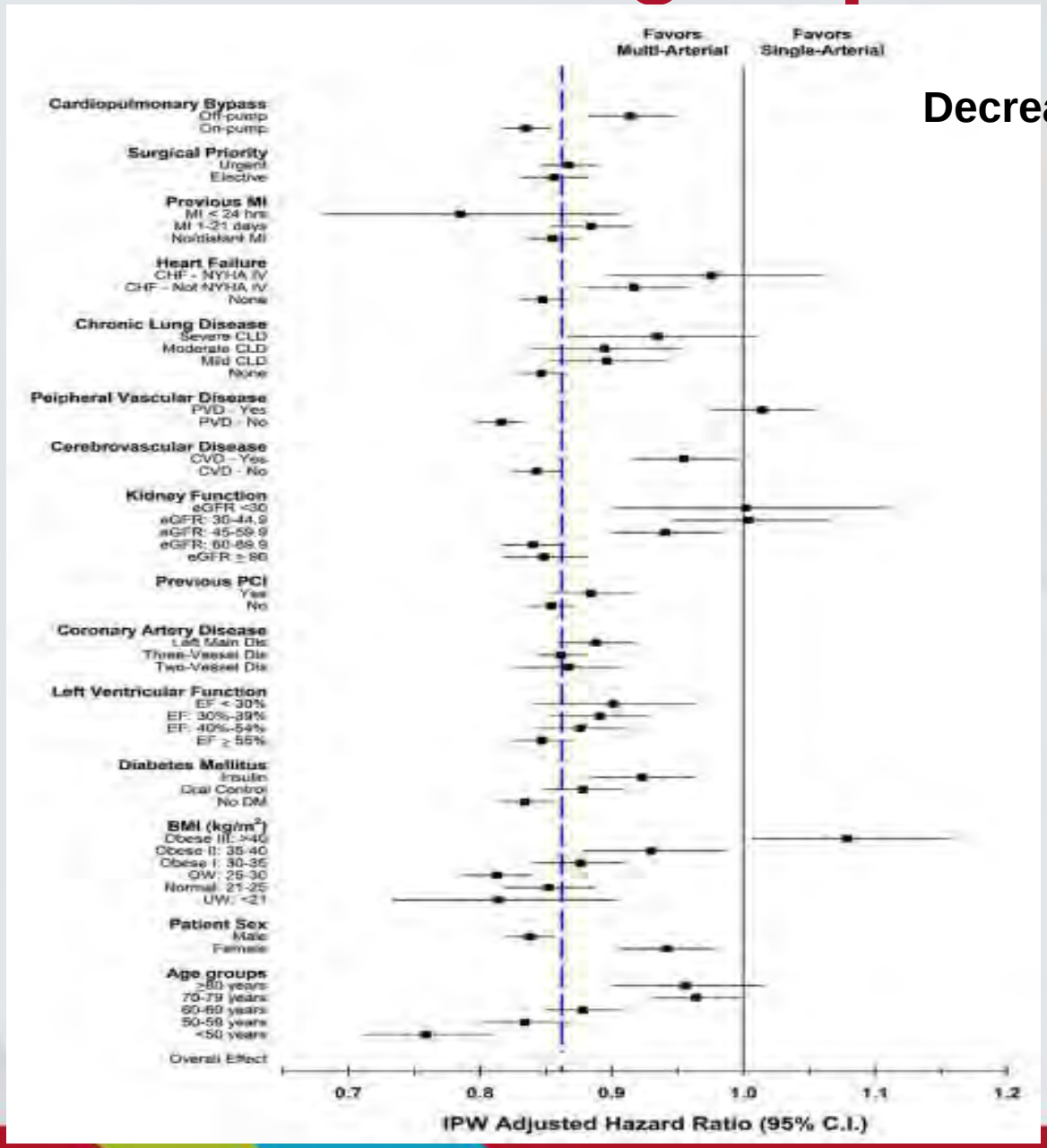
Age >80

MAG vs. SAG - Subgroups



Decreased Survival

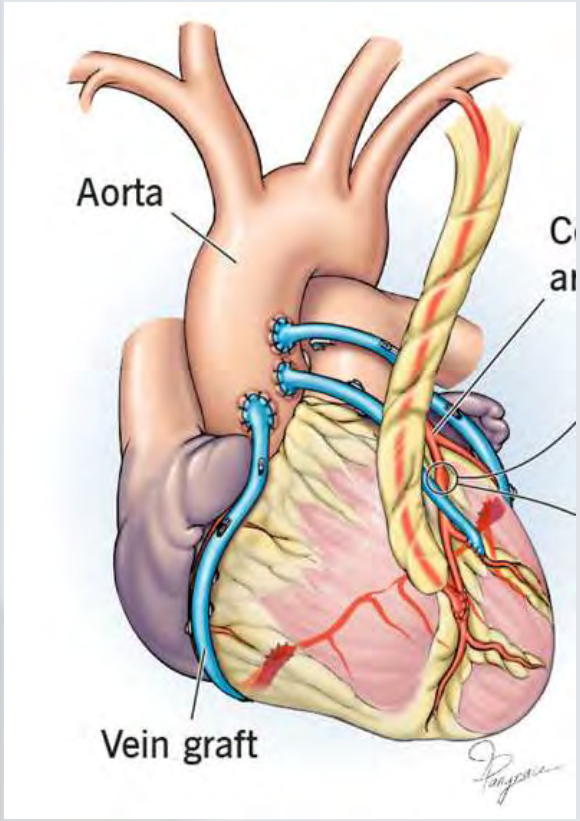
MAG vs. SAG - Subgroups



Decreased Survival

BMI >40

Multi-Arterial Grafting (MAG)



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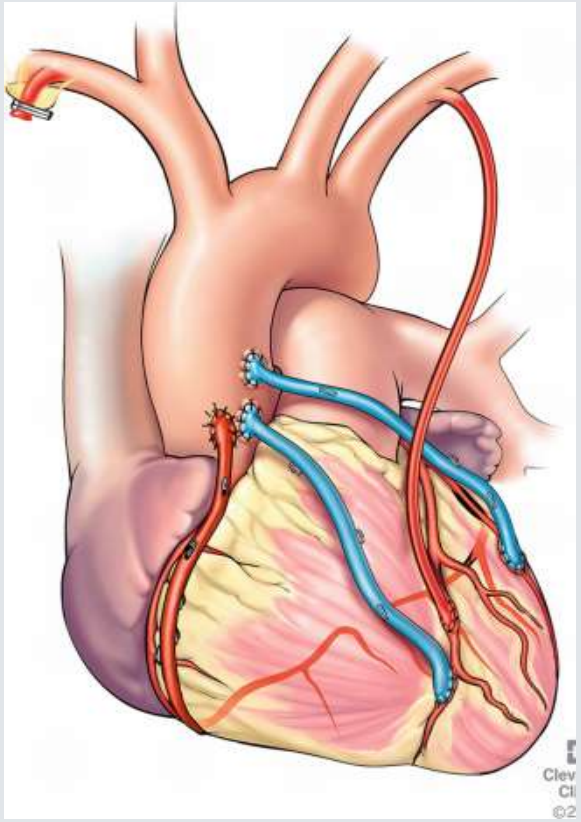

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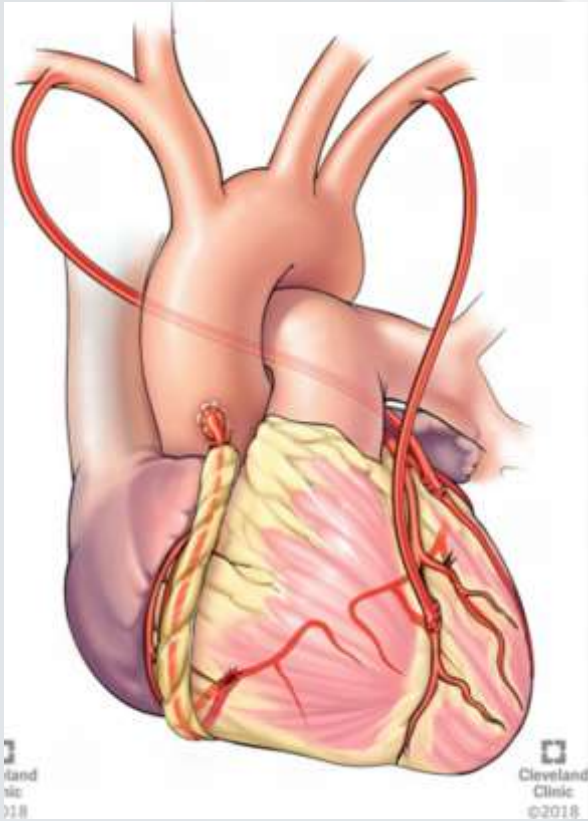
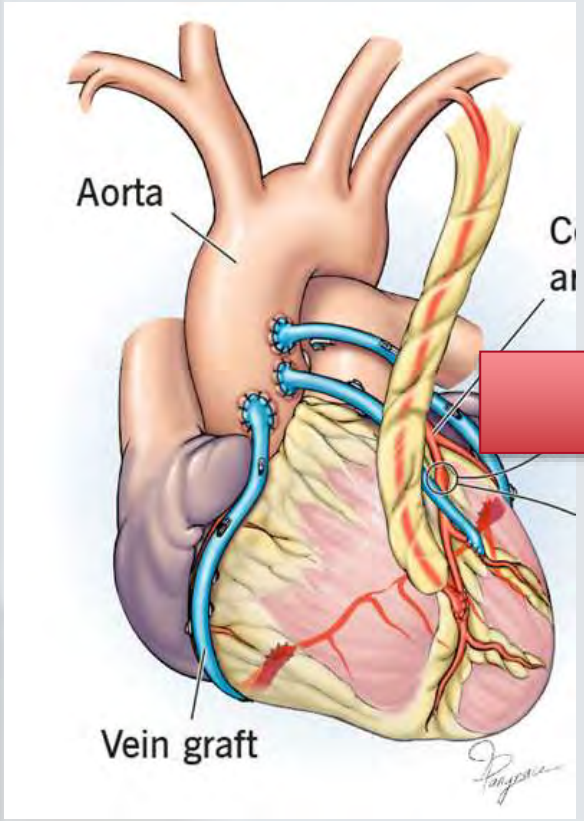


Total Arterial Grafting (TAG)

Multi-Arterial Grafting (MAG)



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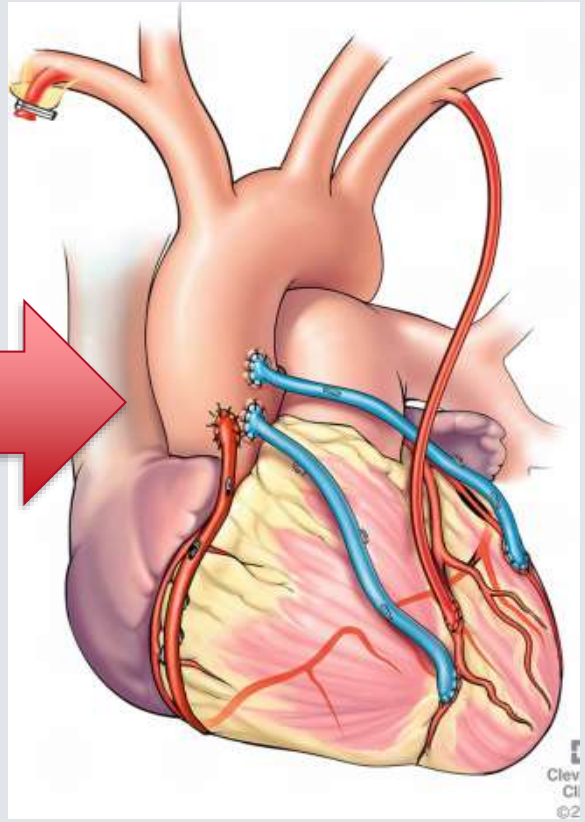

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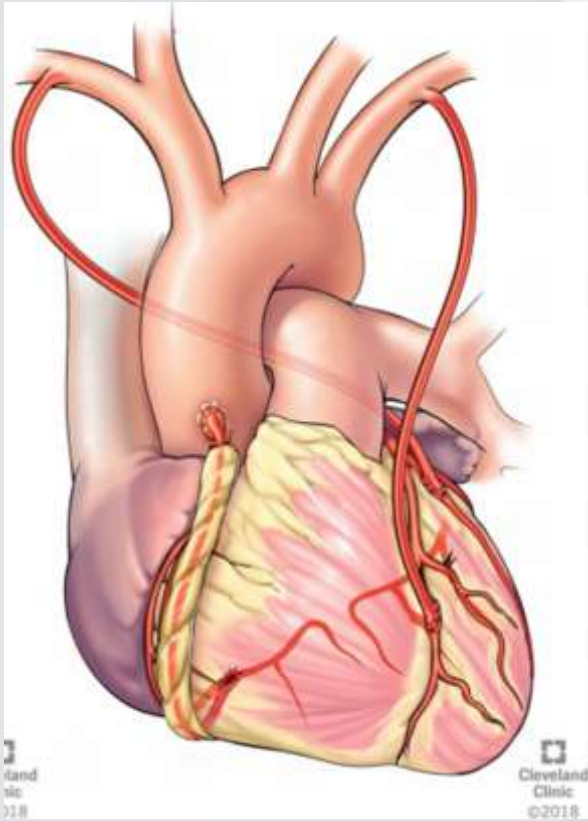

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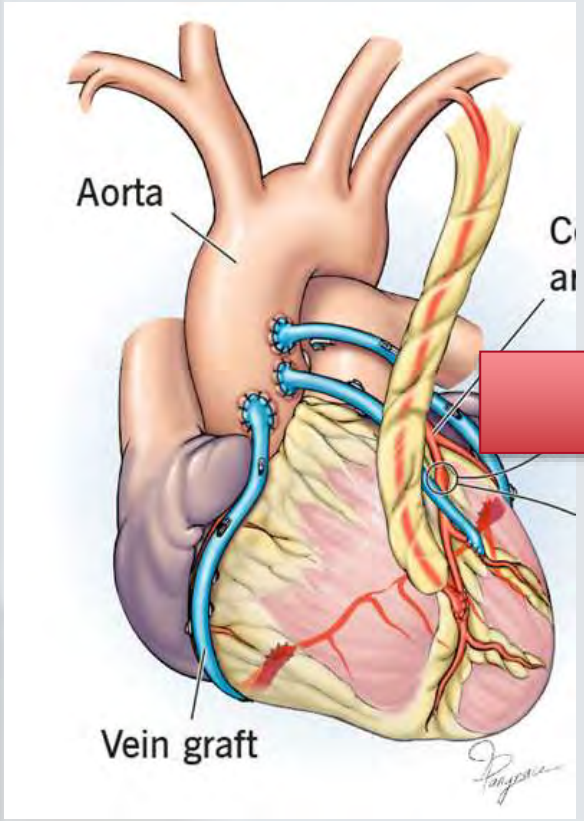
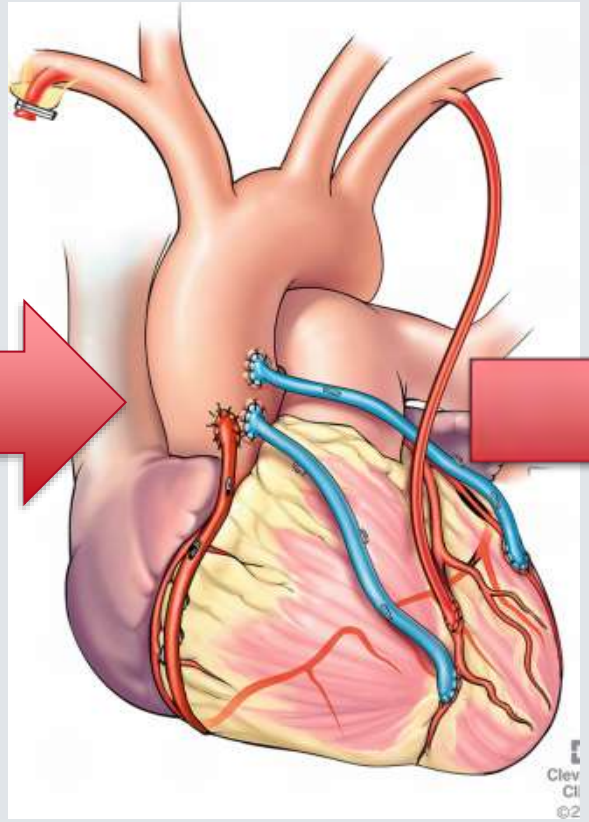
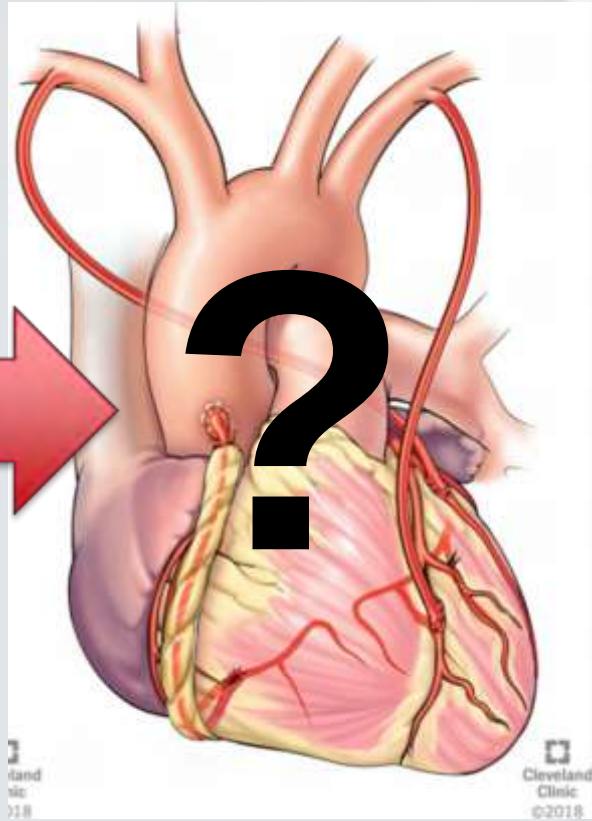






Single Arterial Grafting (SAG)

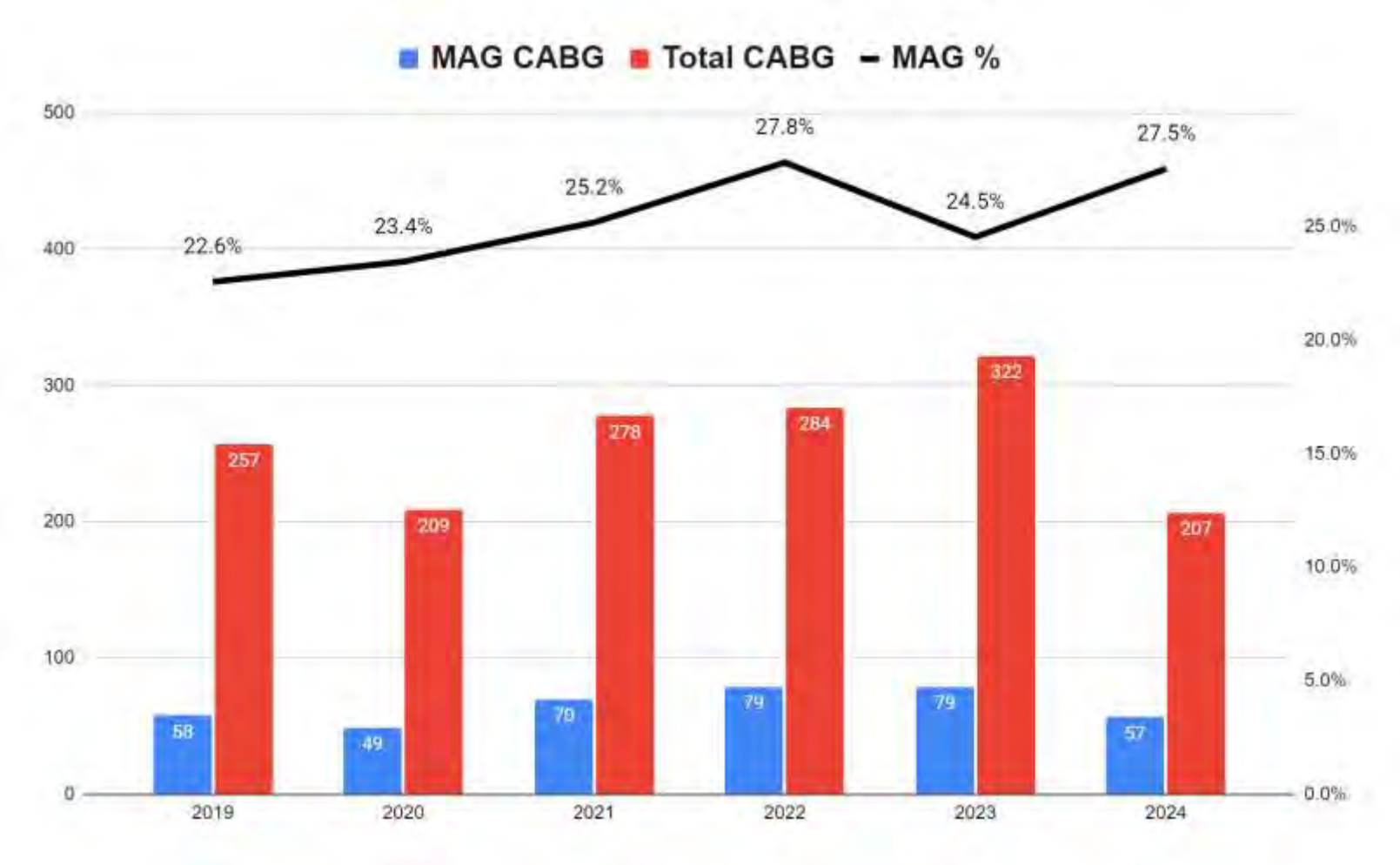
Multi-Arterial Grafting (MAG)

Total Arterial Grafting (TAG)

Multi-Arterial Grafting at UNMC

Multi-Arterial Grafting at UNMC

UNMC STS data

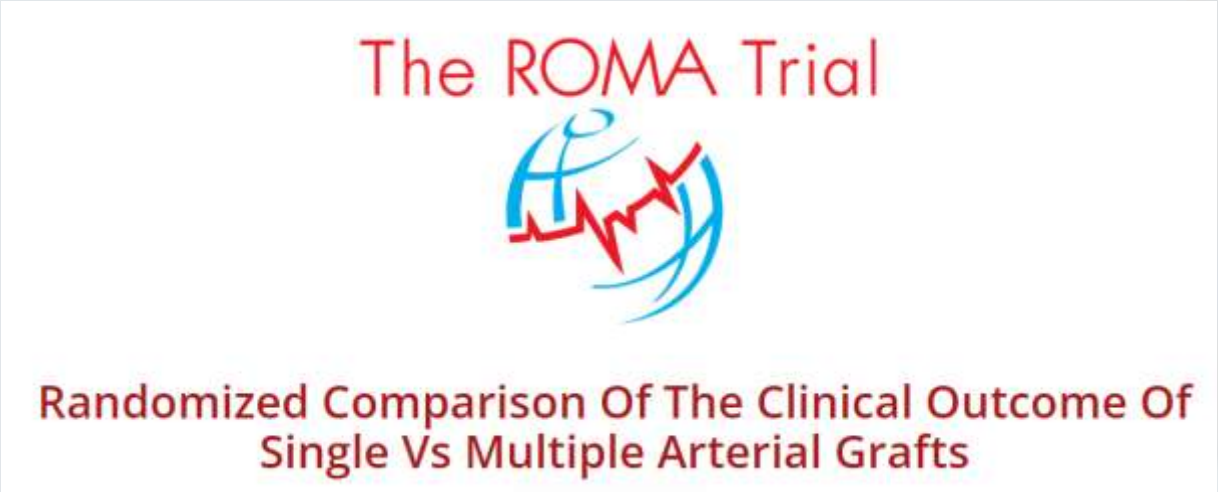


Multi-Arterial Grafting at UNMC

Clinical Trials

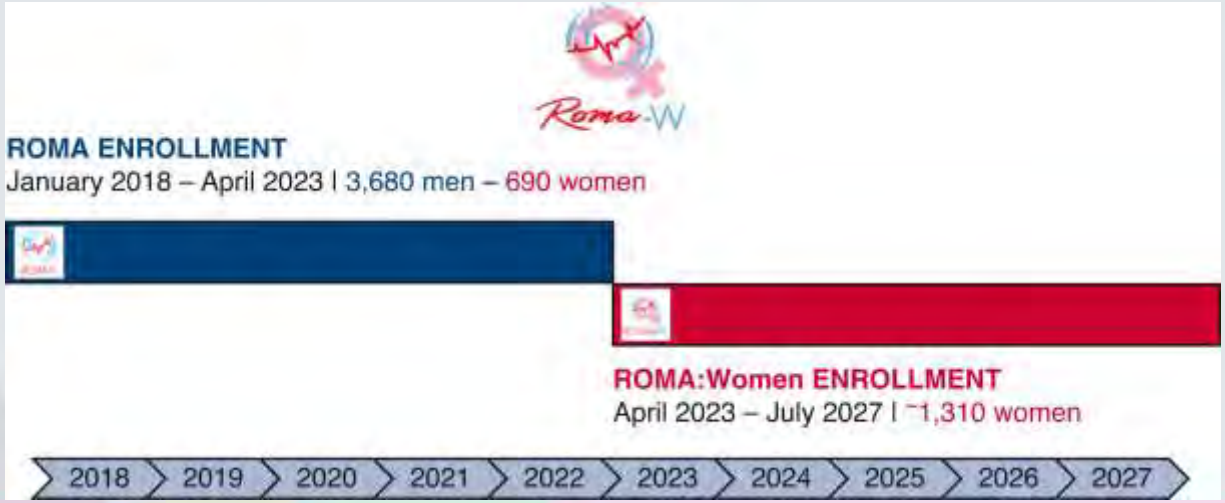
Multi-Arterial Grafting at UNMC

Clinical Trials



Multi-Arterial Grafting at UNMC

Clinical Trials



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