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Bilateral Sceletonized IMAs used as "in situ" Grafts for Different Coronary Territories

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Nothing to disclose



BACKGROWND



Loop at al, Influence of the internal mammary artery graft on 10-year survival and other cardiac events. N Engl J Med 1986; 314:1-6



BIMA in myocardial revascularization INTERNAL MAMMARY ARTERY



Vineberg (1951) first myocardial revascularization by IMA

Kolesov (1967) 12 pts. LIMA to LAD

George E. Green (1968)

Loop (1986) 10 years survival



BIMA in myocardial revascularization Pedicled vs. sceletonized IMA Sternum SPECT scans of Tc99 uptake



Pedicled IMA

Sceletonized IMA

A. M. Calafiore et al., Internal mammary artery, MMCTS 2004





Myocardial Revascularization New Perspective

• 314 Recommendations

• Based on 961 references

Key words: Maybe, perheps, might, could be...



Background / Study Objective

- Bilateral internal mammary artery (BIMA) has been recognized as the most advanced surgical option for coronary artery bypass grafting (CABG).
- However, due to insufficient and inadequate outcome data it is usually proposed for younger patients without traditionally accepted risk factors like diabetes, chronic obstructive pulmonary disease (COPD) and obesity.



OBJECTIVE

The aim of this prospective study was to compare outcomes in propensity score-matched patients with sceletonized BIMAs used as "in situ" grafts for different coronary territoris with patients using single internal mammary artery (SIMA) in CABG.



Methods

•Skeletonized left internal mammary artery (LIMA) was used as *in situ* graft to revascularize left coronary artery territory.

 Right internal mammary artery (RIMA) was used to revascularize right coronary artery.

•All patients were operated on as elective cases.





HARVESTING

Sceletonized harvesting

•"No touch" technique

Intact pleural space

Phrenic nerve pathway

Complete and detailed visual inspection

•Extensive graft length







DEPLOYMENT



- 8-0 monofilament stitch
- In-out technique
- 90° needle/incission orientation
- Single or sequential grafting on D1, D2 or RIM branch









Patients I

•In 2010-2020, 7318 patients underwent primary CABG for multivessel coronary artery disease at our institution.

•In 211 (2.88%) patients BIMAs *in situ* grafting were performed. Right IMA was used to revascularize right coronary artery, and left IMA for the LAD territory. BIMA patients (n=211) were compared with single IMA patients (n=211) in propensity score matching analysis.



Patients II

- Primary outcome measures were identified as all-cause mortality at 30-days, 5 years and 10 years
- Secondary outcome measures were length of hospital stay, the incidence of postoperative major adverse cardiovascular and cerebrovascular events (MACCE), sternal wound infection and need for subsequent percutaneous revascularization.



BIMA in myocardial revascularization MATERIAL AND METHODS

No of 211 211 VS. PATIENTS 180 160 January 1, 2010 140 PERIOD 120 **December 15, 2020** 100 80 Male 177 (83.89 %) 60 GENDER 40 Female 34 (16.11 %) 20 0 61.79±8.3 years DM HOPB HTA **MEAN AGE** (44-81)

Risk factors

Family

History

anannoza

Smoking

HLP



PREOPERATIVE DATA

BIMA vs LIMA

1. MEAN EF	50.23%
2. PREV. INFARCTION	89 (42.18%)
STEMI	13 (6.16%)
NSTEMI	76 (36.01%)
3. URGENT SURGERY	8 (3.79%)
4. CVI	14 (6.63%)

EuroSCORE II =2.53 STS score =3.42

ns



OPERATIVE FINDINGS

ns

	BIMA vs	LIMA
CROSS CLAMP TIME	72.08	±12.69
ECC TIME	80.68	±15.48
AVERAGE # GRAFTS	3.91	

Results

$\mathbf{\dot{(})}$	BIMA in myocardial revascularization Results				
	Parameter	BIMA (n=211)	LIMA (n=211)	р	
	Total mortality	2(0.94%)	3(1,42%)	ns	
	MACCE				
	Death, stroke or MI	3(1,42%)	4(2.7%)	ns	
	Stroke	1(0.47%)	0(0,0%)	ns	
	мі	0(0.0%)	1(0.47%)	ns	
	Repeat revascularization	0(0.0%)	0(0.0%)	ns	
	Average length of stay	7.8±3.9 days	8±2.51 days	ns	



SURVIVAL CURVE





Long term Follow up MSCT (64) 10 years after surgery





Conclusion

•Bilateral sceletonized IMA as in situ grafts used for different coronary territories in CABG is associated with better long term survival than SIMA grafting.

•IMA harvesting with sceletonized technique provides better IMA length, detailed graft visualization, and minimal trauma to the chest wall.

•Thus, the application of techniques for constructing the IMA grafts used in this series makes traditionally accepted limitations for usage of bilateral IMAs irrelevant.