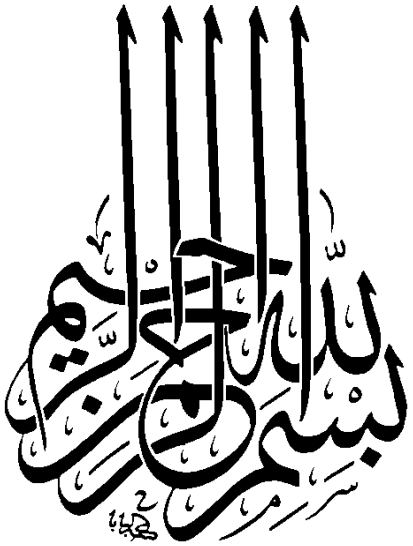

﴿قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا
إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنتَ الْعَلِيمُ الْحَكِيمُ﴾

صدق الله العظيم

سورة البقرة آية (32)

Evaluation of Postoperative Surgical Risk of Using Saphenous Vein Only Versus Saphenous Vein with Unilateral Mammary Artery as Grafts in Coronary Artery Bypass Graft Operation

Thesis

Submitted for Partial Fulfillment of MD Degree
in Cardiothoracic Surgery

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LIST OF ABBREVIATIONS

ACC	American college of cardiology
ACE	Angiotensin-converting enzyme
AHA	American heart association
AIV	Anterior interventricular vein
ATP	Adenosine triphosphate
AV node	Atrioventricular node
BARI	Bypass angioplasty revascularization investigators
BMI	Body mass index
CABG	Coronary artery bypass graft
CAD	Coronary artery disease
CBC	Complete blood count
CBG	Coronary bypass graft
CCS	Canadian cardiovascular society
CCU	Coronary care unit
CoNS	Coagulase negative staphylococci
COPD	Chronic obstructive pulmonary disease
CPB	Cardiopulmonary bypass
CPR	Cardiopulmonary resuscitation
CVA	Cerebrovascular accident
CVP	Central venous pressure
DM	Diabetes mellitus
DSSI	Deep sternal site infection

LIST OF ABBREVIATIONS (CONT.)

ECCT	Extracorporeal circulation time
ECG	Electrocardiogram
ECM	Extracellular matrix
EDD	End diastolic diameter
EDRF	Endothelium derived relaxing factor
EF	Ejection fraction
ESD	End systolic diameter
GCV	Great cardiac vein
GEA	Gastroepiploic artery
GSV	Great saphenous vein
HGB	Hemoglobin
HTN	Hypertension
IABP	Intraaortic balloon pump
ICS	Intercostal space
ICU	Intensive care unit
IEA	Inferior epigastric artery
IMA	Internal mammary artery
IS	Intercostal space
ITA	Internal thoracic artery
IV	Intravenous
LAD	Left anterior descending
LIMA	Left internal mammary artery
LITA	Left internal thoracic artery
LSV	Long saphanous vein

LIST OF ABBREVIATIONS (CONT.)

LV	Left ventricle
LVEF	Left ventricular ejection fraction
MCV	Middle cardiac vein
MI	Myocardial infarction
PAP	Pulmonary artery pressure
PCI	Percutaneous coronary intervention
PTCA	Percutaneous transluminal coronary angioplasty
PTFE	Polytetrafluoroethylene
RA	Radial artery
RGEA	Right gastrtoepiploic artery
RIMA	Right internal mammary artery
SV	Saphenous vein
SCV	Small cardiac vein
SITA	Single internal thoracic artery
SMC	Smooth muscle cell
SSI	Surgical site infections
SSV	Short saphenous vein
SVG	Saphenous vein graft
TTC	Triphenyl tetrazolium chloride
U.S	United State
U.K	United kingdom

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Mohamed A. Gamal

Abstract

Background:

The optimum conduit is still in debate in patients with ischemic heart disease especially in patients with high risk for dehiscent sternum.

Objective:

The aim of the work is to compare and evaluate the post operative surgical risk of using saphenous vein only versus saphenous vein with unilateral mammary artery in coronary artery bypass graft (CABG) operation as regard blood loss, transfusion requirement, incidence of cardiac tamponade, reoperation for bleeding, and sternal complications and its short term clinical outcome.

Methods:

In a prospective randomized trial 60 patients with coronary artery stenotic disease undergoing coronary artery bypass grafting were divided into two groups with saphenous vein only (group A, n = 30) and saphenous vein with unilateral mammary artery (group B, n = 30). In addition to routine electrocardiogram monitoring, Echocardiography was performed preoperatively and before hospital discharge. Aortic cross-clamp time, total cardiopulmonary bypass time, amount of blood loss and blood transfusion were recorded. Also following up for dehiscent sternum within first six months after CABG was recorded.

Results:

As regard preoperative data Group A had significantly higher age (56±6.1) and weight (95.13±5.66) compared to group B. Also females were significantly higher among group A (56.7%). And there is no

significant difference between two groups as regard the presence of DM and HTN, while Preoperative EF was significantly higher among group B (53.1.±8.68) compared to group A (38.8.±3.8). But as regard operative data Group A had significantly lower use of adrenaline compared to group B, while there is no significant difference was detected between two groups as regard need of noradrenaline or IABP. As regard perioperative data Group A had highly significant lower cross clamp time compared to group B, while there is no significant difference was detected between two groups as regard ventilation period or reexploration but there is significant differences in ICU stay period. And there is highly significant differences in blood loss and blood (and or blood product) given which were lower in group A, There is highly significant difference in changes happened in EF in group A, But there is no significant difference between two groups as regard dehiscent sternum after following up of the patients within 6 months.

Conclusion:

The technique of using all veins for coronary revascularization is relatively efficient, and safe especially in patients with low ejection fraction according to short term clinical follow up.

Introduction

The heart of humans is perfused by blood ejected from the left ventricle that leaves the aorta via the right and left coronary arteries ***(Bladergroen et al., 1990).***

In most patients undergoing cardiac surgery, coronary blood supply or the myocardium, or both is not normal and is therefore particularly susceptible to ischemia and reperfusion damage. Stenotic atherosclerotic coronary artery disease is a narrowing of the coronary arteries caused by thickening and loss of elasticity of their arterial walls that, when sufficiently severe, limits blood flow to the myocardium ***(Nicholas et al., 2003)***

The prime objective of coronary artery bypass grafting surgery is to obtain complete revascularization by bypassing all severe stenoses (at least 50% diameter reduction) in all coronary arterial trunks and branches having a diameter of about 1mm or more ***(Nicholas et al., 2003; Jones et al., 1983).***

Saphenous vein grafts undergo a degenerative change in the intermediate to long term that ultimately limits graft patency. As a result there has been a trend to use arterial grafts in younger patients ***(Ian and Hugh, 1997).***