Coronary artery bypass grafting in female is it different?

Thesis

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List of content

List of abbreviations

Abbreviations	Mean
CABG	Coronary artery bypass grafting
CAD	Coronary artery disease
ECG	Electrocardiogram
CHD	Coronary heart disease
MI	Myocardial infarction
LDL	Low density lipoprotein
HDL	High density lipoprotein
ACS	Acute coronary syndromes
NSTEMI	Non-ST-elevation myocardial infarctions
STEMI	ST-elevation myocardial infarctions
CCBs	Calcium channel blockers
ACE	Angiotensin converting enzyme
PCI	Percutaneous coronary intervention
LMWH	Low molecular weight heparin
ACC	American collage of cardiology
AHA	American heart association
CHF	Congestive heart failure
MACE	Major adverse cardiac event
DES	Drug eluting stents
BMS	Bare-metal stents
LITA	Left internal thoracic artery
LAD	Left anterior descending
CCS	Canadian Cardiovascular Society;
CTO	Chronic total occlusion

List of abbreviations (continue)

Abbreviations	Mean
EF	Ejection fraction
CVD	Cardiovascular disease
CRP	C-reactive protein
AMI	Acute myocardial infarction
NRMI-2	National Registry of Myocardial Infarction 2
HT	Hormone therapy
HERS	Heart and Estrogen/ Progestin Replacement Study
WHI	Women's health initiative
NCEP	National Cholesterol Education Program
ATP	Adult Treatment Panel
CDC	Center for Disease Control
BMI	Body mass index
Hs	high-sensitivity
C-IMT	Carotid-intima media thickness
EBT	Electron beam tomographic
IABP	Intra aortic balloon pump
NYHA	New York Heart Association

List of abbreviations (continue)

Abbreviations	Mean
MACCE	Major adverse cardiac and cerebrovascular events
COPD	Chronic obstructive pulmonary disease
SPECT	Single-photon emission computed tomography
CURE	Clopidogrel in Unstable Angina to Prevent Recurrent Events
CYP	cytochrome P450
RRR	relative risk reduction
PENTUA	Pentasaccharide in Unstable Angina
RCT	randomized controlled trial
M-H	Mantel Henzal

List of tables

List of tables (continue)

List of tables (continue)

List of figure

List of figure (continue)

Coronary artery bypass graft (CABG) surgery is a well-accepted treatment in patients with severe angina since the 1970s. Relief of anginal symptoms is still the major goal of CABG to obtain better quality of life, as well as increase of life expectancy ***(Domburg et al., 2009).***

Sex is a basic human variable that influences health and illness across the lifespan. There are differences between the sexes in the prevalence and severity of a wide range of diseases and medical conditions. Men and women have different patterns of illness, life spans, metabolism, and they respond differently to therapies. There are sex differences in the susceptibility to diseases and responses to environmental stresses and drug treatments ***(Wizemann and Pardue, 2001).***

It is controversial as to whether there is a gender difference in postoperative clinical outcomes after coronary artery bypass grafting (CABG). Several large studies have demonstrated that female gender is a risk factor of CABG ***(Bukkapatnam et al., 2010; Kim et al., 2007; Vaccarino et al., 2002)***. In the risk models of both the Society of Thoracic Surgeons and the European System for Cardiac Operative Risk Evaluation, female gender is listed as one of the risk factors for CABG. Several reasons for a worse outcome in females compared with that in males have been proposed. Female patients who receive CABG are generally older and smaller

than men. Female patients also have more preoperative co-morbidity such as diabetes and anemia. Furthermore, there is less frequent use of internal thoracic artery (ITA) grafts in females than in males ***(Fukui and Takanashi, 2010).***

Risk factors of Coronary artery disease:

1- Inevitable factors (age, sex, race and family history).

2- Atherogenic factors (hypertension, hyperlipidemia and diabetes).

3- Life style (cigarette, immobility, obesity, tension and oral contraceptive pills consumption).

4- Paraclinic signs (cardiovascular disorder prior to clinical manifestation consists of electrocardiogram (ECG) changes, blood and histologic characteristics such as blood group A).

5- Laboratory manifestation such as increased homocystein more than 12 mcg dL^{-1} ***(Ilali and Taraghi, 2010).***

Diabetes confers a markedly increased risk of Coronary heart disease CHD events in both women and men and eliminates the protective effect of female sex on the risk of CHD. In women with and without diagnosed heart disease, diabetes raises the relative risk of heart disease mortality 3 to 10 fold relative to that of women without diabetes ***(Wexler et al., 2005)***

Different environmental factors and race in each location can affect on frequency of risk factors of myocardial infarction (MI) ***(Polanczyk and Riberio, 2009; Avezum et al., 2009; Madrigano et al., 2013).***

In the women CHD develop about 10 years later than men and the role of risk factors is different in these two groups ***(Anand et al., 2008).***

Whereas almost two-thirds of men with coronary heart disease present with myocardial infarction or sudden death as the initial manifestation of disease, over 50% of women may have angina pectoris as their first symptom, yet establishing the diagnosis of ischemic heart disease in women remains problematic. This is, in part, due to the relatively high prevalence in women of chest pain in the absence of significant coronary artery stenosis ***(Leopold and Jacobs, 2003).***

Women with acute coronary syndromes often present with symptoms patterns that differ from their male counterparts. Chest pain was the most frequently reported symptom in both men and women; however, women were more likely than men to present with mid-back pain, nausea and/or vomiting, dyspnea, palpitations and indigestion. Women who present for evaluation of an acute coronary syndrome complain of chest pain or pressure more frequently

than men. Similarly, in patients presenting with an acute myocardial infarction, men were significantly less likely to complain of neck pain, back pain, jaw pain, and nausea, than women ***(Goldberg et al., 2000).***

Women with CHD are more likely to have co-morbidities, including heart failure, hypertension, and diabetes. Diabetic women are particularly vulnerable to complications of MI. Women hospitalized for acute MI are likely to be older than men and have more "silent" MIs. Women younger than 65 years of age are more than twice as likely to die from MI as men of the same age, possibly because diabetes, heart failure, and stroke are more prevalent in younger women; arterial narrowing is less and reactive platelet levels are higher in younger women; and plaque erosions are more common in premenopausal women ***(Wenger, 2004***).

Women are less likely to be given effective interventions, which include aspirin, beta blockers, and thrombolytic agents. Women are also less likely than men to undergo diagnostic and therapeutic tests and procedures. Possible reasons include discrepancies in physician perception of the severity of coronary disease in men vs women and physician perception of the risks and efficacies of diagnostic and therapeutic procedures; higher rates of admission for women with ischemic symptoms in the absence of documented