Medical and Research Publications
International Open Access

Research Article **Journal of MAR Cardiology (Volume 5 Issue 2)**

Profile of Patients Referred for Coronary Artery Bypass Graft, In Military Cardiac Centere., Sana'a, Yemen b/w Jan 2015-till Dec 17

Yahya Rajeh., PHD Cardiac Surgery [1], Dr Abdul-Aziz Qasem Mohammed AL-Ga'adi. Cardiac Surgery*[2], Zaid Shuban MD Cardiac Surgery [3], Fransisco Cardiac Surgeon 2nd degree [4], Ali Raboi D. M.Sc. Cardiac surgery [5]

Corresponding Author: Dr Abdul-Aziz Qasem Mohammed AL-Ga'adi, Consultant Cardiac Surgery, Head Department of Cardiac Surgery, Military Cardiac Center, Sana`a.Yemen.

Received Date: March 17, 2023

Published Date: April 01, 2023

Abstract

Background: *Cardiovascular disease are the number 1 cause of death globally* ***(****WHO****)***

An estimated 17.7 million people died from CVDs in 2015, representing 31% of all global deaths. many patients undergoing coronary artery bypass grafting surgery have previous cardiovascular risk factors which could be prevented. ***(****1****)***

Objectives: *To Evaluate the Risk Profiles of Patients undergoing Surgical Revascularization* ***(****Coronary Artery Bypass Grafting****)*** *at Military Cardiac Center.*

Materials and Methods: *In this cross-sectional* ***(****descriptive –analytical****)*** *study, a data collecting form was used. A total of 243 patients were selected from Cardiac Military Center . Descriptive statistics were presented through figures and tables and t-test was used to analyze the continuous variables. all the statically analysis were performed using the SPSS statistical software* ***(****version18.0****)****. Besides,*** *$P<0.05$ was considered as statistically significant*

Results: *Among the study patients, around 10.3% had one risk factors and 89.7% had two or more risk factors whereas no one was free of risk factors . The most common risk factors observed in the patients were qat chewing, smoking, overweight, hypertension, diabetes mellitus and hyperlipidemia . The results showed a significant difference between males and females regarding the prevalence of qat chewing* ***(****$P = 0.005$****)****, hypertension* ***(****$p = 0.015$****)*** *,diabetes****(****$P = 0.01$****)****. and there was no significane difference of the prevalence of overweight, obesity, hyperlipidemia and smoking.*

Conclusions: *These patients are recommended to be trained regarding lifestyle changes. Also, prevention strategies can play an important role in reducing patient morbidity and mortality*

Key words: *The Risk Profiles of Patients undergoing Coronary Artery Bypass Grafting* ***(****CABG****)*** *at Military Cardiac Center.*

Background

Since cardiovascular disease is the leading cause of mortality in the world, identifying and controlling the risk factors of coronary artery disease are important for prevention of cardiovascular diseases. Many patients undergoing coronary artery bypass graft surgery have previous cardiovascular risk factors which could be prevented **(**1-3**)**.

Up to now, numerous studies have been conducted on the risk factors of cardiovascular diseases, such as hypertension, diabetes, hyperlipidemia, obesity, and cigarette smoking. It seems that the patients with two or more risk factors may have more severe coronary artery stenosis and be affected by cardiovascular events. Also, the patients with more uncontrolled risk factors face complications. Considering the increasing elderly population, these risk factors can be considered more as a public health concern **(**4-10**)**.

Furthermore, the role of secondary and tertiary prevention in cardiovascular events has been emphasized in the guidelines of American College of Cardiology Foundation **(**ACCF**)**, American Heart Association **(**AHA**)**, and European Society of Cardiology **(**11, 12**)**.

Objectives

To Evaluate The Risk Profiles of Patients undergoing Surgical Revascularization **(**Coronary Artery Bypass Grafting**)** In Military Cardiac Center.

Materials and Methods

The study data were retrospectively collected from the patients who underwent coronary artery bypass graft surgery at Military Cardiac Center, within a 3-year period from January 2015-Decembere 2017. Coronary Artery Bypass Graft **(**CABG**)** surgeries were performed in Cardiac Military Center during the study period and 243 patients were selected through random stratification.

All the selected patients who were operated Cardiac Military Center between 2015-2017 were enrolled into this study. However, patients whose concomitant valve surgery were excluded from the study. The study data were collected using a data collection form according to ACCF/AHA guideline, 2011. This data collecting form included demographic information, medical history **(**diabetes, hyperlipidemia, hypertension, and cigarette smoking**)**, lab data before the operation **(**lipid profile and

fasting blood sugar**)**, and objective data **(**ECG before and after the operation, echocardiography, and angiography before the operation**)**. also, Data of Qat chewing habit was collected.

The risk factors were defined according to the existing standard definitions. After all, descriptive statistics were presented through figures and tables and t-test was used to compare the mean differences among male and female participants. All the statistical analyses were performed using the SPSS statistical software **(**version 18.0**)**. $P < 0.05$ was considered as statistically significant.

Results

Among the 243 patients, 212 **(**87.2%**)** were male and 31 **(**12.8%**)** were female. The mean age of the patients was 56.41 ± 8.2 years **(**range: 35 to 76 years**)**. Besides, the mean age of male and female participants was 56.6 ± 18.3 and 55.55 ± 7.58 years, respectively. The results revealed no significant difference between the male and female subjects regarding their mean age **(**$P = 0.507$**)**. In addition, most of the patients **(**80.7%**)** were in younger in the 45-65 years age group. Distribution of the major risk factors and other clinical conditions of the patients has been summarized in Table 1.

Accordingly, around 10.3% had one risk factors and 89.7% had at least two risk factors whereas no one was free of risk factors. The results indicated a significant difference between male and female patients regarding the prevalence of qat chewing, hypertension, diabetes, and there was no significant difference regarding the prevalence of hypercholesterolemia and obesity .Table 2

Discussion

Due to the epidemic of coronary artery risk factors, secondary and tertiary prevention programs are essential. The results of our study showed that 80.7% of the patients had at least two risk factor; table 3, thus, it is necessary to change the patients' lifestyle. In addition, a stronger enforcement strategy is required for the modifiable risk factors. In the present study, the most common risk factors were qat chewing, smoking, overweight, hypertension, diabetes mellitus. Figure 1, Besides, the results showed a significant difference between male and female participants regarding the prevalence of hypertension, diabetes, and qat chewing Except for qat chewing, cigarette smoking, overweight and carotid disease other risk factors were more prevalent among the women. Table 2. According to Table 1, 50% of the patients were overweight, smoker, hypertensive and diabetics . Comparison of the prevalence of risk factors in our patients and Iran and Asians and Americans who underwent CABG surgeries has been shown in Table & Figure 4 **(**7**)**.

Based on this figure, the prevalence of the risk factors was higher in our patients compared to Iranian and Asian and North Americans, but the hypertension and mean age of our patients were lower .also the mean age of our patients was nearly close to the Iranian population might be this similarity due to geographical region.

According to data of Reduction of Atherothrombosis for Continued Health **(**REACH**)** registry, the mean age of the Asian patients referring for CABG surgery was 64.7 years, while that of the North American patients was 70.1 years **(**7**)**. Thus, the mean age of our patients was lower than that of Asian and North American ones. Mandegar et al. showed that the mean age of the patients was 56.4 years **(**55.55. and 56.60**)** in women and men, respectively**) (**13**)**, which is similar to our study findings. Considering the low mean age of the Iranian patients for CABG surgery, more attention should be paid to the social determinants of health. Table & Figure 4 **(**7**)**.

	Entire group	Males	Females	P-Value between
N	243	212 (87.2%)	31 (12.8%)	
Mean age (years)	56.47+-8.2	56.6+-8.3	55.55+-7.58	0.507
Body mass indix (kg/m	25.94+-3.8	25.79+-3.7	26.95+-4.4	0.116
BMI (25-30)	26.86+-1.32	26.9+-1.33	26.25+-1.1	0.058
BMI (>30)	33.37+-4.97	33.66+-5.68	32.8+-3.5	0.711
Hypertension	123 /243 (50.6 %)	101 /212 (47.6 %)	22 /31 (71.0 %)	0.015
Diabetes Mellitus	120 /243 (49.4 %)	98 /212 (46.2 %)	22 /31 (71.0 %)	0.01
Smoking	133 /243 (54.7 %)	120/212 (56.6%)	13 /31 (42%)	0.197
Qat chewing	150 /243 (61.7%)	138 /212 (65.1)	12 /31 (38.7%)	0.005
Dyslipidemia(LDL	186/243 (76.5 % 0	163/186 (87.6%)	23/31 (74.1%)	0.724
High LDL cholestrole	77/240(32.0 %)	71/210 (33.8 %)	6/30 (20 %)	0.15
Low HDL cholestrole	122/236(50.6 %)	105/207 (50.7 %)	17/29 (58.6 %)	0.284
High triglyceride	104/243 (42.7 %)	90/212 (42.4 %)	14/31 (45.1 %)	0.988
NYHA				
Class 1	29 /243 (10.3%)	25/212 (11.7 %)	4/31 (12.9 %)	
Class 2	104 /243 (42.8%)	92/212 (43.3 %)	12/31 (38.7 %)	0.581
Class 3	87 /243 (35.8 %)	77/212 (36.3 %)	10/31 (32.2 %)	
Class 4	23 /243 (9.5 %)	18/212 (8.4 %)	5/31 (16.1 %)	
pre op EF				
EF >49.9	123/243 (50.6 %)	108/212 (50.9 %)	15/31 (48.3 5)	
EF (35-49.9)	95/243 (39.1 %)	82/212 (38.6 %)	13/31 (42%)	0.951
EF < 35	11/243 (4.5 %)	10/212 (4.7 %)	1/31 (3.2 %)	
Prior MI	80 /243 (32.9%)	65 /212 (30.7 %)	15 /31 (48.4%)	0.05
Risk factor count				
No risk factor				
1 risk factor	25/243 (10.2 %)	24/212 (11.3 %)	1/31 (3.2 %)	
2 risk factors	77/243 (31.6 %)	69/212 (32.5 %)	8/31(25.8 %)	
3 risk factors	78/243 (32.0 %)	65/212 (30.7%)	13/31 (32 %)	
4 risk factors	47/243 (19.3 %)	41/212 (19.3 %)	6/31 (19.3 %)	0.178
5 risk factors	13/243 (5.3 %)	10/212 (4.7 %)	3/31 (9.6 %)	
6 risk factors	3/243 (1.2 %)	3/212 (1.4 %)	0	

dyslipidemia defined as LDL level >100mg/dl or HDL < 40MG/DL IN MEN AND ,50 MG /DL in women , or TG > 150mg/dl
High LDL.defined as LDL level >100mg/dl;

Table 1: Clinical characteristics of the Entire study group and according to the Gender

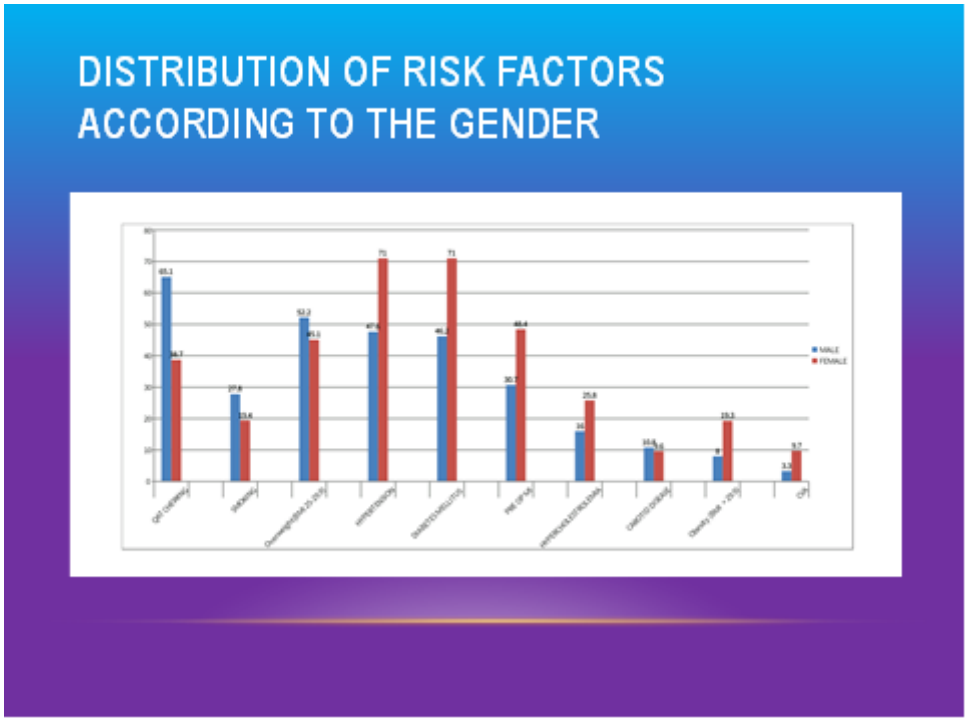
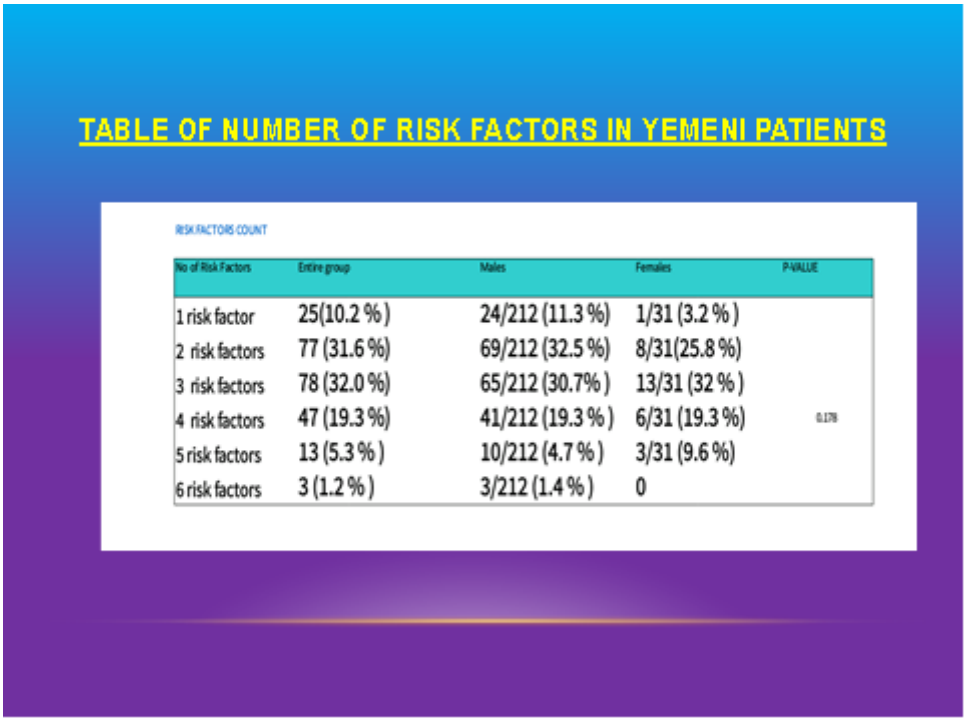


Table 02



No of Risk Factors	Entire group	Males	Females	P-VALUE
1 risk factor	25(10.2 %)	24/212 (11.3 %)	1/31 (3.2 %)	
2 risk factors	77 (31.6 %)	69/212 (32.5 %)	8/31(25.8 %)	
3 risk factors	78 (32.0 %)	65/212 (30.7%)	13/31 (32 %)	
4 risk factors	47 (19.3 %)	41/212 (19.3 %)	6/31 (19.3 %)	0.178
5 risk factors	13 (5.3 %)	10/212 (4.7 %)	3/31 (9.6 %)	
6 risk factors	3 (1.2 %)	3/212 (1.4 %)	0	

Table 03

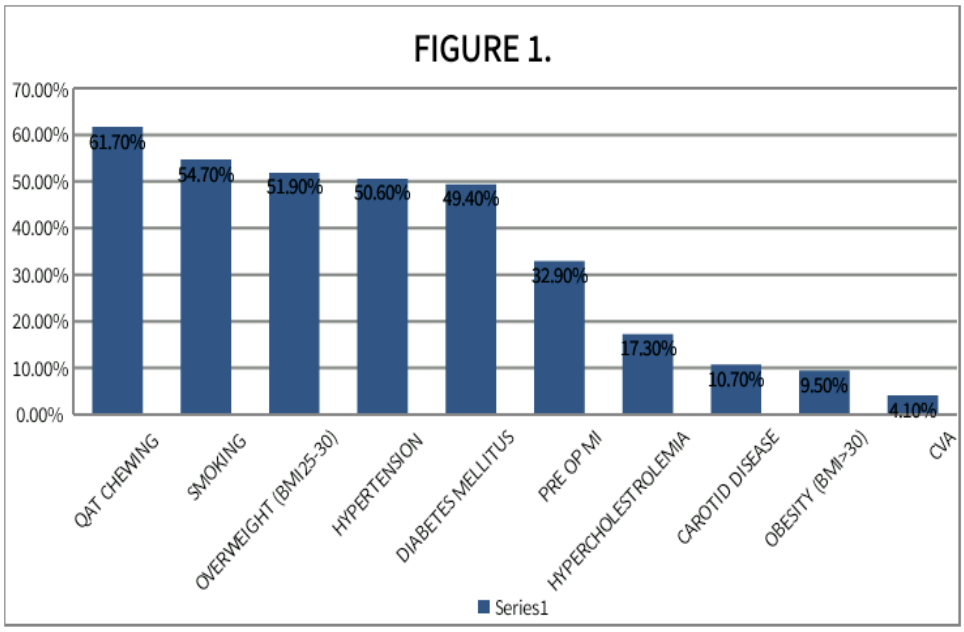
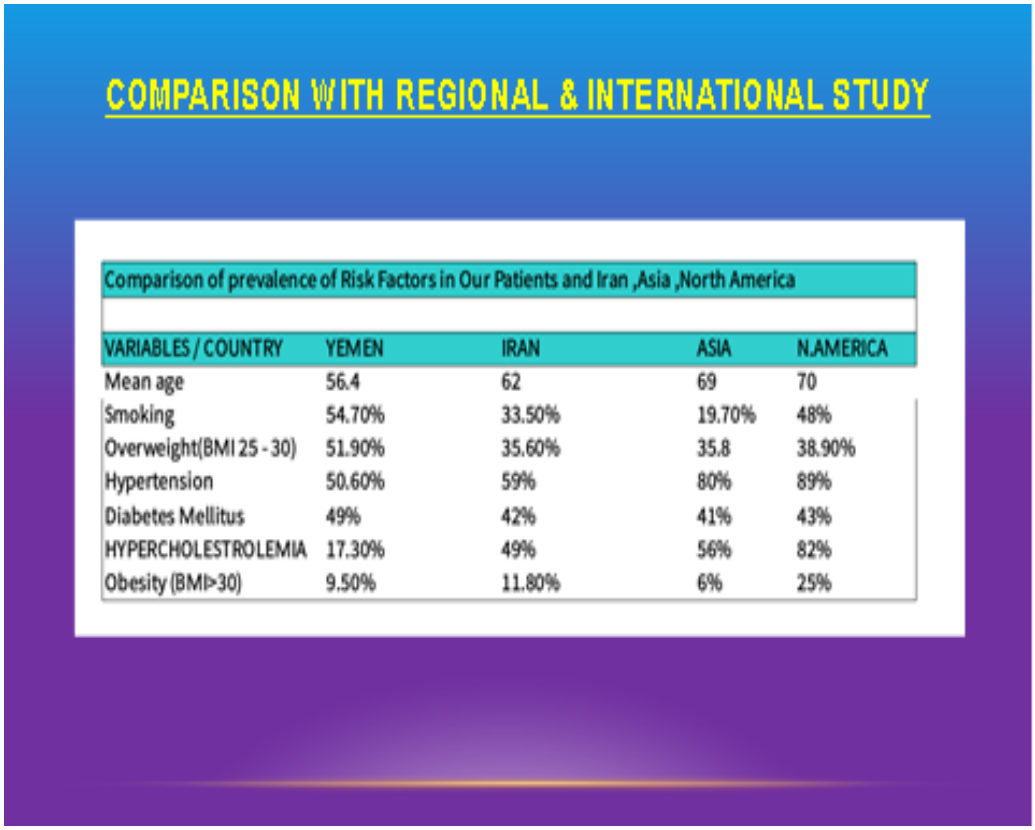


Figure 01



Comparison of prevalence of Risk Factors in Our Patients and Iran ,Asia ,North America

VARIABLES / COUNTRY	YEMEN	IRAN	ASIA	N.AMERICA
Mean age	56.4	62	69	70
Smoking	54.70%	33.50%	19.70%	48%
Overweight(BMI 25 - 30)	51.90%	35.60%	35.8	38.90%
Hypertension	50.60%	59%	80%	89%
Diabetes Mellitus	49%	42%	41%	43%
HYPERCHOLESTROLEMIA	17.30%	49%	56%	82%
Obesity (BMI>30)	9.50%	11.80%	6%	25%

Table 04

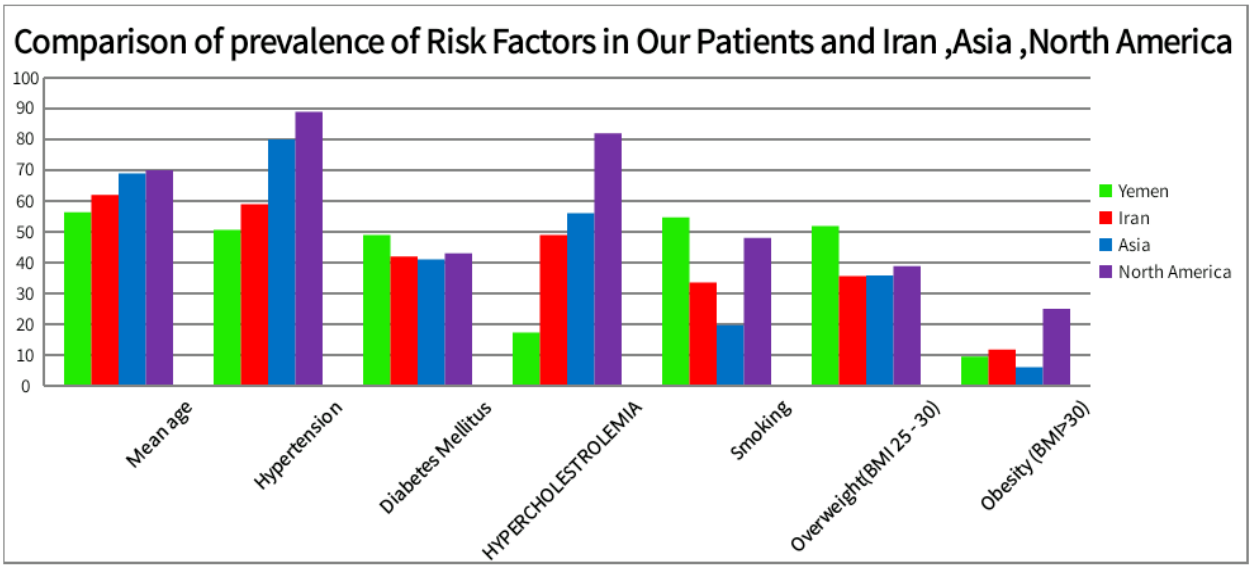


Figure 4. Comparison of the Prevalence of Risk Factors in Our Patients and Asian and North American Patients According to the Data of REACH Registry

Conclusion

The present study reveals high prevalence of most of the cardiovascular risk factors esp. diabetes, hypertension, dyslipidemia, smoker and qat chewing in Yemeni patients undergoing CABG. This implies greater risk of short-term and long-term complications in these patients. These findings mandate strategies to increase emphasis on aggressive risk factor modification in patients undergoing CABG as well as general population in our country.

Prevalence of risk factor in Yemeni patient comparable with regional and international studies for most risk factors **(**DM, HTN, SMOKING**)**.

References

1. Reddy KS. Cardiovascular disease in non-Western countries. N Engl J Med 2004;350:2438-40.

2. World Health Organization. Health situation in the South-East Asia region 1998-2000. New Delhi: WHO, 2002.

3. McKeigue PM, Ferrie JE, Pierpont T, Marmot MG. Association of early-onset coronary heart disease in South Asian men with glucose intolerance and hyperinsulinemia. Circulation 1993;87:152-61.

4. Enas EA, Garg A, Davidson MA et al. Coronary heart disease and its risk factors in the fi rst generation immigrant Asian Indians to the United States of America. Indian Heart J 1996;48:343-54.

5. Wild S, Roglic G, Green A, Sicree R, King H. Global prevalence of diabetes: estimates for the year 2000 and projections for 2030. Diabetes Care 2004;27:1047-53.

6. Gupta R. Meta-analysis of hypertension in India. Indian Heart J 1997;49:43–8.

7. Ramachandran A, Snehalatha C, Satyavani K, Sivasankari S, Vijay V. Metabolic syndrome in urban Asian Indian adults—a population study using modifi ed ATP III criteria. Diabetes Res Clin Pract 2003;60:199-204.

8. Girinath MR. The future of cardiothoracic surgery in India. JIMA 2001;99:497–9.

9. Campeau L, Enjalbert M, Lesperance J, et al. The relation of risk factors to the development of atherosclerosis in saphenousvein bypass grafts and the progression of disease in the native circulation. A study 10 years after aortocoronary bypass surgery. N Engl J Med 1984;311:1329-32.

10. Koch CG, Weng YS, Zhou SX, et al. Ischemia Research and Education Foundation; Multicenter Study of Perioperative

Ischemia Research Group. Prevalence of risk factors, and not gender per se, determines short- and long-term survival after coronary artery bypass surgery. J Cardiothorac Vasc Anesth

2003;17:585-93.

11. Seven-year outcome in the Bypass Angioplasty Revascularization Investigation **(**BARI**)** by treatment and diabetic status; The BARI Investigators. J Am Coll Cardiol 2000;35:1122-9.

12. Knatterud GL, Rosenberg Y, Campeau L, et al. Long-term effects on clinical outcomes of aggressive lowering of low-density lipoprotein cholesterol levels and low-dose anticoagulation in the

post coronary artery bypass graft trial. Post CABG Investigators. Circulation 2000;102:157-65.

13. Nashef SA, Roques F, Michel P, et al. Coronary surgery in Europe: comparison of the national subsets of the European system for cardiac operative risk evaluation database. Eur J Cardiothorac Surg 2000;17:396-9.