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ARTYKUŁ ORYGINALNY/ORIGINAL PAPER

CAD risk factors in veterans and re-tiered militants underwent CABG operation compared to civilian population

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Abstract

Introduction: The aim of the study was to determine atherosclerotic risk factors and angiographic view in veterans and or retired militants underwent CABG in comparison with civilians in Iran. No document were found addressing prevalence of CAD risk factors in Veterans and or Retired (V&R) in Iran. **Material and Methods:** 61 V&R and 61 civilian aged 39-88 candidates for CABG operation were selected. The investigation conforms with the principles outlined in the declaration of Helsinki. Data were collected via interview and reviewing hospitality profile. Demographic characteristics and Minor& major risk factors were assessed and the Data were analyzed using SPSS ver. 11.5 software. Statistical tests used were T-test, Chi-square and Fisher's Exact Test. **Results:** Mean age was 57.36±10.09 and 61.72±9.61 years for the V&R and civilian respectively. Pre-operation Ejection Fraction (EF) was 47.4±8.9 and 46.7±11.45 for the V&R and civilian respectively. A significant differentiation was found between the mean age of CABG in the two groups (P<0.01). No significant differences were found in risk factors of CAD comparing the two groups. The main risk factors of CAD led to CABG were hypercholesterolemia, BMI (≥25), low physical activity and hypertension. **Conclusions:** The results support some prior studies in the field both in Iran and other countries. Unique characteristics of the military and stressful situations during active-duty time may be important factors results in CAD morbidity after leaving military organizations. Veterans and re-tired military personnel should consider a group need to CAD screening and supportive measurements after departure. (*Clin Exp Med Lett* 2007; 48(3):153-156)

Keywords: veteran, retired military, CABG, CAD

Introduction

Coronary artery disease (CAD) is one of the major causes of death, disability and hospitalization in industrialized countries. Both modifiable (e.g. serum lipids, obesity, physical inactivity, smoking) and non-modifiable (e.g. heredity, race, age, sex) CAD risk factors are etiologically related to atherosclerosis and may contribute CAD in adults [1]. Cardiovascular diseases, especially coronary artery disease (CAD), are responsible for the highest mortality rate in Iran [2,3]. Many of studies have reported CAD risk factors, mean age of the morbidity formerly in veterans, military personnel and retired militants [4-5]. No document were found searching Medline, PubMed, Scopus and other Databases addressing prevalence of CAD risk factors and or mean age of the morbidity in Veterans and Retired (V&R) in Iran. Our aim was to determine mean age of the morbidity, major and minor CAD risk factors in the population and make a policy to reduce the risk factors.

Material and Methods

122 male patients (61 V&R and 61 civilian) aged 39-88 candidates for Coronary Artery Bypass Grafts operation during year 2006 in hospitals related to veterans' affairs were selected. The investigation conforms with the principles outlined in the declaration of Helsinki (Cardiovascular Research 1997; 35: 2-4.). After clarifying the aim of the study to the participants and obtaining written informed consent, Data were collected via interview and reviewing hospitality profile. Weight and height was measured then recorded with the subjects lightly dressed and barefoot. A mercury sphygmomanometer with suitable cuff size for each participant was used to record blood pressure. Current physical activity was assessed based on 45 minute 3 times a week. Smoking habits was ascertained by means of confidential questionnaire. Body Mass Index (BMI) for each subject was calculated by dividing his body weight (Kg) to his height (m²). A venous blood sample was taken with 12 hour overnight fasting to determine serum lipids, lipo-

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proteins and Fasting Blood Sugar (FBS). At 5 PM, another venous blood sample was taken for all patients had FBS level more than 110 mg/dL. Blood pressure more than 140/90 mmHg defined as hypertension. Data were entered Data sheet and were analyzed using SPSS ver. 11.5. Statistical tests were used are T-test, Chi-square and Fisher's Exact Test.

Results

Demographic characteristics are shown in table 1. Mean age of CAD morbidity in the sample was 59.54±10.05 years (range: 39-88 years old). The mean number of diseased vessel was 1.99 and left main coronary artery (LMCA) lesion was 14 (11.48%). About 69.7% of the patients had three vessels diseased and 27.9% have two vessels diseased and 2.5% was single vessel diseased (other than LMCA). Mean age was 57.36±10.09 and 61.72±9.61 years for V&R and civilian respectively. With application of T-test; we found a significant differentiation between the mean age of CABG in the two groups (P<0.01). Pre-operation Ejection Fraction (EF) was 46.06±12.2 and 45.5±13.9 for

V&R and civilian respectively. Using T-test we didn't find significant differentiation of pre-operation EF between the two groups (P<0.05). CAD risk factors in the groups are shown in table 2. Despite minimal differentiations of summary estimations, we didn't statistically find any signification in both minor and or major risk factors of CAD led to CABG comparing the two groups. 39 (64%) out of 61 V&R were white-collar and 22 (36%) were blue-collar. Nine (eight V&R and one civilian) had been exposed chemical warfare (sulfur mustard) during Iran-Iraq war in 1980s. The intoxicated group had significant (P<0.01) low physical activity than non-exposed because of delayed complications especially respiratory one. Seventy four (60.7%) out of 122 had education level lower than Diploma. As shown in table 2, four main risk factors of CAD in V&R were as: Hypercholesterolemia (90.2%), BMI more than 25 (67.2%), low physical activity (50.8%), hypertension (42.6%). However; the main four risk factor of CAD in civilian were as: hypercholesterolemia (88.5%), BMI more than 25 (63.9%), cigarette smoking (42.6%) low physical activity (41.0%). Then, Hypercholesterolemia and BMI more than 25 are the main CAD risk factors both in V&R and civilians led CABG.

Table 1. Comparison of demographic characteristics between the V&R and Civilian

		V&R N=61	Civilian N=61	significance	Statistics
Mean age on CABGs		57.4 (SD±10.1)	61.7 (SD±9.61)	P<0.01	T-test
Education	Under Diploma	31	43	NS	Chi-square
	Diploma	17	9		
	Over Diploma	7	2		
	Baccalaureate	4	2		
	Master Science Degree	2	5		
Chemical exposure (Sulfur Mustard)		8	1	P<0.03	Fisher's Exact test
Mean of body height		167.9±7.8	166.4±6.6	NS	T-test
Mean of body weight		76.9±12.8	74.8±12.8	NS	T-test
Mean of body mass index		27.3±4.3	27±3.8	NS	T-test

Table 2. Pre-operation angiographic findings of the V&R and civilian

	V&R N=61	Civilian N=61	significance	Statistics
Pre-operation EF	46.06 (SD±12.2)	45.50 (SD±14)	NS	T-test
Left ventricle dysfunction	13	11	NS	Fisher's Exact
LMCA#	4	10	NS	Fisher's Exact
Three vessels diseased	42	43	NS	Chi-square
Two vessels diseased	18	16	NS	Chi-square
Single vessel diseased	1	2	NS	Chi-square
Valve complications	8	15	NS	Fisher's Exact
Aneurism	3	0	NS	Fisher's Exact

#=Left main coronary artery

Table 3. CAD risk factors leading CABGs between the V&R and Civilian

	V&R N=61	Civilian N=61	significance	Statistics
Hypercholesterolemia	55	54	NS	Fisher's Exact
Over weight(BMI>25)	41	39	NS	Fisher's Exact
Low Physical activity	31	25	NS	Fisher's Exact
Positive family history	18	19	NS	Fisher's Exact
Smoking	21	26	NS	Fisher's Exact
Diabetes mellitus	22	18	NS	Fisher's Exact
Hypertension#	26	23	NS	Chi-square
Hyperthyroidism	1	1	NS	Fisher's Exact

= Less than 45 min 3 times a week

#= blood pressure more than 140/90 mmHg

Discussion

This is the first study at all surveyed angiographic view, mean age of CABG and CAD risk factors in veterans and re-tiered military personnel in the country. The results support Tekes-Manova D (2006) reported main CAD risk factors were sedentary life style (64%), dyslipidemia (55.1%) and smoking (26.8%) in militants [6]. Former studies in Iran also have indicated hypercholesterolemia as the most common CAD risk factor in civilians. In our study, most (>60%) V&R underwent CABG were low-educated and low-ranked personnel. This is accordance with Rachiotis (2005) reported White-collar workers had significantly higher mean levels of total and LDL cholesterol than blue-collar workers [7]. Accordance with the results, Srinivasan (1993) reported a considerable proportion of military personnel and their families tended to manifest adverse lipoprotein patterns according to National Cholesterol Education Program guidelines for children and adults [8]. Exception to Srinivasans'; hypercholesterolemia and BMI more than 25 are the major risk factors of CAD in men instead of Cigarette smoking and alcohol but accordance with Col Andor Gr sz (2007) reported hypercholesterolemia (53.9%) and obesity (40.8%) were the first and second risk factors of Ischemic Heart Disease (IHD) in military pilots [9]. Cigarette smoking is forbidden in mili0tary organizations in Iran that is why probably the smoking is not a main CAD risk factor in V&R in comparison with civilians. We found a positive correlation between hypercholesterolemia and BMI discordant with Jette (1993) reported BMI does not appear to be a particularly sensitive indicator of body fat and coronary risk factors in military personnel [10]. The results showed V&R had physical exercise equal or more than 45 min 3 times a week had low level of blood total cholesterol. According to Swensons' (1997) the well-military group reported a higher activity level than the CAD-military group [11]. We unfortunately, didn't survey psychosocial status. Grenier (1997) reported unique characteristics of the military such as high level of denial of illness, strong social supports, a powerful military work ethic, and stressful situations may be important factors in affecting the psychosocial outcome

of military patients with CAD [12]. Nine (7.4%) people (eight V&R and one civilian) reported they have been exposed chemical warfare (Sulfur mustard) during Iran-Iraq war in 1980s. No more documents were found addressing CAD as a delayed complication of sulfur mustard. We only found one from Iran indicates myocardial perfusion abnormalities in chemical warfare patients intoxicated with mustard gas during the war-time [13]. Low physical mobility due to respiratory consequences in the patients may play an accelerating role in CAD morbidity. More studies require finding out if there is any correlation. Veterans and re-tired military personnel should consider a susceptible and vulnerable group because of the nature of military work and need more supportive measurements. The population also needs periodic assessments to prevent life-end disease especially coronary artery disease.

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