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PJBS

ISSN 1028-8880

Pakistan Journal of Biological Sciences

ANSInet
Asian Network for Scientific Information
308 Lasani Town, Sargodha Road, Faisalabad - Pakistan

Pakistan Journal of Biological Sciences 12 (1): 74-78, 2009
ISSN 1028-8880

Use of Leisure Time in Cardiovascular Patients in Gorgan (South East of Caspian Sea)

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Abstract: The aim of this study was to compare activity patterns and leisure time between matched groups of patients with cardiovascular disease and individuals without a heart disease. The study included 100 patients recruited from those referred to cardiology department of 5th Azar General Hospital of Golestan University of Medical Sciences in Gorgan (South East of Caspian Sea) and 100 matched control subjects during the period 2007-2008. Odds ratios (OR), together with 95% confidence intervals (95% CI), were calculated using logistic regression, as estimates of relative risks. Listening to music OR = 8.800 (95% CI: 2.717-28.499, $p<0.05$), meditation OR = 6.111 (95% CI; 2.616-14.274, $p<0.05$) were independent risk factors. Subjects who performed 2 h per week and 2-4 h per week physical activity, the odds ratios were 0.038 (95% CI: 0.012-0.124, $p<0.05$) and 0.079, (95% CI: 0.024-0.260, $p<0.05$), respectively. Low physical activity and use of long time relaxation are associated with cardiovascular disease in these patients. Regular participation in physical activity such as walking 2 h per week and 2-4 h per week, are associated with reduced risk of cardiovascular disease. This study suggests the importance of both leisure-time physical activity and sedentary behaviors in the prevention of CVD.

Key words: Cardiovascular disease, free time, Gorgan

INTRODUCTION

Cardiovascular disease is estimated to be the leading cause of death and loss of disability-adjusted life years, despite a decline in incidence (Rosengren *et al*., 2001) and mortality (Tunstall-Pedoe *et al*., 1999) in recent decades. Effective prevention requires a global strategy based on the knowledge of importance of risk factors for cardiovascular disease. Cardiovascular disease (CVD) and coronary heart disease (CHD) in particular, is influenced, positively or negatively, to a substantial degree, by lifestyle, emotional and behavioral factors (Wood *et al*., 1998). Cardiovascular disease (CVD) is the major cause of death in most developed countries (Uemura and Pisa, 1988; Thom, 1989), despite the downward trend observed during the last three decades (The Victoria Declaration on Heart Health, 1992; Uemura and Pisa, 1985; Tuomilehto, 1986). The risk factors for chronic disease are also well known in most industrialized countries (Martin *et al*., 1986; Doll and Peto, 1976; Steiner, 1981; Morris *et al*., 1980; Paffenbarger and Hale, 1975; Kannel and Higgins, 1990), and knowledge of risk factors has led to implementation of effective preventive programs (Farquhar *et al*., 1977; Puska *et al*., 1983). Although CVD is emerging in developing countries, little is known about the level of CVD risk factors in these countries (Dodu, 1988; Ghannem *et al*., 1992) . The problems of chronic disease are more serious for developing countries because many of them have not yet conquered communicable diseases, and their health systems are ill prepared to provide the costly care required for chronic diseases. Despite the new interest in and emphasis on public health and disease prevention in developing countries, it appears that the challenge of controlling CVD remains. Current knowledge about the prevention of coronary heart disease and cardiovascular disease is mainly derived from studies in European populations (Yusuf *et al*., 2001a). However, the extent to which these findings apply worldwide is unknown. Some studies reported that risk factors for coronary artery disease vary

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in different geographic regions, especially Asian countries (Pais *et al*., 1996; Yusuf *et al*., 2001b). Cardiovascular diseases cause over 30% of the worldwide mortality (The World Health Report, 2001). The established cardiovascular risk factors account only for 50% of variance in the incidence of myocardial infarction (Hunink *et al*., 1997; Morris *et al*., 2001). Physicians and researchers have for a long time noticed an association between very stressors (wars and natural disasters) and illness. Some people deteriorate rapidly under severe stress, whereas others show minimal to moderate deterioration, and still others seem unaffected. The purpose of the present study was to compare activity patterns and leisure concepts between matched groups of cardiovascular disease and individuals without a heart disease in heart department of 5th Azar General Hospital of Golestan University of Medical Sciences in Gorgan.

MATERIALS AND METHODS

Patients were recruited from those referred to Cardiology Department of 5th Azar General Hospital at Golestan University of Medical Sciences in Gorgan (South East of Caspian Sea). Cases were all patients consecutively admitted with a diagnosis according to the cardiologist. The controls were matched according to age (within 10 year categories) and gender. Exclusion criteria for controls were identical to those for cases, with the additional criterion that controls had no previous diagnosis of heart disease or history of external chest pain. Medical students were recruited as interviewers and underwent initial standardized training regarding the interview technique and data protection procedure. Self-made structured questionnaires were administrated in the same manner in cardiovascular patients and control groups. The study included 100 registered patients with a cardiovascular disease and 100 matched control subjects during the period 2007-2008. Fifty women and fifty men took part in the investigation at 5th Azar General Hospital of Golestan University of Medical Sciences in Gorgan. During the interview, medical and sociodemographic variables were recorded, including family history regarding cardiovascular disease, smoking status (smoker and nonsmoker), education (illiterate, primary school until university), employment status (unemployed, employee, farmer, private (self employed), worker, student and housewife), relaxation (watching TV, reading, listening to music, meditation, sitting without doing anything) and physical activity (very little occasional walks, 2 h per week and 2-4 h per week) were assessed according to questionnaires that are presented in detail. Additional information was received from the patient's charts including body weight and height. Body Mass Index (BMI) was calculated as weight in kilograms meters. The distribution of BMI is reported by standard WHO categories and to normal (<25 kg m^{-2}), overweight (25-29.9 kg m^{-2}) and obese (≥30 kg m^{-})[2]. Data were analyzed with SPSS for windows (version 11.5). Data are presented as percentages or Means±SD. Relaxation and physical activity were examined with logistic regression and using odds ratios (OR) and 95% confidence intervals (CI) for above variables. A $p<0.05$ used for statistical significance.

RESULTS

One hundred patients with cardiovascular disease (CVD) were enrolled (age 29-88 years old; mean age, 56.88±13.51 years old), who were admitted to the General Hospital of 5th Azar in Golestan University of Medical Sciences. In addition 100 age- and sex- matched control groups were enrolled (age 29-88 years old; mean age, 54.43±13.05 years old). Table 1 shows the baseline characteristics of study samples. Fifty percent of the

Table 1: Baseline characteristics of study samples

Characteristics	Cases	Controls
N	100	100
Sex n (%)		
Males	50(100%)	50(100%)
Females	50(100%)	50(100%)
Age Mean±SD	56.88±13.51	54.43±13.05
Age (years), n (%)		
29-38	9(%)	14(%)
39-48	23(%)	21(%)
49-58	26(%)	24(%)
59-68	24(%)	26(%)
69-78	14(%)	12(%)
79-88	4(%)	3(%)
BMI (kg m^{-2}), n (%)		
< 25 20(%)	39(%)	
25-29.9	37(%)	53(%)
≥30 43(%)	8(%)	
Smoking n (%)		
Smoker	19 (%)	10(%)
Nonsmoker	81(%)	90(%)
Education n (%)		
Illiterate	49(%)	13(%)
Primary school	42(%)	14(%)
Secondary school	1(%)	15(%)
High school	4(%)	28(%)
University	4(%)	30(%)
Occupation n (%)		
Unemployed	12(%)	7(%)
Employee	15(%)	38(%)
Farmer	13(%)	9(%)
Private	12(%)	11(%)
Worker	3(%)	5(%)
Student	-	-
Housewife	45(%)	30(%)
History of familial CVD n (%)		
With CVD	30(%)	80(%)
Without CVD	70(%)	20(%)

Table 2: Relationships between baseline variables and cardiovascular disease

Characteristics	OR	95%CI	p-value
Relaxation			
Listening to music	8.800	2.717-28.499	<0.001
Meditation	6.111	2.616-14.274	<0.001
Watching TV	1*	-	-
Physical activity			
2 h per week	0.038	0.012-0.124	<0.001
2-4 h per week	0.079	0.024-0.260	<0.001
Very little, occasional walks	1*	-	-

1*: Baseline

cardiovascular patients and control groups were males and females respectively. As it is indicated that the highest prevalence of cardiovascular patients can be seen during age 49-58 years old. About 20, 37 and 43 % of cardiovascular patients had BMI of <25 (normal), 25-29.9 kg m^{-2} (overweight) and ≥30 kg m^{-2} (obese) respectively. The mean BMI for cardiovascular patients were 26.57 ±4.39 kg m^{-2}. Minimum and maximum were 19.02 kg m^{-2} and 38.07 kg m^{-2}, respectively. About 90 and 81% of samples were smokers and nonsmokers, respectively. About 49, 42, 1, 4 and 4% of samples were illiterate, primary school, secondary school, high school and university educated, respectively. About 12, 15, 13, 12, 3 and 45% of samples were unemployed, employed, farmer (somebody who works on farm), private (self employed), worker (somebody who engages irregular work) and housewife, respectively. About 30 and 70% of samples were with and without history of familial cardiovascular disease. About 39, 53 and 8% of control groups had BMI of < 25 kg m^{-2} (normal), 25-29.9 kg m^{-2} (overweight) and ≥30 kg m^{-2} (obese) respectively. The mean BMI for control groups were 25.73±3.25 kg m^{-2}. Minimum and maximum were 19.10 kg m^{-2} and 36.80 kg m^{-2}, respectively. Ten and 90% of control groups were smokers and nonsmokers, respectively. About 13, 14, 15, 28 and 30% of control groups were illiterate, primary school, secondary school, high school and university educated respectively. About 7, 38, 9, 11, 5 and 30% of control groups were unemployed, employee, farmer, private (self employed), worker and housewife, respectively. Eighty and 20% of control groups were with and without history of familial cardiovascular disease. Table 2 shows the relationships between independent variables (relaxation and physical activity) with cardiovascular disease. The logistic regression analysis was found to be significant. In relaxation, cardiovascular disease were related to listening to music OR = 8.800 (95% CI 2.717-28.499, $p<0.05$) and meditation OR = 6.111 (95% CI 2.616-14.274, $p<0.05$). During leisure time physical activity, subjects who performed 2 h per week and 2-4 h per week physical activity, the odds ratios were 0.038 (95% CI 0.012-0.124, $p<0.05$) and 0.079 (95% CI 0.024-0.260, $p<0.05$)respectively. But cardiovascular disease was not related to other mentioned variables.

DISCUSSION

Cardiovascular disease is major life-threatening diseases occurring in some populations and are associated with considerable disability and premature mortality.

In this study, we observed associations between leisure time and CVD risk.

The present study defines the risk factors for cardiovascular disease in patients referred to cardiology department of General Hospital of Golestan University of Medical Sciences in Gorgan. It is examined whether there are differences in the risk factors for cardiovascular disease. The present study demonstrates that listening to music, meditation and physical inactivity are strong independent risk factor for cardiovascular disease in this area. Despite major advances in diagnosis and treatment, cardiovascular disease remains the leading cause of morbidity and mortality. Present results showed that sedentary is the most important risk factor for cardiovascular disease. One possible explanation is that 91% of participants in this study were illiterate and primary school educated and also 80% of participants were overweight and obese. This can be an explanation for importance of low physical activity and use of long time relaxation in low educated subjects in cardiovascular patients. It is suggested that higher education may increase the awareness of benefits of healthy eating and exercise and the improve individuals' ability to follow health education messages. Because obesity may be less acceptable among those with higher educated people (Kahan *et al*., 2005). Another possible explanation is that women in this study (90% cardiovascular patients) may have spent more time at home and this is a possible reason that they have different lifestyle, because they probably do any physical activity in relaxation leisure time. This is maybe one of the reasons that cardiovascular disease increased in housewife women in this area. Obesity is the most important risk factors in different regions of the world. In fact, the present study shows that the most important risk factor in this area is obesity. Therefore, the incidence of CVD is increasing and obesity will become a more important risk factor for CVD in the future in this area. In European Union study (Varo *et al*., 2003) conducted in 1997, it was reported that Portuguese population was one of the most sedentary among the 15 countries studied. Salonen *et al.* (1986) described how, in Finland, education level was positively related with leisure time physical activity (1988). In both Norwegian adolescents (Oygaard, 1996) and British adults (Kuh and Cooper, 1992) women frequently engaged in sports were better educated. One possible explanation for

the importance of education on female's leisure time activity is that females in higher education and higher social position are more concerned with their appearance and, therefore, develop a healthier lifestyle. Selye *et al.* (1974) showed that use of leisure time is the best opportunity that can relax and reduce stress. In a study showed that people with cardiovascular disease have not enough leisure time (Liljefors and Rohe, 1970). Fitts and Houre (1987) showed that cardiovascular patients had lower relaxation physical activity than healthy people. The proportion of people leading a sedentary lifestyle in the USA reaches even 68%, depending on the gender and ethnical group of the subjects studied (Eaton *et al*., 1994). Reports published to date show the highest percentage of respondents declaring high physical activity in Finland (29.9%), Germany (19.9%), Spain (17.6%), and Russia (13.9%), whereas the lowest in Poland and Hungary (6.9%) (Drygas *et al*., 2001). Present study showed that in relaxation leisure time, listening to music and meditation is the major risk factors for cardiovascular patients. These patients maybe did not take part in physical activity in relaxation time. Lifestyle modification has been shown to be important in different countries for decreasing the risk of cardiovascular disease. The present study suggests that lifestyle modification is probably important. Lifestyle factors such as leisure time relaxation, physical activity and obesity singly or in combination are important modifiable factors that can influence survival of cardiovascular patients in this study. The prevalence of cardiovascular risk factors in participants makes it essential to implement programs to prevent what could be a real epidemic of cardiovascular diseases. Much more attention should also be directed to modifying the environmental determinants of physical inactivity and the resulting obesity (Egger and Swinburn, 1997). On the other hand, the study of Petersen *et al.* (2004) indicates that obesity may cause some limitations and lead to physical inactivity. According to findings of these authors, the inverse cross-sectional relation may be due to the reduction of physical activity as a consequence of obesity, assuming that the higher overweight the greater discomfort of physical activity. These findings may have important implications for identifying patients at overweight or obesity risk at the primary health care. Some studies suggested that vigorous activity at least three times a week was necessary to confer cardiovascular benefit (Morris *et al*., 2002), though another work has indicated that lower levels of physical activity such as walking may be cardioprotective (Manson *et al*., 2002; Lee, 2003). The results showed that regular participation in physical activity such as walking 2 h per week and 2-4 h per week, are associated with reduced risk of cardiovascular disease. This study suggests the importance of both leisure-time physical activity and sedentary behaviors in the prevention of CVD.

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