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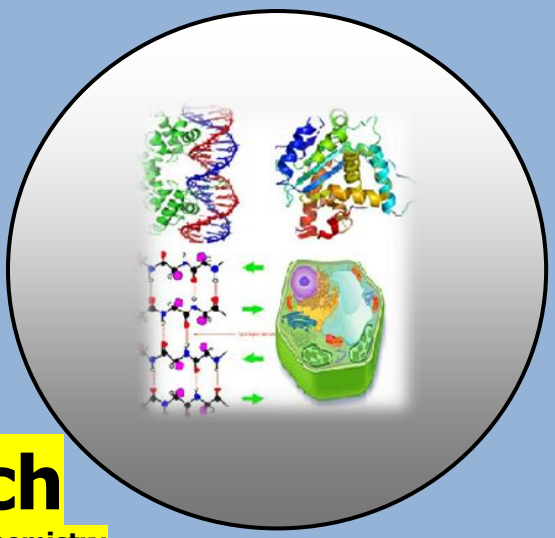

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RESEARCH PAPER

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Investigating the Relationship between Demographic data and Ejection Fraction in a Group of Heart Patients in Ilam, Iran

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ABSTRACT

Heart failure is the first diagnosis that allocates itself the medical services. Researches show that physical activity and life quality decrease most of the disease symptoms like dyspnea and even the patients being admitted in hospitals. The aim of this study was to investigate the relationship between demographic data and ejection fraction in a group of heart patients in Ilam, Iran. This is a case-evidence study in which heart failure patients who are admitted in heart section of Shahid Mustapha Khomeini hospital of Ilam are the case group and the healthy people without cardiovascular disease are the evidence group. Regarding the reported 2 percent heart failure, 101 people including 71 as the case group and 30 as the evidence group were investigated. The statistical analysis of the data was performed using software SPSS version 17 and also t-test and ANOVA. Among the 70 patients in this study, 4.1 percent were men and 54.9 percent were women. Also, in the evidence group, among the 30 studied patients 40% were men and 60% were women (p>0.05). The greatest abundance in the case group was related to severe heart failure with %49.3 (EF<0.030) (p>0.05). The greatest abundance in the case group was 57.7% which was related to BMI=20-50. However, in the evidence group 100% of the samples in this range were from the BMI (p>0.05). Regarding the results drawn from this study, it can be argued that the daily or weekly distribution of weight in order to control BMI as a preventing factor and increasing self-care with regard to ageing in nowadays societies and avoiding false daily habits, are necessary.

Key Words: Demographic Data, Ejection Fraction and Heart Patients.

INTRODUCTION

During the past half-century, there has been a great progress in preventing, diagnosing and controlling cardiovascular diseases (Rajati et al. 2014). The quality of deaths as a result of cardiovascular diseases has decreased in two third of developed countries and the death rate related to acute coronary syndrome, congenital heart diseases, heart valve diseases, unchecked blood pressure and most of Cardiac arrhythmias have significantly decreased (Nabel et al. 2012). However, at the end of the twentieth century, death rate resulted from cardiovascular diseases includes almost half of the death rate in developed countries and one fourth of death rate in developing countries (Bathaei et al. 2009). Among these diseases is congestive heart failure which forms a very important part of cardiovascular diseases and almost all of the heart diseases can result in this syndrome (Braunwald et al. 2005). In this failure, heart cannot pump blood to provide tissues with oxygen and nutrients. In fact, this clinical failure is related to the left part of the heart and has these symptoms: too much mass of liquid, inefficient circulation, dyspnea, lacking appetite, chest ache, and fatigue. These symptoms occur when the heart cannot run enough output to satisfy the body needs (Sholtis et al. 2004). In fact this disease affects not only the patients but also their families and all the society (Yu et al. 2008, Faith Pratt et al. 2010, Loyd-Jones et al. 2010, Gardetto et al. 2011). In general, this causes a decrease in functional capacities and disorder in social life. In people over 65, 10 out of 1000 are afflicted with this disease and about 30 to 50 percent of deaths in heart failure patients happen abruptly (Wingate et al. 2008). Researches show that physical activity and life quality decreases most of the disease symptoms like dyspnea and being admitted in hospitals (Rees et al. 2004, Willenheimer et al. 2001, Corvera-Tindel et al. 2004). In Iran cardiovascular diseases in 1998 have increased up to 16% and the death rate resulting from them is more than any other disease (Medical Education. 1998). In fact heart failure is the first diagnosis which allocates medical services to itself and subsequent reception rate after six months is about %44 (Krumholz et al. 1997). Because we can instruct the patients and plan to decrease the symptoms and know the aggravating factors in each region depending on the factor outbreak, in this study, the relationship between demographic data and ejection fraction in a group of heart patients in Ilam, Iran has been investigated.

MATERIALS AND METHOD

The type of the study and the population

This is a case-evidence study in which the patients with heart failure (EF<%55) admitted in heart section of Shahid Mostafa Khomeini are the case groups and the healthy people without cardiovascular disease are the evidence group.

Conducting Method

This research was conducted on heart failure patients in Shahid Mostafa Khomeini Hospital using Eco-cardiography. To do so, after gaining the patients permission, their demographic data including age, gender, BMI and the severity of heart disease were collected using a questionnaire. The studied patients were classified into three groups according to severity of the heart disease (Lilly et al. 2012): severe heart failure EF<%30. Moderate heart failure EF=%30 and mild heart failure EF=%45-54.

Calculating the Sample Mass

Regarding the %2 outbreak of the reported heart failure in societies with suitable social-economic condition and with %95 certainty and at most %3 error, 90 samples were needed. Because some of the patients might have avoided to fully take part in the research, 101 samples were studied including 71 as the case group and 30as the evidence group.

Statistical analysis:

Statistical analysis of the data was performed using the software SPSS version 17and to do so, t-test and ANOVA were used.

RESULTS

Among the 71 patients in this study %45.1 were men and %54.9 were women. Also in the evidence group, among the 30 studied patients %40 were men and %60 were women (p>0.05) (table 1).

Table 1. The frequency distribution of patients according to Sex.

	Sex			
	Woman		Man	
	Frequency	Percent	Frequency	Percent
No	18	60	12	**40**
Yes	39	54.9	32	**45.1**
Total	57	56.4	44	**43.6**

Table 2. The frequency distribution of patients according to Age.

	Age					
	<50		50-75		>75	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
No	15	50	9	30	6	20
Yes	7	9.9	50	70.4	14	19.7
Total	22	21.8	59	58.4	20	19.8

Table 3. The frequency distribution of patients according to EF.

	cardiac insufficiency	Ejection Fraction	Frequency	Percent
No	**Normal**	EF>55	30	100
Yes	**Slight**	45-54	35	49.3
	median	30-44	12	16.9
	Severe	EF<30	24	33.8
	Total	-	71	100

The patients in both groups were classified into 3 age groups. Regarding the results, the greatest abundance in patients with heart failure was related to 50-75 age groups (table 2). The EF average in the case group was 33.6±12.96 and in the control group was 57.4±1.80. The results showed that the greatest abundance is that of case group with %49.3 relating the severe cardiac failure. (EF<%30) (p>0.05) (table 3). The BMI average in the case group was 23.87 kg/m^2 and 22.5±1.4 in the evidence group. Also the studied samples according to BMI were classified into 3 ranges: 20>, 20-25 and 25>. The greatest abundance in the case group was %57.7 relating BMI=20-25. However in the evidence group, 100% of the samples in this range were from BMI (p>0.05) (table 4).

Table 4. The frequency distribution of patients according to BMI.

	BMI					
	<20		**20-25**		**>25**	
	Frequency	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**
No	0	0	30	100	0	0
Yes	7	9.9	41	57.7	23	32.4
Total	7	6.98	71	70.3	23	22.8

DISCUSSION

Heart failure is a prevalent clinical syndrome with an increasing outbreak in the world and is one of the medical problems which society faces (Stewart et al. 2003, Diskstain et al. 2008). Every year about 250.000 people die of heart failure and the death rate from this disease has increased up to six times during 40 years ago (Heart disease and stroke statistics. 2005). Regarding the importance of knowing the aggravating factors of heart failure, the relationship of demographic data with ejection fraction in a group of heart patients of Shahid Mustapha Hospital in Ilam, Iran has been investigated. Out of 70, in the case group, 39 were women and 32 were men. No significant relationship, unexpectedly, was found between gender and heart failure; however, a significant increase of heart failure in male gender has been reported in some studies (Erickson et al. 2003, Valdivia- Arenas et al. 2009). In this study, the patients were classified into 3 age groups according to age. The results showed significant increase of heart failure patients in the 50-70 age group. However in Malek et al study to determine the aggravating factors of heart failure in heart patients from Fatemieh Hospital in Semnan, the patients with age 71 to 80 were more admitted than the patients in other age groups. The difference in the results is probably due to difference in the studied population (Malek et al. 2005). Also in another study, a significant relationship was reported between age and the quality of re-hospitalization of those afflicted with heart failure (Bathaei et al. 2009). In the present study, the case group depended on Eco-cardiography in a way that the patients with EF<%55 were included in this group. A significant relationship was seen between the case and evidence groups from EF point of view, in a way that EF=33.6±12.96 in the patients group and 57.4±1.8 in the control group, which shows decrease of EF in admitted patients.

Also the amount of BMI in the case group was 23.87±3.28 kg/m^2 and 22.5±1.4 kg/m^2 in the evidence group which shows significant difference of BMI between the two studied groups. In Kyung et al study which was conducted in order to investigate the relationship between BMI and prediction of coronary heart disease, BMI was reported as a factor to predict the heart problems which are in agreement with the results of present study. Also in Weber et al study in 2014 which was conducted in order to investigate the effect of BMI on cardiovascular and metabolic syndrome risk factors in an application pediatric population, the results showed %40 outbreak of overweight in pediatrics (Weber et al. 2014), and this overweight can be known by itself as a risk factor for metabolic syndromes and heart problems.

CONCLUSION

Regarding the results of this study, it can be claimed that daily or weekly distribution of weight in order to control BMI as a preventing factor from heart problems and increasing self-care while ageing in nowadays society with its wrong daily habits are of great necessity. More instructing programs and conducting more studies are inevitable.

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REFERENCES

Rajati, F., Mostafavi, F., Sharifirad, G.H., Feizi, A., Sadeghi, M. and Reisi, M. 2014. Comparison of three quality of life questionnaires in heart failure patients participating in cardiac rehabilitation. *J Health Syst Res*; 10(1): 85-97.

Nabel, E.G. and Braunwald, E. 2012. A tale of coronary artery disease and myocardial infarction. *New England Journal of Medicine*; 366(1):54-63.

Bathaei, S.A., Ashktorab, T., Zohari Anbuhi, S., Alavi Majd, H. and Ezati, J. 2009. Personal factors contributing to readmission of patients with congestive heart failure. *Journal of Critical Care Nursing*; 2(3):109-112.

Braunwald, E., Douglas, P., Zipes, P. and Robert, O. 2005. Barnwell's heart disease: A textbook of cardiovascular medicine. 7th ed. Philadelphia: Elsevier Saunders Company.

Sholtis, L., Suddarth, S., Suzanne, C., Smeltzer, O. and Bare, B.G. 2004. Brunner and Suddarth's textbook of medical-surgical nursing. 10th ed. Philadelphia: Lipipincott.

Yu, D.S.F., Lee, D.T.F., Kwong, A.N.T., Thompson, D.R. and Woo, J. 2008. Living with chronic heart failure: A review of qualitative studies of older people. *Journal of Advanced Nursing*; 61 (5): 474-483.

Faith Pratt, H., Nancy, T. and Lindsey, M. 2010. The lived experience of heart failure at the end of life: A systematic literature review. *Health & Social Work*; 35 (2):109-117.

Loyd-Jones, D., Adams, R.J., Brown, T.M., Carnethon, M., Dai, S. and De Simone, G. Executive summary: heart disease and stroke statistics-2010 update: a report from the American Heart Association. *Circulation* 2010; 121 (7): 948-954.

Gardetto, N.J. 2011. Self-management in heart failure: where have we been and where should we go? *Journal of Multidisciplinary Healthcare*; 4:39-51.

Wingate, S. and Wiegand, D.L.M. 2008. End-of-life care in the critical care unit for patients with heart failure. *Critical Care Nurse*; 28 (2): 84-96.

Rees, K., Taylor, R.S., Singh, S., Coats, A.J. and Ebrahim, S. 2004. Exercise based rehabilitation for heart failure. *Cochrane Database Syst Rev*; (3): CD003331.

Willenheimer, R., Rydberg, E., Cline, C., Broms, K., Hillberger, B., Oberg, L., Erhardt, L. 2001. Effects on quality of life, symptoms and daily activity 6 months after termination of an exercise training programme in heart failure patients. *Int J Cardiol*; 77(1): 25-31.

Corvera-Tindel, T., Doering, L.V., Woo, M.A., Khan, S. and Dracup, K. 2004. Effects of a home walking exercise program on functional status and symptoms in heart failure. *Am Heart J*; 147(2): 339-46.

Ministry of Health and Medical Education. 1998. Distribution of communicable and non communicable diseases; Tehran.

Krumholz, H., Pavent, E.M., Tu, N., Vaccarino, and Wang, Y. 1997. Readmission after hospitalization for congestive heart failure among medicare beneficiaries. *Arch Intern Med*; 157: 99- 104.

Bonow Hann, Ziepes Libby. Braunwald's Heart Disease; A text book of Cardiovascular Medicine. Ninth Edition.

Stewart, S., Macintyre, K., Capewell, S. and Mcmurray, J.J. 2003. Heart failure and aging population: an increasing burden in the 21st century? *Heart*; 89: 49-53.

Diskstain, K., Cohen-Solae, A., Filippatos, G., Mcmurray, J.J., Ponikowski, P., Noole-Wilson, P.A., Zannad, F. 2008. ESC guidelines for diagnosis and treatment of acute heart failure 2008: the task force for the diagnosis and treatment of acute and chronic heart failure 2008 of the European society of cardiology. *Eur J Heart Fail*; 10:933-989.

American Heart Association. 2005. Heart disease and stroke statistics-2005 update. Dallas (TX): American heart association.

Erickson, V. S., Westlake, C. A., Dracup, K. A., Woo, M. A. and Hage, A. 2003. Sleep disturbance symptoms in patients with heart failure. AACN *Clin Issues*, 14 (4): 477-487.

Valdivia-Arenas, M.A., Powers, M. and Khayat, R. M. 2009. Sleepdisordered breathing in patients with decompensated heart failure. *Heart Fail Rev*, 14(3): 183-193.

Malek, M., Skandarian, R., Musavi, S.H., Malek, F., Babai, M., Jandaghi, E. and Ghorbani, R. 2005. Aggravating factors of heart failure in patients admitted to Hospital in Semnan 2003-2004. *Medical Journal of Hormozgan*; 8 (1): 7-12.

Bathaei, S. A., Ashktorab, T., Zohari Anbuhi, S., Alavi Majd, H., and Ezati, J. 2009. Personal factors contributing to readmission of patients with congestive heart failure. *Journal of Critical Care Nursing*, 2(3), 109-112.

Weber, K., Fischl, A. F., Murray, P. J., and Conway, B. 2014. Abstract P239: The Effect of BMI on Cardiovascular and Metabolic Syndrome Risk Factors in an Appalachian Pediatric Population. *Circulation*, 129 (Suppl 1), AP239-AP239.

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