CASE SERIES

22(94), November- December, 2018

ISSN 2321–7359 EISSN 2321–7367

Medical Science

The predictive role of Hyperlipidemia in the incidence of ACS in patients referring to Shahidzadeh Hospital in Behbahan in 2016 -2017

Hadi Mashali[1], Fatemeh Toleideh[2], Rezvan Rahmani[2], Pouriya Darabiyan[3], Mostafa Madmoli[4]✉

Introduction: **Among chronic diseases, cardiovascular disease, especially acute coronary syndrome (ACS), is the most common and most important cause of death in most countries. This study was conducted to determine the predictive role of Hyperlipidemia (HLP) in the incidence of ACS in patients referred to Shahidzadeh Hospital in Behbahan in 2016 and 2017.** ***Methods:*** **The present study is a retrospective cross-sectional study. 926 cases of patients who had ACS or a history of this disease and were referred to Shahidzadeh hospital in Behbahan in 2016 and 2017 were studied. The inclusion criteria included all ACS patients in any age group and sex with any diagnosis or history of ACS in their case, and other records that had a medical diagnosis other than the disease, cases without ACS history, and cases Incomplete (n = 75) were excluded. Data were then entered into SPSS software version 18. Data were analyzed by descriptive statistics including enumerated tables, mean, standard deviation and variance, and analytical tests including Chi-square and Chi-square Pearson, T-test, ANOVA and at the significant level of P <0.05.** ***Results:*** **The sample consisted of 926 ACS with an average age of 17.15 ± 59.00. Of these, 402 (43.4%) were males and the rest were females. In terms of education, the highest number of people was 45.4% illiterate. In terms of occupation, the highest percentage was unemployed (42.6%). There was a significant correlation between ethnicity and cholesterol (P = 0.01). Also, there was a significant relationship between education level and HDL (P = 0.0001).** ***Conclusion:*** **Regarding the high level of LDL, cholesterol and triglyceride levels in this study, which are three risk factors for acute coronary syndrome, it is better to plan to increase the level of health of patients with acute coronary syndrome and to educate these patients in the mass media in the order Work of the Ministry of Health. Therefore, these patients need special attention to identify and treat as soon as possible.**

INTRODUCTION

Among the chronic diseases, cardiovascular disease, especially acute coronary syndrome (ACS), is the most common and most important cause of death in most countries (1,2,3,4). ACS is a spectrum of clinical signs of coronary heart disease including unstable angina (UA), myocardial infarction with ST (STEMI), and myocardial infarction without alteration of ST segment (NSTEMI) (6.5). At the beginning of the 20th century, cardiovascular disease accounted for less than 10% of all deaths in the world, while at the end of this century, cardiovascular disease accounted for nearly half of the total deaths in advanced countries and about 25% of the deaths of developing countries Includes (7). According to the WHO, about 25 million people are expected to die due to cardiovascular disorders in 2020 (8). In the United States, more than 5 million people go to the emergency department every year to check for chest pain and other related symptoms (9) which 10% have acute myocardial infarction and 50% have unstable angina (10). ACS is the most common cause of hospitalization of men and women in the United States (11). In Iran, cardiovascular events are the most common cause of mortality and about 46% of deaths occur due to this (12). Their prevalence is increasing (13). These diseases cost a lot of health systems in communities. And yet, cardiovascular disease is one of the most preventable human non communicable diseases (14). The estimated cost of cardiovascular disease in the United States is estimated at $6 billion annually (15). Cardiovascular diseases affect much different physiological, physical, social, economic, mental, emotional and emotional life of patients (16). Awareness and knowledge about epidemiology and prevalence of ACS leads to understanding the etiology of the disease, risk factors, rational prioritization, allocation of health care resources and more appropriate planning in the health system (18, 17). In Ahmadi et al. Research, the prevalence of heart attacks with ST elevation was 8.75% and the prevalence of heart failure without ST elevation was 2.4% (20%). Also, in a study by BORGNA-PIGNATTI quoted from Madmoli et al., 67 percent of deaths were due to heart

[1]Nursing student, Student Research Committee, Behbahan University of Medical Sciences, Behbahan, Iran; [2]Nursing Student, Islamic Azad University, Masjed Soleyman Branch, Masjed Soleyman, Iran; [3]Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran; [4]Emergency Medical Technician, Dezful University of Medical Sciences, Dezful, Iran;
✉*Corresponding author:* Mostafa Madmoli, Emergency Medical Technician, Dezful University of Medical Sciences, Dezful, Iran; Email: mostafamadmoli10@yah-oo.com

© 2018 Discovery Publication. All Rights Reserved. www.discoveryjournals.org | OPEN ACCESS

disease (21). Considering the prevalence of ACS in Iran and the mortality due to this disease, and the existence of some predisposing and risk factors for this disease, this study aimed to determine the predictive role of HLP in the incidence of ACS in patients referred to the hospital The Shahidzadeh city of Behbahan was conducted in 2016 and 2017.

MATERIALS AND METHODS

The present study is a retrospective cross-sectional study that all patients with ACS diagnosed with ACS or history of ACS present in Shahidzadeh hospital in Behbahan during 2016-2017 were included in the study. The required data for the study were extracted from patients' archives during 2016-2017 by reviewing and retrieving patient's files. This article is a result of the research project of Behbahan University of Medical Sciences with the code BHN-9511. After obtaining necessary permits and financial support from the university, the patients were informed by written informed consent and their files were used for this study.

In this study, 926 cases of patients who had ACS or a history of this condition were studied. The criteria for entering the study included all ACS in each age group and sex with any diagnosis or history of ACS in their case, and other records that had a medical diagnosis other than the disease, cases without ACS history, and cases Incomplete (n = 75) were excluded. In order to study the files and collect data, a written Letter of Introduction from the Faculty of Medical Sciences of Behbahan to the Shahidzadeh Hospital of Behbahan was received by the Vice-Chancellor of Education and Research at the Shahidzadeh Hospital in order to access the archives. After obtaining permission from the chairman of the Hospital, 926 cases were investigated. The required information was collected through a researcher checklist from the records. Data included in this study including demographic, laboratory and clinical data such as gender, age, marriage, ethnicity, occupation, economic status, educational level, history of MI, history of angina, history of cardiovascular disease in the family, HDL, LDL, triglyceride and cholesterol were studied.

Data were then entered into SPSS software version 18. Data were analyzed by descriptive statistics including enumerated tables, mean, standard deviation and variance, and analytical tests including Chi-square and Chi-square Pearson, T-test, ANOVA and at the significant level of $P < 0.05$.

RESULTS

The sample consisted of 926 X-patients with an average age of 59.00± 17.15. Of these, 402 (43.4%) were males and the rest were females. In terms of education, the highest number of people was 45.4% illiterate. In terms of occupation, the highest percentage was unemployed (42.6%). Table 1 shows the demographic information of these individuals. There was a significant correlation between ethnicity and cholesterol ($P = 0.01$). Also, there was a significant relationship between education level and HDL ($P = 0.0001$), (Table 1). In this study, 66 (7.1%) had angiogenesis and the remaining (92.9%) had no history. Also, 108 (11.6) percent had a history of MI and the rest had no history. Of the family history of heart disease, 66 (7.1%) had history and the rest had no history of heart disease. There was no significant relationship between the history of ACS and family history of heart disease and gender ($P > 0.05$) (Figure 1). There was no significant relationship between the mean of HLP and gender in ACS patients ($P > 0.05$), (Figure 2). There was a significant relationship between TG and history of ACS and family history of heart disease ($P < 0.05$), (Table 2).

DISCUSSION

Since among the chronic diseases, cardiovascular disease, especially acute coronary syndrome, is the most common and most important cause of death in most countries, and due to the prevalence of ACS in Iran and the mortality due to this disease, and the presence of some Predisposing factors and risk factor for this disease, the present study was conducted to determine the predictive role of HLP in the incidence of ACS in patients referring to Shahidzadeh Hospital in Behbahan in 2016 and 2017.

In this study, among the HLP indices that were risk factors for ACS disease, the mean total cholesterol was 210.71 mg/dL, the mean triglyceride level was 139 mg/dL, and the average level of LDL was 130/13 mg /dl All three were higher than normal (high limit), but good cholesterol (HDL) was 43.58 mg /dL, which is a borderline level. In the present study, only the correlation between triglyceride and acute coronary syndrome was significant. In the study of Islam mz et al., Which investigated the relationship between Triglyceride and HDL-C in comparison with acute coronary syndrome, the high TG / HDL ratio was associated with ACS (22). Another study by Islam MZ et al. (23) to investigate the relationship between triglyceride levels and acute coronary syndrome showed that there is a significant relationship between high TGs and the risk of ACS (relative risk) higher than the lowest scales. The study also found that high levels of triglyceride were associated with ACS. So these two studies were in part aligned with the present study.

In the present study, the relationship between triglyceride and family history of heart problems was significant. In the study, Shah CP et al. (24) significantly decreased LDL-C, total cholesterol, triglyceride, TCL / HDL-C compared to HDL-C, LDL-C / HDL-C and hsCRP at a much higher risk, and It was more dangerous in patients with ACS. In the present study, the relationship between sex with any of the HLP indices in ACS patients was not significant. The study of Beiranvand et al. (25) showed high prevalence of dyslipidemia and 8.61% of patients had acute coronary syndrome, and more than 80% of these patients had higher levels of lipids than normal. A total of patients were also present.

The prevalence of major risk factors for atherosclerosis was very high and only 5.9% of patients with acute coronary syndrome did not have any major risk factors for atherosclerosis. The prevalence of dyslipidemia was high in cholesterol, high triglyceride and LDL-C in women more than men and the incidence of HDL-C in males was higher in men than in women. In this study, only one of the main risk factors for ACS with this disease was significant. In a study in which four major cardiovascular risk factors (hypertension, diabetes, cigarette and dyslipidemia) were studied, 2594 coronary patients were studied, most of them having at least one of four risk factors (26). A study by Khot UN et al. (27) found that 6.84% of women and 6.80% of men had at least one of the four major cardiovascular risk factors (hypertension, diabetes, cigarette smoking, and dyslipidemia).

In the study conducted by Heydari et al. (28), there was no significant difference in total cholesterol and LDL-C in patients with coronary disease (386 cases) without coronary disease (181 cases), but in the case of triglycerides and HDL.

CONCLUSION

Regarding the high level of LDL, cholesterol and triglyceride levels in this study, which are three risk factors for acute coronary syndrome, it is better to plan to increase the level of health of patients with acute coronary syndrome and to educate these patients in the mass media in the order Work of the Ministry of Health. Therefore, these patients need

© 2018 Discovery Publication. All Rights Reserved. www.discoveryjournals.org | OPEN ACCESS

Table 1 Demographic characteristics of ACS patients and their relation with HLP indices using T-test and ANOVA

Variable	Classification	Number	Percentage	Associated with HDL P value	Associated with LDL P value	Associated with TG P value	Associated with Cholesterol P value
Gender	Male Female	402 524	43.4 56.6	0.88	0.07	0.88	0.17
Ethnicity	Lor Arab Kurd Shooshtari-Dezfouli	516 201 4 205	55.7 21.7 0.4 22.1	0.002	0.11	0.12	0.01
Education	Illiterate Elementary Third grade middle school Diploma Bachelor's degree and higher	420 260 81 129 36	45.4 28.1 8.7 13.9 3.9	<0.0001	0.09	0.32	0.04
occupation	Unemployed Free Employee Housewife	400 185 61 280	42.6 19.6 6.7 31.1	0.09	<0.0001	0.03	0.18
marital status	Married Single Wife died	561 286 79	60.6 30.9 8.5	0.93	0.99	<0.0001	0.91
The economic situation (Monthly-Tomans)	Up to 500 thousand 500 to 1 million Above 1million	348 421 157	37.6 45.5 17.0	0.32	0.005	0.54	0.04

** A significant level below 0.05 is considered.*

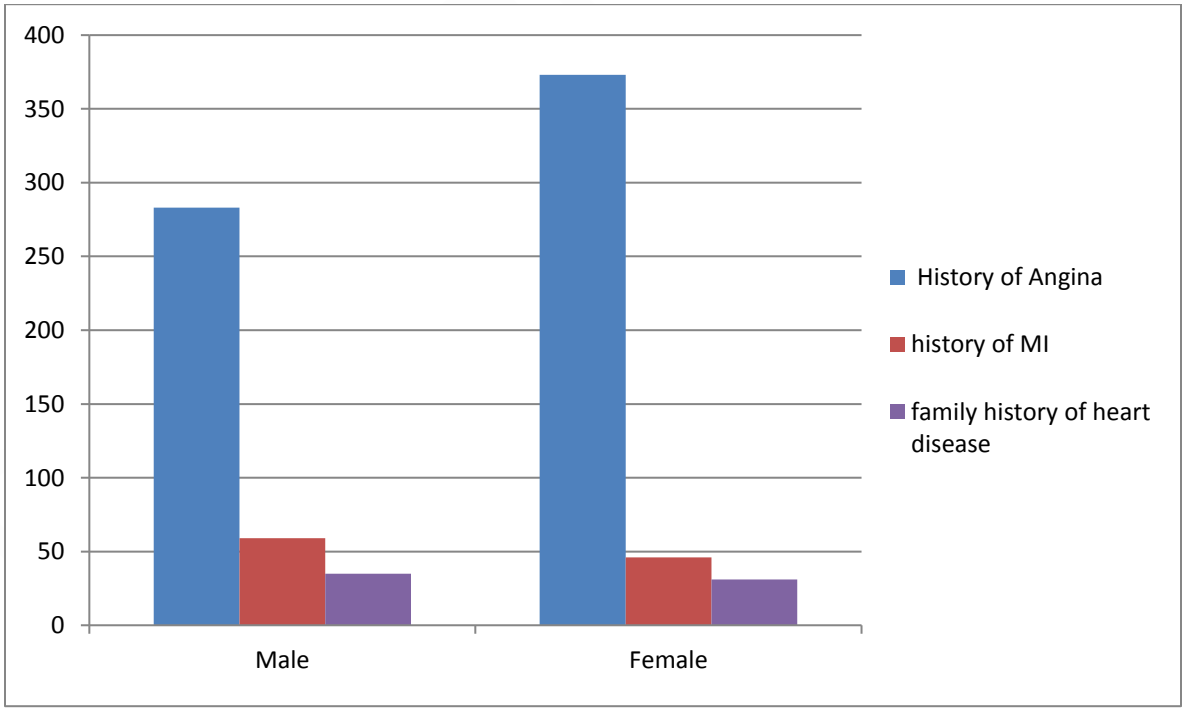

Figure 1 Frequency of ACS history and family history of heart disease by gender in ACS patients

© 2018 Discovery Publication. All Rights Reserved. www.discoveryjournals.org | OPEN ACCESS

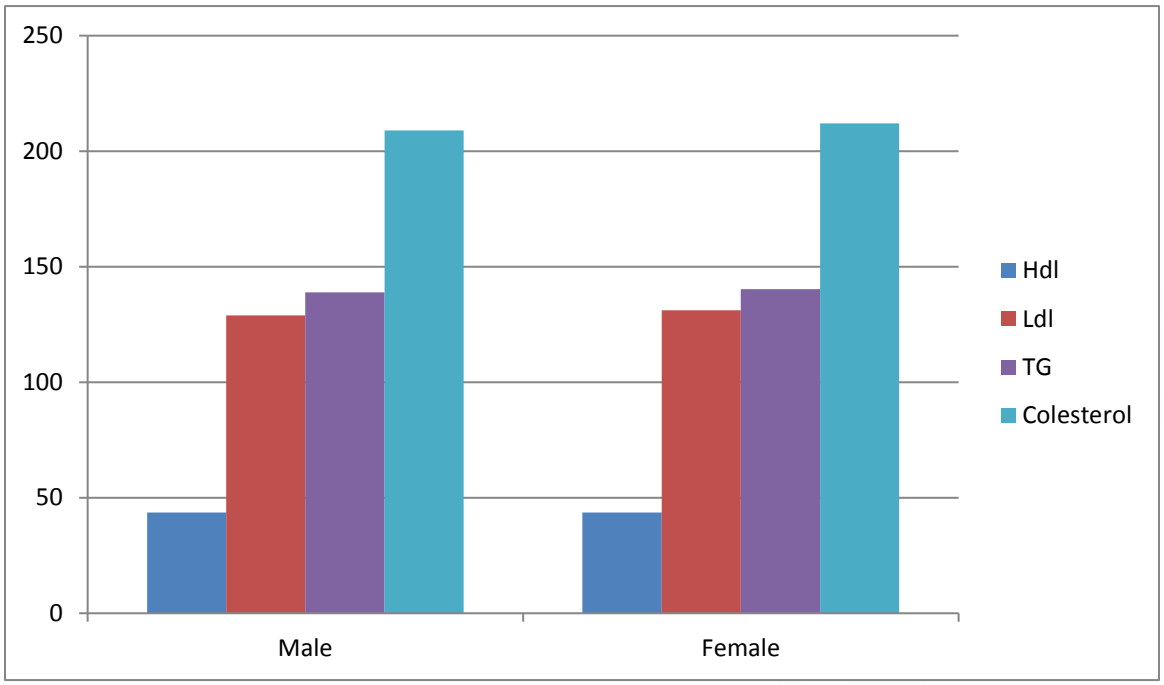

Figure 2 The mean of HLP variables in terms of gender in ACS patients

Table 2 The mean of HLP variables and its association with ACS history and familial history of heart disease in patients with ACS

Variable	mean	Standard deviation	Relationship with the history of angina	Relationship with the history of MI	Relationship with the history of family history of heart disease
Hdl	43.58	9.00	0.77	0.60	0.71
LDL	130.13	18.63	0.91	0.27	0.89
TG	139.64	145.63	*<0.0001	*0.01	*0.02
Cholesterol	210.71	32.67	0.84	0.14	0.63

** A significant level below 0.05 is considered.*

special attention to identify and treat as soon as possible. It is also evident that patients with ACS, due to the high proven HDL effect as an agent protecting cardiovascular and ischemic heart disease, and the incidence of borderline HDL for these patients, can be encouraged by a change in lifestyle and nutrition Healthy ways to increase HDL and also reduce the levels of these three risk factors (cholesterol, triglyceride and LDL) helped reduce the risk of cardiovascular disease at a much lower cost.

REFERENCES

1. Dehghani M, Ashrafi A, Shakeri MT, FalahRastegar A, Hoshmand G. [Factor influencing treatment response in myocardial infarction receiving streptokinase acute myocardial (Persian)]. Medical journal of Mashhad. 2011;54(2):113-9.
2. Adavi A, FathiMarghmalaki R, Madmoli Y, FathiMarghmalaki R, Madmoli M. The Effect of Stress Management on Anxiety of Females with Hypertension. IJNR. 2016; 11 (5) :7-12
3. Adavi A, Marghmalaki F, Madmoli Y, Madmoli M. Investigate the effectiveness of cognitive-behavioral stress management intervention on aggression in women with hypertension. Journal of Clinical Nursing and Midwifery. 2017;4(3).
4. Madmoli M, Eilami O, Rezaie K, Aliabad MA, Moslemirad M. Diabetes and the risk of suffering cardiovascular diseases: a two-year retrospective study. International Journal of Ecosystems and Ecology Science (IJEES).2018.8 (3): 649-656.
5. Cannon CP, Battler A, Brindis RG, et al. American college of cardiology key data elements and definitions for measuring the clinical management and outcomes of patients with acute coronary syndromes. J Am CollCardiol 2001; 38(7): 2114 30.
6. Thygesen K, Alpert JS, White HD, et al. Universal definition of myocardial infarction. Circulation 2007; 116(2): 2634-53.
7. Braunwald E. Heart disease textbook of cardiovascular medicine. 7th ed.W. B. Sunders Com; 2004.P. 1-2.
8. Majidi SA, Moghadam Nia MT, Sharifi M. [Comparision of signs and symptoms associated with acute coronary syndrome in male and female patients (Persian)]. Journal of Guilan University of Medical Sciences. 2011;80(20):60-6.
9. McCaig LF, Nawar EW. National Hospital Ambulatory Medical Care Survey: 2004 emergency department summary. Adv Data 2006; 23(372): 1– 29.
10. Hamm CW, Bertrnd M. Acute coronary syndrome with and without ST elevation. New Guideline Lancet 2001; 358:1533-1545
11. Biranvand M, Asadpour Piranfar M. Dyslipidemia at acute coronary syndrome. Pajouhandeh 2006; 6(11): 377-84. [in Persian]
12. Sharifirad G, Mohebbi S, Matlabi M. The relationship of physical activity in middle age and cardiovascular problems in old age in

© 2018 Discovery Publication. All Rights Reserved. www.discoveryjournals.org | OPEN ACCESS

retired people in Isfahan, 2006. The Horizon of Medical Sciences. 2007 Jul 15;13(2):57-63.
13. Azizi F, Rahmani M, Emami H, Mirmiran P, Hajipour R, Madjid M. Cardiovascular risk factors in an Iranian urban population: Tehran Lipid and Glucose Study. Social Preventive Medicine 2002; 47: 408-26.
14. Ai Ikeda, Hiroyasu.et al. (2007) Marital status and mortality among Japanese men and women: The Japan collaborative cohort study. BMC Public Health. 7:73.
15. Raff GL, Gallagher MJ, O'Neill WW, Goldstein JA. Diagnostic accuracy of noninvasive coronary angiography using 64-slice spiral computed tomography. J Am CollCardiol. 2005;46(3):552-557.
16. Panthee B, Kritpracha C. Anxiety and Quality of life in patients with Myocardial infarction. Nurse Med J Nurs 2011;1(1): 105-15.
17. Ahmadi A, Soori H, Sajjadi H. Modeling of in hospital mortality determinants in myocardial infarction patients, with and without type 2 diabetes, undergoing pharmacoinvasive strategy: the first national report using two approaches in Iran. Diabetes Res ClinPract 2015; 108(2): 216-222.
18. Pedigo A, Aldrich T, Odoi A. Neighborhood disparities in stroke and myocardial infarction mortality: a GIS and spatial scan statistics approach. BMC Public Health 2011; 12(11): 644-647.
19. Freek WA, Verhengt. Early phase of acute myocardial infarction in cardiology. 1st ed. London: Mosby; 2002, PP. 1024-40
20. Ahmadi A, Sajjadi H, Etemad K, Khaledifar A, Mobasherii M. Epidemiological characteristics and determinants of mortality in acute coronary syndrome in Iran. Journal of Mazandaran University of Medical Sciences. 2015;25(124):1-9.
21. Madmoli Y, AkhaghiDezfuli SM, Beiranvand R, Saberi Pour B, Azami M, Madmoli M. An epidemiological and clinical survey of patients with β-thalassemia in dezful in 2015. Iranian Journal of Epidemiology. 2017 Sep 15;13(2):145-52.
22. Islam MZ, Islam MN, Bhowmik TK, Saha B, Hossain MS, Ahmed H, Ali MS, Shakil SS, Paul PK. Relationship between Triglyceride and HDL-C ratio with Acute Coronary Syndrome. Mymensingh medical journal: MMJ. 2018 Apr;27(2):289-93.
23. Islam MZ, Faruque M, Bari MA, Islam MS, Khan MK, Khan NA, Miah AH, Alam MK. Correlation of triglyceride level with acute coronary syndrome. Mymensingh medical journal: MMJ. 2012 Jan;21(1):44-8.
24. Shah CP, Shah BP, Dani SI, Channa BB, Lakshmanan SS, Krishnamani NC, Mehta A, Moorthy P. Efficacy and safety of the intensive dose of rosuvastatin 40 mg/day in patients with acute coronary syndrome and at high risk of cardiovascular disease-ROSUVEES-2. Indian Heart Journal. 2016 Nov 1;68(6):766-71.
25. Birannard M r, Asadpuorpieranfar M. Dyslipidemia in acute coronary syndrome.2006.377-384.
26. van WykJT. Identification of the four conventional cardiovascular disease risk factors by dutchgeneral practitioners.Chest 2005;128:2521-2527.
27. Khot UN, Khot MB, Bajzer CT, Sapp SK, Ohman EM, Brener SJ, Ellis SG, Lincoff AM, Topol EJ.Prevalence of conventional risk factors in patients with coronary heart disease. JAMA. 2003; 290:898-904.
28. Haidari M, Moghadam M, Chinicar M, Ahmadieh A, Doosti M. Apolipoprotein B as the bestpredictor of coronary artery disease in Iranian normolipidemic patients. ClinBiochem. 2001;34: 149–155.

Article Keywords
Acute coronary syndrome, HLP, risk factors of ACS, positive predictive value

Acknowledgement
The authors of this article thank all those who worked with us, including the staff of Shahidzadeh Hospital in Behbahan, and the Deputy of Education and Research of Behbahan Faculty of Medicine.

Conflict of interest
The authors declare no conflicts of interest.

Article History
Received: 10 August 2018
Accepted: 28 September 2018
Published: November-December 2018

Citation
Hadi Mashali, Fatemeh Toleideh, Rezvan Rahmani, Pouriya Darabiyan, Mostafa Madmoli. The predictive role of Hyperlipidemia in the incidence of ACS in patients referring to Shahidzadeh Hospital in Behbahan in 2016 - 2017. *Medical Science*, 2018, 22(94), 566-570

Publication License
This work is licensed under a Creative Commons Attribution 4.0 International License.

General Note
Article is recommended to print as color digital version in recycled paper. *Save trees, save nature*

© 2018 Discovery Publication. All Rights Reserved. www.discoveryjournals.org | OPEN ACCESS