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Original Article

Frequency and causes of discharges against medical advice from hospital cardiac care units of East Azerbaijan, Iran

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Abstract

Introduction: Discharges against medical advice (DAMA) is a common problem of hospitals that could lead increasing the complications and readmission. For this, the aim of this study is to investigate the frequency and effective factors of DAMA in patients with cardiovascular disease in hospital cardiac care units (CCU) of East Azerbaijan, Iran.

Methods: This cross-sectional study was performed, in 2013, in Tabriz University of Medical Sciences, Iran. Required information was extracted using valid and reliable forms of medical records of 2000 patients admitted to 20 CCU in 17 hospitals of East Azerbaijan, by two trained interviewers. Data analysis was performed using descriptive statistics (frequency, mean, percentage, etc.), chi-square test, and linear regression model using the SPSS software. The tests were considered a statistically significant level of 0.05%.

Results: The results showed that 272 patients (13.6%) were DAMA from the hospital. The frequency of DAMA was in men more than women. The most frequency of discharge has occurred in the range of 40-80 years old. Results of linear regression showed that there was a significant correlation between DAMA and type of insurance, history of myocardial infarction (MI), comorbid disease, cause of hospitalization, location of hospital, and staying < 48 hours ($P < 0.050$).

Conclusion: In this study, the rate of DAMA was relatively high compared with similar studies and it is considered as a concern problem that should study the reasons and its effective factors and plan effective interventions to reduce them.

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Introduction

One of the priorities of the modern administration is considering the customer focus and customer satisfaction.[1] In the health system, especially in hospitals in recent years, attention to the satisfaction of patients has been considered serious attention.[2] When the number of patients that leaves hospitals with personal satisfaction or despite the medical advice, it could be considered as one as indicators of dissatisfaction of patients.[3]

Discharges against medical advice (DAMA) means the withdrawal of a previously permission has been given to health-care providers to care him. Discharge with suddenly stop treatment, by patient or

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patient's parents could lead to readmission or death.[4] The prevalence of DAMA is about 1% in most studies. However, in some studies also has been reported up to 25%.[5-8] Studies determined several factors in DAMA that the most important factors are male sex, young patients, addict patients, alcoholism, and patients with low socioeconomic levels.[9] Furthermore, feeling better, dissatisfaction of performance and quality of services, and financial problems had been reported major causes of discharge.[10]

DAMA can lead to increase readmission, complications, morbidity, mortality, and health-care costs.[11-13] So, it requires effective interventions to reduce it. Many studies have been conducted in several countries in different fields.[14-16] However, according to the reviewing results, relatively few studies have been conducted in the field of cardiovascular disease.[17] According to extension, complications, and importance of service quality in cardiovascular disease,[18-20] it seems that it is important to study the rate and effective factors of DAMA in patients with cardiovascular disease and it is needed many studies. The purpose of this study was to study the frequency and effective factors in DAMA in patients with cardiovascular disease admitted to cardiac care unit of hospitals of East Azerbaijan, Iran.

Methods

This cross-sectional study was performed, in 2013, in Tabriz University of Medical Sciences, Iran. Required data were collected using a form approved by the text review and designed by comments of specialists and included information about file number, contact number, age, sex, type of insurance, history of hospitalization, history of myocardial infarction (MI), comorbid disease and its name, reason of hospitalization, complication and its type, having contraindications, undergoing angioplasty, staying < 48 hours, type of hospital ownership, and hospital location (provincial capital or cities). Validity of forms was confirmed by specialists and experts in the field of cardiovascular disease and for identification of problematic items in the forms; first, some of them were completed as trials and problematic items were corrected.

Required information was extracted from medical records of 2000 patients admitted to 20 cardiac care units (CCU) in 17 hospitals of East Azerbaijan, by two trained interviewers. For selection of samples from the hospitals were used of classified sampling and for selection of patients within the hospital was used of randomized sampling based on file number. Data analysis was performed using descriptive statistics (frequency, mean, percentage, etc.), chi-square test, and linear regression model using the software SPSS software (version 17, SPSS Inc., Chicago, IL., USA). The tests were considered a statistically significant level of 0.05%.

For this study has been achieved ethical approval from Regional Committee for Medical Research Ethics at Tabriz University of Medical Sciences. Furthermore, in publishing the study results, all patients' private information has been remained confidential and was not used from the study results for other purposes.

Results

The most patients were men in the study 1144 (57.2%). The most patients were in the range of 60-79 years old. The average age of patients was 61.75 ± 16.07. Other demographic and descriptive data of samples have been shown in table 1.

From 2000 cases had been studied, results showed that 272 (13.6%) of patients were discharged with personal satisfaction. The frequency of discharge has been shown according to sex and age groups in figure 1.

As shown in figure 1, in all ranges of age, the frequency of DAMA in men is more than women. Furthermore, the highest frequency of discharge is happened in the range of 40-80. The most difference between male and female discharge has been observed in the range of 20-60 years old. Results of studying of variables that affecting the discharge have been shown in table 2.

As shown in table 2, results showed that there was a significant correlation between DAMA and type of insurance, history of MI, comorbid disease, cause of hospitalization, location of hospital, and staying < 48 hours ($P < 0.050$).

Table 1. Demographic and descriptive data of hospitalized patients in cardiac care units (CCU) of hospitals in East Azerbaijan

Variable	Variable level	n (%)	Variable	Variable level	n (%)
Reason of hospitalization	ACS	531 (26.6)	Sex	Male	1144 (57.2)
	Arrhythmia	120 (6.0)		Female	840 (42.0)
	CHF	216 (10.8)		Unknown	16 (0.8)
	MI	583 (29.2)	Age (year)	< 19	36 (1.8)
	Others	546 (27.3)		20-39	94 (4.7)
Having complication	Cerebrovascular complication	5 (0.2)		40-59	641 (32.0)
	Gastrointestinal	23 (1.2)		60-79	833 (41.6)
	Other complications	131 (6.6)		> 80	238 (11.9)
	Without complication	1841 (92.0)		Unknown	158 (7.9)
Having contraindication for thrombolytic therapy	Yes	27 (1.4)	Insurance	Tamineejtemaei	696 (34.8)
	No	1904 (95.4)		Khadamatedarmani	508 (25.4)
	Unknown	64 (3.2)		Roostaei	249 (12.4)
Staying < 48 hours	Yes	233 (11.6)		Nirohayemosalah	249 (6.4)
	No	1762 (88.2)		Others	415 (20.8)
	Unknown	5 (0.2)		Unknown	5 (0.2)
Hospital dependency	University	1350 (67.5)	Past history of hospitalization	Yes	541 (27)
	Military	100 (5.0)		No	1554 (72.7)
	Charitable	100 (5.0)		Unknown	5 (0.2)
	Private	600 (15.0)	Past history of MI	Yes	140 (7)
	Tamineejtemaei	150 (7.5)		No	1843 (92.2)
Location of hospital	Tabriz	1605 (80.2)		Unknown	17 (0.8)
	City	395 (19.8)	Comorbid disease	Hypertension	311 (15.6)
Undergoing angioplasty	Yes	139 (7.0)		Diabetes mellitus	113 (5.6)
	No	1831 (91.6)		Hypertension and diabetes mellitus	44 (2.2)
				Others	275 (13.8)
				Without comorbid disease	1257 (62.8)

MI: Myocardial infarction; ACS: Acute coronary syndrome; CHF: Congestive heart failure

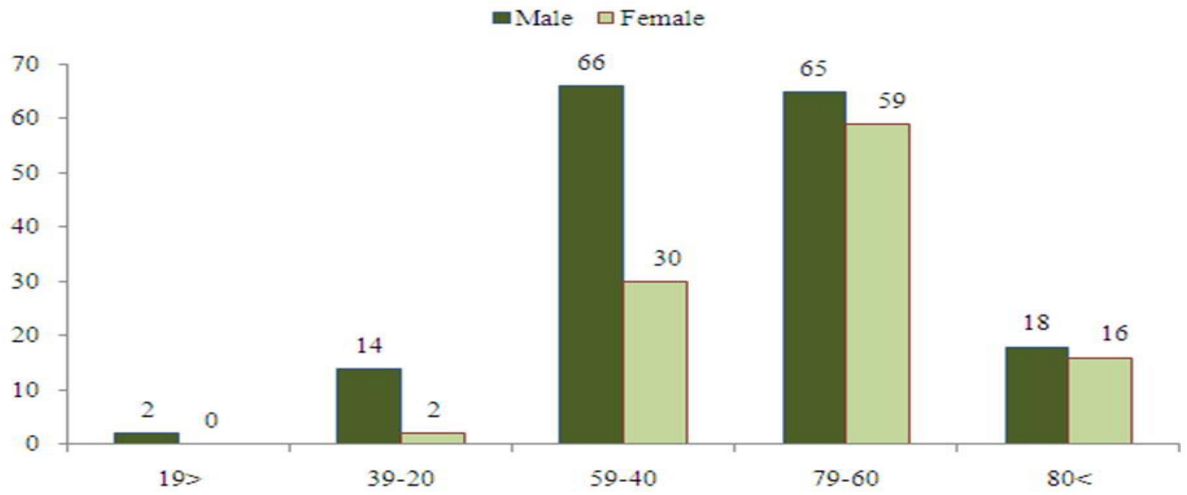

Figure 1. The frequency of discharges against medical advice in hospitalized patients in cardiac care units in hospitals of East Azerbaijan province according to sex and age groups

Table 2. Variables that affecting the discharges against medical advice (DAMA) in hospitalized patients in cardiac care units (CCU) of hospitals in East Azerbaijan (n = 272)

Variable	Variable level	n (%)	P	OR	Variable	Variable level	n (%)	P	OR
Reason of hospitalization	ACS	195 (72.0)	0.001	0.46 (0.31-0.68)	Sex	Male	161 (60.1)	0.400	1.09 (0.81-1.47)
	Arrhythmia	5 (1.8)		0.70 (0.34-1.40)		Female	107 (39.9)		
				0.83 (0.50-1.37)					
	CHF	6 (2.2)		1.05 (0.30-3.54)		Unknown	4 (1.5)		
				0.66 (0.46-0.94)					
	MI	49 (18.1)		0.46 (0.31-0.68)	Age (year)	< 19	1 (0.4)	0.230	-
				0.70 (0.34-1.40)					
	Others	16 (5.9)				20-39	15 (5.8)		
Having complication	Cerebrovascular complication	13 (72.2)	0.930	1.84 (0.19-17.54)		40-59	93 (35.8)		
	Gastrointestinal	1 (5.6)		0.64 (0.13-3.01)		60-79	122 (46.9)		
	Other complications	4 (22.2)		1.20 (0.32-4.51)		> 80	29 (11.2)		
				1.84 (0.19-17.54)		Unknown	12 (4.4)		
Having contraindication for thrombolytic therapy	Yes	2 (0.7)	0.830	2.43 (1.03-5.74)	Insurance	Tamineejtemaei	111 (41.0)	0.020	-
	No	270 (99.3)				Khadamatedarmani	61 (22.5)		
						Roostaei	20 (7.4)		
Staying < 48 hours	Yes	164 (60.3)	0.001	0.68 (0.42-1.10)		Nirohayemosalah	17 (6.3)		
	No	107 (39.7)				Others	62 (22.9)		
						Unknown	1 (0.4)		
Hospital dependency	University	17 (6.3)	0.001	0.84 (0.62-1.12)	History of hospitalization	Yes	66 (24.3)	0.360	3.06 (2.38-3.95)
	Military	24 (8.3)		0.45 (0.18-1.12)		No	206 (75.5)		
	Charitable	101 (37.1)		2.54 (1.62-3.16)		Unknown	0		
	Private	92 (33.8)		0.49 (0.31-0.74)	History of MI	Yes	10 (3.7)	0.020	4.53 (3.46-5.93)
	Tamineejtemaei	38 (14.0)		2.74 (1.81-4.17)		No	259 (96.3)		
Location of hospital	Tabriz	216 (79.4)	0.001	1.17 (0.81-1.68)		Unknown	3 (1.1)		
	City	56 (20.6)			Comorbid disease	Yes	60 (22.1)	0.001	2.18 (1.68-2.14)
Undergoing angioplasty	Yes	4 (1.5)	0.001	0.67 (0.35-1.28)		No	212 (77.9)		
	No	268 (98.5)							

MI: Myocardial infarction; ACS: Acute coronary syndrome; CHF: Congestive heart failure; OR: Odds ratio

In this study, variables that their P < 0.010 (type of insurance, history of MI, comorbid disease, cause of hospitalization, staying < 48 hours, hospital dependency, location of hospital, and undergoing angioplasty) entered in linear regression model. Results showed that between type of insurance [β = 0.55, standard error (SE) = 0.07, P = 0.008], history of MI (β = 0.09, SE = 0.04, P = 0.001), comorbid disease (β = 0.109, SE = 0.024, P = 0.001), cause of hospitalization (β = 0.109, SE = 0.008, P = 0.001), location of hospital (β = 0.04, SE = 0.030, P = 0.035), and staying < 48 hours (β = 0.35, SE = 0.038, P = 0.001); there was a significant correlation with DAMA.

Discussion

DAMA was one of the basic problems of health systems in all countries of the world because it leads to reworks and increase costs and adverse effects of the disease and also leads to the worsening of the patient's condition and sometimes deaths.[21] It has great importance due to the complexity of the treatment and certain conditions of patients with cardiovascular disease.[22] The results showed that the rate of DAMA in patients admitted to the CCU in hospitals of East Azerbaijan is 13.6%. Results of linear regression showed that there was a significant correlation between DAMA and type of insurance, history of MI, comorbid disease, cause of hospitalization, location of hospital, and staying < 48 hours.

As mentioned DAMA in this study was 13.6%. This rate was estimated 4.9% in Manouchehri et al. study in Tehran, Iran. The probable reason for this difference could be due to the patient's type because only hospitalized patients in the coronary care unit (CCU) studied in our study, while in the above study, hospitalized patients in other units also studied. On the other hand, their study was done in a reference hospital, and the most patients were hospitalized from other cities.

This factor could affect in low rate of DAMA. In the study of Fiscella et al.,[22] the rate of DAMA has been reported 1.1% in patients with acute MI since the study was performed in California America, high quality of services in that area cans a reason for the low rate of discharge. If this hypothesis is correct, to reduce the rate of DAMA, it requires executing the programs and interventions to improve the quality of services in the hospitals. Estimated rate of DAMA in our study also was higher than many other studies in other patient groups.[8,23,24] Moreover, this is worrying and needs to study the reasons and planning to reduce the DAMA.

The results showed that DAMA was in men more than women, as well as in young and middle-aged people was more than older people and teenagers, and this result had been shown in the previous study.[24-26] Since cardiovascular disease usually occurs at older ages, the higher average age of patients discharged with personal satisfaction in this study than some previous studies is justifiable. Furthermore, the reason of low rate of discharge in older people and teenagers could have two major factors: The first is that this group of people usually are not at age of working age and often supported by others, so they are not worried so much about the costs and prolongation of the treatment process. Second, these people have no choice to make a decision and mostly their family and supervisors decide for them and because of concern about their healthy; their family has no tendency to discharge them with personal satisfaction. Statistical analysis in this study showed that difference in the DAMA is significant in terms of the types of insurance. Since all patients in this study had at least one of the types of insurance, it was not possible to study the effect of having or not the insurance in discharge.

The study of Baptist et al.,[8] showed that uninsured people discharged 28.9% with personal satisfaction and 13.7% with physician order[8] also a study of Ibrahim et al.[27] showed that having insurance is a prognostic factor for DAMA.[27] Another

effective factor in DAMA is the location of the hospital so that it was significantly higher than in Tabriz (provincial capital) compare to other cities. The study of Fiscella et al.[22] in America and Lorenzi et al.[28] in Italy also showed that DAMA in central hospitals were higher than other hospitals in cities around.

The probable reason for this could be because of different expectations of the patients between both groups of hospitals that should try to make more realistic expectations of patients in hospitals to reduce DAMA, and this is possible with the correct introduction of the hospital during admission. One of the limitations of this study is impossibility extract the reasons for DAMA. Because in most medical records, reasons for DAMA do not record or are unreliable, so it is recommended that future studies study the real causes of DAMA using qualitative research approach or survey studies methods (phone, email, questionnaire by mail and other similar cases).

Conclusion

The rate of DAMA in this study was relatively high compared with similar studies, and this is worrying that it should be studied the reasons and effective factors to reduce them with planning and effective interventions. Furthermore, for appropriate management of DAMA, it is recommended to identify and record the reasons of DAMA in patients' medical records and hospital information systems.

Conflict of Interests

Authors have no conflict of interest.

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