Original Article

Complications after Thrombolytic Treatment in Patients with Acute Myocardial Infarction and Their Reflection on Nursing Practices

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Abstract

Introduction: Cardiovascular disease has become one of the most common diseases in the world with the development of the industrial society. This study was conducted to examine the complications of thrombolytic treatment and their effects on nursing practices.
Methods: This descriptive and observational research was carried out on 60 patients who were hospitalized with acute myocardial infraction in the coronary intensive care units of a public hospital between January, 2011 and December, 2011. In collection of the data the questionnaire developed by the researchers was used. In evaluation of the data frequency and percentage values were used in SPSS 17.0 software.
Results: It was determined that the 73,3% of patients participated in the study were male, 56,7% were in between 50-69 age group; 55% were smoking and 33% had alcohol consumption habit. According to the ST localization; 60% of patients were diagnosed with inferior myocardial infraction and 70% had hypertension, the developed complications were determined in 96,7% of patients as 97% minor bleeding, 95% arrhythmia, 93,3% hypotension, 3,3% fever and 1,7 major bleeding. It was found that the 93,3% of minor bleeding complications were in intravenous failed attempt places, 16,7% gingiva, 3,3% intraocular bleeding, 15% epistaxis, 5% ecchymosis.
Conclusion: Nurses were advised to follow the patients in terms of complications and to open vascular accesses more carefully on patients who will get treatment of acute myocardial infraction.

Keywords: Acute myocardial infraction, Complications of thrombolytic treatment, Nursing practices, Thrombolytic treatment

Introduction

Cardiovascular disease has become one of the most common diseases in the world with the development of the industrial society. The World Health Organization (WHO), announced that about 17.6 million people lost their lives due to this disease and its rank is first among causes of death in 2012 and WHO has estimated that in 2030, nearly 23 million people will lose their lives from this disease (WHO, 2012). Acute myocardial infraction (AMI) which occurs as a primary complication of cardiovascular diseases is the main reason of morbidity and mortality worldwide. AMI which is developed because of the prolonged

ischemia, is irreversible myocardial damage and necrosis (Kultursay, 2011; Yilmaz et al., 2011; White and Chew, 2008).

Acute myocardial infraction (AMI) is an important public health problem because of it is usually seen more frequent in the productive age group of society and it leads to serious problems due to complications after acute phase (WHO, 2012). Time is the most important element in the AMI treatment. Alternative treatment options of diagnosed patients should be considered as soon as possible. Quick provision of coronary blood flow allows retention of myocardial necrosis in minimal levels and determines the survival. Thrombolytic treatment which started to be use in eighties, is one of the most important options of treatment, it enables myocardial perfusion by eliminating the occlusion (Bayir and Ak, 2003; Eren et al., 2006).Thrombolytic treatment can be given to more than half of patients with AMI (Grines et al., 1993; Schefold et al., 2009). In a retrospective study conducted in the emergency room by Eren et al (2006), it was stated that; they 47% of patients were treated with thrombolytic treatment. In another study conducted in Turkey, this ratio has been determined as 69% (Bayir and Ak, 2003). According to the AMI treatment guideline of National Institute for Health and Care Excellence (NICE) in 2002; it has been reported that it is important to follow up the patients' vital signs and drug complications during treatment of patients who can be treated with thrombolytic treatment (NICE, 2002). Bleeding is the major complication associated with thrombolytic drugs and high mortality rate or hemorrhagic stroke which leads to long-term disability can occur in 0,5-1% of patients. Bleeding can be seen in injection areas, intravenous (IV) attempt areas, gastrointestinal tract and different parts. Besides these complications, Cardiology Association of Turkey reported that hypotension, fever, reperfusion arrhythmias may develop after thrombolytic therapy (http://old.tkd.org.tr/kilavuz/k01.htm, 1998).

In AMI therapy, the reason of existence of problems like autonomic nervous system activation (pallor, sweating) and hypotension or narrowing of pulse pressure makes it difficult to palpation of the vessel and attempt to open a line for nurses. In addition, during implementation of the thrombolytic agent in failed intravenous attempt areas bleeding occurs (NICE, 2002).

The role of nurses is great in the multidisciplinary team in the implementation of thrombolytic agents. Taking the patient medical history by nurses is vital in determining the patients whom treatment is contraindicated. Nurses as occupational group who apply the thrombolytic treatment, lead to right intervention by noticing complications that may occur early. Therefore this study; was performed to determine the complications after vital thrombolytic therapy for patient with AMI and evaluate the reflection of these complications on nursing practices.

Materials and methods

This study was designed as observational and descriptive. The research was conducted among patients admitted to the emergency department of a public hospital at the Western Black Sea Region and admitted with the diagnosis of AMI and took thrombolytic therapy. The universe of the research was consisted of 68 patients who were hospitalized and the sample of the study was consisted of 60 patients who were voluntarily participated and over 18 years old (Participation rate: 88,23%). To all of these patients, in terms of 90-minute treatment protocol, the thrombolytic treatment given with 100 mg drug called Actilyse. In collection of research data; the patient information form developed by the researchers was used. This form; included socio-demographic and disease characteristics and investigation of complications occurring after thrombolytic therapy. Research data was collected by interviewing with patients face-to-face and the complications occurred after therapy were recorded on data collection form by observation of the same nurse. Data of Research was analyzed using SPSS 17.0 software. In the statistical analysis of the data; frequency and percentage values were calculated.

This research conducted according to Declaration of Helsinki principles. By informing patients about the purpose of the study before questionnaire filled, voluntary basis is taken into account to participate in the study. In order to conduct the study, written permission was taken from the research committee of hospital where the study

was conducted. Also, during the implementation of the study, the patients consent was obtained.

Results

It was found that the 73.3% of patients participating in the study were male, 56,7% in the 50-69 age range, 36.7% had high school graduates, 38.3% working as workers. The results show that the 55% of patients were smoking, 33.3% had a previous AMI diagnosis, 70% had hypertension and 30% had diabetes history (Table 1).

It was observed that in the 93.3% of patients enrolled the study the hypotension developed and in 95% the arrhythmia developed, 16.7% had gingival bleeding, 15% had nosebleed and 93.3% had failed IV attempt area bleeding (Table 2).

Table 1. Patients Descriptive Characteristics (N=60)

	Variable	N	%
Gender	Female	16	26.7
	Male	44	73.3
Age (years)	30-39	5	8.4
	40-49	20	33.3
	50-69	34	56.7
Educational Background	Illiterate	2	3.3
	Literate	4	6.7
	Primary education	25	41.7
	High school	22	36.7
	University	7	11.7
Vocation	Civil servant	7	11.7
	Worker	23	38.3
	Farmer	9	15
	Self-employment	4	6.7
	Retired	6	10
	Housewife	10	16
	Unemployed	1	1.7
Smoking Status	Smoker	33	55
	Non- Smoker	27	45
Alcohol Use Status	Drinker	20	33.3
	Non-Drinker	40	66.7
AMI History in Family	Yes	57	95
	No	3	5
Passed AMI History	Yes	20	33.3
	No	40	66.7
Diabetes History	Yes	18	30
	No	42	70
Hypertension History	Yes	42	70
	No	18	30

Table 2. Developed Complications After Thrombolytic Therapy (N=60)

Variable	N	%
Hypotension		
Yes	56	93.3
No	4	6.7
Arrhythmia		
Yes	57	95
No	3	5
Gingival bleeding		
Yes	10	16,7
No	50	83.3
Nosebleed		
Yes	9	15
No	51	85
Ecchymosis		
Yes	3	5
No	57	95
Intraocular bleeding		
Yes	2	3,3
No	58	96.7
Failed IV Attempt Site Bleeding Yes	56	93.3
No	4	6.7

Discussion

As a result of this study we conducted, it was determined that the 33.3% of patients had diagnosis of AMI which were passed, 30% had diabetes, 70% had history of hypertension (Table 1). The presence of risk factors for coronary artery disease in individuals increases the AMI development. Kaya et al stated in their research that as risk factors of coronary artery disease, in 39.4% of patients (n=28) hypertension, 9.9% (n=7) diabetes, 43.7% (n=31) hyperlipidemia and in 19.7% of family history (n=14) it was positive. This study results are similar to our study's results.

In the majority of patients in research, existence of family history and hypertension have been identified. In a study conducted by Ceylan et al reported that smoking and existence of family history as the most common cardiovascular risk factors. Boateng and Sanborn discussed the AMI risk factors by dividing them into two groups as changeable and unchangeable. In their studies they described the age, gender, family history as unchangeable; smoking, alcohol use, sedentary lifestyle, poor diet, hypertension, diabetes, dyslipidemia and metabolic syndrome as changeable factors. In a study conducted Grines et al stated that 39 patients of 200 patients enrolled had hypertension history and 14 patients had previously passed AMI diagnosis. Variables of our study's patients was found to be similar to the risk factors described in the literature.

As regards the subject of our study, in a study conducted by Kurkciyan et al observed major bleeding in 13 of 132 patients who had

thrombolytic therapy, in 4 patients venous access site bleeding, in 2 patients gastrointestinal bleeding and in 2 patients the develop of hematoma with lower extremity was observed. In a study conducted by Taneva stated that the 46,67% of individuals who had thrombolytic therapy had symptoms such as nose, gum bleeding, blood in urine, blood with cough. In a study observing the relationship between bleeding complications and hypotermia in treated patients with the diagnosis of AMI conducted by Schefold et al found that there was no significant difference between the groups, none of the patients had no itracranial hemorrage development but in different areas minor bleeding has developed.

In the same study, orafrangeal hemorrage (n=2) and IV attempt site hemorrhage (n=1) were determined as minor bleeding sites. In a study conducted by Grines et al reported that after the thrombolytic therapy in 4 patients intacranial bleeding, in 1 patient IV access site bleeding, in 89 patients hypotension has developed, in 87 patients arrhythmia has developed.

Conclusion

In our study, it was found that in the majority of patients enrolled after thrombolytic therapy, arrhytmia, hypotension, minor bleeding have developed and this minor bleeding was mostly in intravenous attempt site.

Even though our study's results had different proportions in terms of developed complications between the patients from above studies, after treatment, majority of patients overlap in terms of hypotension, arrhythmia and minor bleeding development. It was thought that proportional differences may be results of the characteristics of patients included in the studies (age, dose of received thrombolytic therapy, the presence of different diseases, etc.).

The existence of evidences like autonomic nervous system activation in AMI patients (pallor, sweating) and hypotension or narrowing of pulse pressure makes vessel palpation and opening the vessel challenging for nurses. In failed IV attempt sites, during implementation of the thrombolytic agent, bleeding occurs. Even the occured bleeding is not vital, has negative impact on patient comfort.

In our study, in the patients of AMI, after applied thrombolytic therapy, mostly minor bleeding develops and it was seen in IV attemt site, this reflects negatively on nursing practices.

For these reasons, nurses should be more careful when establishing vascular access in the patients who had acute myocardial infraction and will take thromolytic therapy, they should use technologies which make venous system become apparent and they also should monitor the patients in terms of complications as arrhythmia and hypotension.

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