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Retrospective analysis towards diagnosis and treatment status of acute myocardial infarction patients in Binhai Community

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ABSTRACT

Objective: To investigate the features towards diagnosis and treatment status of acute myocardial infarction patients in Binhai community. And to offer some helps towards community hospitals in treatment with AMI patients. **Methods:** One hundred and twenty one AMI patients were randomly divided into treatment groups (n=72) and control groups (n=49). Two groups comparative difference was not statistically significant in age, Killip classification, hypertension, diabetes, hyperglycemia, stroke, and drug used after entering the hospital (P all>0.05). The treatment group received the drugs within 4 h, Control group received the drugs after 4 h. **Results:** The post infarction angina rate is low in treatment group (4.17%) when compared with control group (18.37%) after entering the hospital. And the death rate is also low in treatment group (1.39%) when compared with control group (10.20%) after entering the hospital. The utilization rates of drugs by recommendation like nitrates, β-receptor blockers, aspirin, clopidogrel, low molecular weight heparin were excellent when compared with situations two decades ago. Traditional Chinese medicine intervention is more popular than before. **Conclusions:** Low post infarction angina rate and low death rate have the positive correlation with drugs by recommendation and traditional Chinese medicine intervention. AMI patients under emergency thrombolytic therapy can improve the treatment effect, improve the prognosis of patients effectively and accelerate the rehabilitation. hs-cTn detecting techniques will classify the patients rapidly and bring a brilliant future to them.

1. Introduction

Acute coronary syndromes (ACS) represent a spectrum of events ranging from unstable angina pectoris (UAP) to acute myocardial infarction (AMI), with or without ST elevation[1]. Dudas *et al* get the conclusions by large sample survey that sex, age, smoking, diabetes mellitus, and peripheral arterial disease were all important causes of AMI.

There is a factor that may be a determinant – did not use drugs that protect cardiac of themselves[2]. Thought treatment towards AMI developed very quickly, the prognosis of AMI patents is still worse. People were still fouces on AMI with ST-segment depression over the years. The diagnosis and treatment methods were upgrade in the last decades. But methods towards AMI without ST-segment depression is remain less. Misdiagnose situation happen everywhere. Rapezzi *et al* established Guidelines for the diagnosis and treatment of non-ST-segment elevation acute coronary syndromes in 2008[3]. Roe *et al* discover that, there is under investigation of high-risk patients without ST segment elevation in Australian hospitals, particularly for women and older patients. Indigenous patients are younger and have poorer risk profiles, and represent a group that would benefit from greater investment in prevention strategies[4]. Under the leadership of Steg *et al*, European Society of Cardiology published ESC Guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation[5]. Brieger *et al* also discover that up to 30% of patients with STEMI present with atypical symptoms[6].

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Our research takes a retrospective analysis of clinical data with AMI patients cured in our community. To investigate the features towards diagnosis and treatment status of acute myocardial infarction patients in Binhai community. And to offer some helps towards community hospitals in treatment with AMI patients.

2. Materials and methods

2.1. Patients information

The medical records of one hundred and twenty one AMI patients treated in Binhai community were collected between 2010-2012. Their were 30-82 (70.28±11.18) years old; 61 cases were male, 60 cases were female.

2.2. Diagnostic criteria

We consulted the diagnostic criteria of the 'Third universal definition of myocardial infarction' which published by European Society of Cardiology in 2012[7]. All patients proceed with history acquisition, carefully physical examination and necessary laboratory tests in the hospital. The myocardial enzyme tests investigated every 6 h and multiple reexamination of electrocardiogram were also needed. Ultrasonic cardiograms were taken for all cases after entering the hospital 1-2 weeks. Standard treatments towards acute myocardial infarction were given by doctors. The thrombolytic therapy were permitted if patents without thrombolysis contraindication.

2.3. Group divided

One hundred and twenty one AMI patients were randomly divided into treatment groups (n=72) and control groups (n=49). Two groups comparative difference was not statistically significant in age, Killip classification, hypertension, diabetes, hyperglycemia, stroke, and drug used after entering the hospital (P all>0.05). (Table 1 & 2). The treatment group received the drugs within 4 h, Control group received the drugs after 4 h.

2.4. Statistics analysis

The data collected during this study were analyzed by SPSS 16.0 statistics software. The measurement data was expressed by Mean±SD, student's t test was used when compared between groups. Count material was expressed by rate, the χ^2 test was used when compared between groups. P value<0.05 were considered for statistically difference.

3. Results

3.1. Cardiovascular adverse events

The post infarction angina rate is low in treatment group (4.17%) when compared with control group (18.37%) after entering the hospital. And the death rate is also low in treatment group (1.39%) when compared with control group (10.20%) after entering the hospital (Table 3).

3.2. Drugs used by recommendation

Analysis all data from 2010 to 2012, we found 121 patients with 109 cases using drugs by recommendation like nitrates, β-receptor blockers, aspirin, clopidogrel, low molecular weight heparin. That utilization rate was

Table 1
General information compared between two groups of patients in hospital n(%).

Group	Total	Age (Mean±SD)	Killip classification				Hypertension	Diabetes	Hyperlipidemia	Stroke
			I	II	III	IV				
Control	49	70.89±12. 33	33	11	4	1	40	19	35	1
Treatment	72	70.11±10. 22	46	20	6	0	62	26	55	0

Table 2
Drugs received information compared between two groups of patients in hospital n(%).

Group	n	Durg				
		Nitrates	β-receptor blockers	Aspirin	Clopidogrel	Low molecular weight heparin
Control	49	46(93.88)	44(89.80)	47(95.92)	43(87.76)	45(91.84)
Treatment	72	69(95.83)	66(91.67)	68(94.44)	64(88.89)	67(93.06)

Table 3
Cardiovascular adverse events happened between two groups of patients in hospital *n*(%)

Group	*n*	Cardiovascular adverse events				
		Post infarction angina	Heart failure	Arrythmia	Death	Hemorrhage
Control	49	9(18.37)	13(26.53)	8(16.33)	5(10.20)	11(22.45)
Treatment	72	3(4.17)*	13(18.06)	12(16.67)	1(1.39)*	14(19.44)

Compared with control group, *P<0.05.

excellent when compared with situations two decades ago.

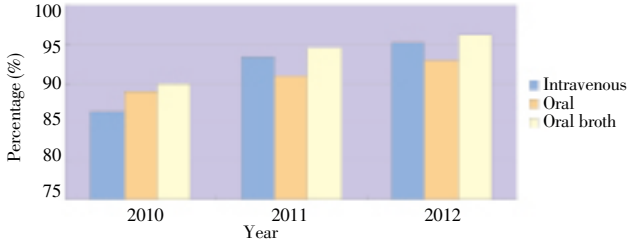

Figure 1. All AMI patients treated with drugs by recommendation in Binhai community from 2010 to 2012.

3.3. Traditional Chinese medicine intervention

Analysis the data from 2010 to 2012, we found 121 patients with 85 cases using traditional Chinese medicine intravenous preparations. Utilization rate was 70.25%. And 24 cases with oral Chinese medicine. That utilization rate was 31.83%. As well as 51 patients were treated with oral medicinal broth. Utilization rate was 41.32%.

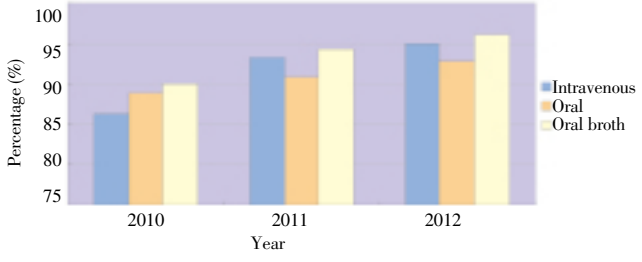

Figure 2. AMI patients with traditional Chinese medicine intervention in Binhai community from 2010 to 2012.

4. Discussion

The 'Third universal definition of myocardial infarction' was revised and published by European Society of Cardiology & American College of Cardiology Foundation & American Heart Association & World Heart Federation in August 2012. The new definition make the whole world use one standard to explain different clinical experiment. So it will give global cardiovascular researchers a big benefit.

The new definition maybe has two highlights in this new definition: One is updating the diagnostic criteria of myocardial infarction (MI) correlation with revascularization therapy (including PCI and CABG). Especially reset the cardiac troponin (cTnI or T) level requirement. CTn threshold definition of URL 99 percentile rise up to ten times according to the 2007 edition[8]. The other one is systematic explain the myocardial injury and define the range of the injury. So following the detecting techniques with high-sensitivity (hs) cTn, the new definition of myocardial infarction is developing everyday. hs-cTn with high specificity and clinical sensitivity for the myocardial tissue, that can directly reflect the degree of myocardial necrosis.

AMI is a more severe coronary heart disease type and coronary atherosclerosis is the basic cause of it. When coronary thromboses block the blood supply directly, or the formation of thrombus block in smaller coronary branch as collateral circulation has not been fully established for more than one hour, AMI is likely to happen. If we recanalization the coronary artery in the early stage of AMI, we can effectively improve the prognosis of patients, reduce the occurrence of adverse events in cardiac[9-11].

In recent years, with the continuous development of PCI technology, its clinical application becomes more and more, thrombolytic therapies turn less. But thrombolytic therapy is still the main treatment method because it's simple easy to operate and its economic features towards AMI. In our research, AMI patients after diagnosis should be early anticoagulation, and routine monitoring of patients with cardiac function and blood coagulation function. Doctors should hold the thrombolysis indications and contraindications strictly.

This study confirmed that recanalization of infarction must be established on accurate judgment in community hospitals, and adjust to patients' drugs in time. In the present study, the post infarction angina rate is low in treatment group (4.17%) when compared with control group (18.37%) after entering the hospital. And the

death rate is also low in treatment group (1.39%) when compared with control group (10.20%) after entering the hospital.

The utilization rates of drugs by recommendation like Nitrates, β-receptor blockers, Aspirin, Clopidogrel, Low molecular weight heparin were excellent when compared with situations two decades ago. Traditional Chinese medicine intervention is more popular than before. In addition, low post infarction angina rate and low death rate have the positive correlation with drugs by recommendation and traditional Chinese medicine intervention.

We get the conclusion that, AMI patients under emergency thrombolytic therapy can improve the treatment effect, improve the prognosis of patients effectively and accelerate the rehabilitation.

Nowadays, almost all community hospitals want to improve its hs-cTn detecting techniques. By the detectability and accuracy of cTn detections, many non-ST-segment elevation acute coronary syndrome patients can't get accurate classification in emergency times. So doctors can identify the needs of patients who will get early intervention in order to give early treatment.

Conflict of interest statement

The authors declare that there are no conflicts of interest.

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