Iran J Public Health, Vol. 45, No.6, Jun 2016, pp.748-753

Original Article

A Comparative Study of the Efficacy and Psychological States between Patients with Senile Ischemic Heart Failure Undergone ICU and Conventional Therapies

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(Received 16 Dec 2015; accepted 21 Mar 2016)

Abstract

Background: Our aim was to forward an effective therapeutic approach by comparing efficacy and psychological states between patients with senile ischemic heart failure undergone ICU and conventional therapies.

Methods: We selected 64 patients from Hospital of Traditional Chinese Medicine of Rizhao (Shandong, China) between June 2013 and June 2014. The patients had ischemic heart disease, and were monitored for one-year time span. They were randomly divided into the experiment and control group, each of which of 32 cases. The experimental group received an ICU therapy, whereas the control group was treated with conventional therapy. The result of patients' cardiac function, SDSSAS index and clinical efficacies were monitored and compared.

Results: Both groups, especially the experiment group showed significant improvement in the left ventricular end-diastolic diameter, left ventricular ejection fraction and cardiac NYHA rating ($P<0.05$). The experiment group needed less hospital stay and hence significantly more cost effective in comparison to control group ($P<0.05$). The therapy in terms of stent implantation, coronary artery bypass surgery and pure medication was not of statistical significant ($P>0.05$). In comparison to control group, the experiment group showed significantly lower mortality rate in short and long term ($P<0.05$). The SDSSAS rating of the 2 groups, especially the control group was significantly increased ($P<0.05$).

Conclusion: We observed improvement in clinical efficacy and depressed anxiety among patients with serious senile ischemic heart failure, after specialized ICU therapy.

Keywords: ICU, Ischemic heart failure, SDSSAS scale

Introduction

The ischemic heart failure can be caused by a dystrophy of the myocardial tissue, cardiac atrophy due to chronic insufficient blood supply to the myocardium or the proliferation of fibrous tissue due to large-scale myocardial infarction. Its clinical manifestations are large sized heart, constant malignant arrhythmia attack and sometimes-acute heart failure. According to the statistics of the WHO in 2000, all of those conditions increases mortality of patients with ischemic heart disease to 12.3% (1) and seniors who are more likely to be infected with other diseases such as rudimentary cardiac illness, complicated hypertension, diabetes and who have relatively long course of disease feature higher rates morbidity as well as mortality of heart failure (2).

Conventional therapy of the cardiac medicine department features mainly drug therapy (beta-blockers, ACEI/ARB drugs, spirolactones, diuretics, calcium sensitizers, cedilanid etc), myo-

cardial revascularization used for primary diseases (back-up tracoronary stent implanting, coronary artery bypass grafting etc.), oxygen inhalation therapy and electrocardiograph monitoring, coupled with routine ward nursing (3).

The ICU therapy features all day long professional care, with readily available assisted mechanical ventilation and constant bedside hemofiltration. This can enhance the clinical efficacy and long-term prognosis; while at the same time relieve the patients' anxiety and depression to improve quality of life (4). This study forwarded a new therapeutic method based on the comparative study of efficacy and psychological states between patients with senile ischemic heart failure undergoing ICU and conventional therapies.

Materials and Methods

Patients

A total of 64 patients with ischemic heart disease diagnosed in Hospital of Traditional Chinese Medicine of Rizhao (Shandong, China) within a one year time span (June 2013- June 2014) were enrolled. The cases included 36 males and 28 females aging from 67 to 82 yr having an average life span of 71.3±12.4 yr old and an average course of disease 7.3±2.1 yr. Patients having myocardial infarction were 25 in number, chronic cardiac failure were 18, stent implantation were 32, bypass surgery were 13, pure medication were 19, complicated hypertension were 33, diabetes were 14, renal insufficiency were 6 and no other diseases were 11.

Method

The control group was treated in regular wards with oxygen inhalation therapy, electrocardiograph monitoring, blood oxygen saturation monitoring and drug therapy (beta-blockers, ACEI/ARB drugs, spirolactones, diuretics, calcium sensitizers, cedilanid etc.) When the patients regain their stable conditions, myocardial revascularization was conducted for primary diseases (back-up tracoronary stent implanting, coronary artery bypass grafting etc.). Routine ward nursing was always present.

The experiment group was treated in ICU with readily available professional care, having the same drug therapy and myocardial revascularization with the control group. However, based on the oxyhemoglobin saturation and blood oxygen pressure, the experiment group received necessary assisting mechanical ventilation. In addition, patients with severe renal impairment were given bedside hemofiltration.

Observational index

Several factors were compared including left ventricular end-diastolic diameter, left ventricular ejection fraction and cardiac NYHA ratings of the 2 groups, as well as their hospital stays, therapy cost, treatment method (stent implantation, coronary artery bypass surgery and pure medication), their mortality rates were detected with hospital as well as in the 6-month follow-up period, and their SDSSAS ratings. The SAS Scale rates "normal" a less than 50 points, "minor anxiety" a point ranging from 50 to 60 points, "moderate anxiety" a point ranging from 61 to 70 points and "severe anxiety" for point over 70. The rating of the SDS Scale showed no sign of depression (0-4 points), occasional depression (11-20 points), minor depression (21-30 points) and severe depression (31-45 points).

Data analyzing

The gathered data was analyzed with SPSS 19.0 (Chicago, IL, USA) and presented as percentage. X2 test was conducted to detect intra-group comparison and results were presented by way of $\bar{x} \pm s$. *t* test was conducted and *P* values less than 0.05 was considered as statistically significant.

Results

Comparison of cardiac function between the 2 groups

The difference between the 2 groups in terms of the left ventricular end-diastolic diameter, left ventricular ejection fraction and cardiac NYHA

ratings showed no statistical significance (P>0.05). Both groups, especially the experiment group were monitored an improvement in the left ventricular end-diastolic diameter, left ventricular ejection fraction and cardiac NYHA ratings. The difference detected between the 2 groups was statistically significant (P< 0.05) (Table 1).

Comparison of clinical efficacies between the 2 groups

The experiment group needed less hospital stays and was significantly more cost effective (P<0.05). The therapy in terms of stent implantation, coronary artery bypass surgery and pure medication was not statistically different between both groups. Compared with the control group, the experiment group had significantly lower mortality rate detected with hospital as well as in the follow-up period (P< 0.05) (Table 2).

Comparison of SDSSAS ratings between the 2 groups

The difference between the 2 groups in terms of the SDSSAS rating before treatment showed no statistical difference. The SDSSAS rating of the 2 groups, especially the control group was significantly increased (P< 0.05) (Table 3).

Discussion

Severe and rapid in progression, senile ischemic heart failure usually comes with multiple organ dysfunction syndrome such as serious hepatic and renal dysfunction, severe dyspnea and central nerve system dysfunction. It requires assistance in mechanical ventilation, constant bedside hemofiltration, and all-day-long professional care (5-6). Thus, ICU care is necessary to improve the clinical efficacy concerning the senile ischemic heart failure therapy. We found that both groups, especially the experiment group were monitored an improvement in the left ventricular end-diastolic diameter, left ventricular ejection fraction and cardiac NYHA rating. The experiment group needed less hospital stays and less expense, unlike control group. The therapy in terms of stent implantation, coronary artery bypass surgery and pure medication was not statistical different (Table 1). Compared with the control group, the experiment group had a much lower mortality rate detected with hospital as well as in the follow-up period. Further, from Table 2 we can conclude that the hospitalization time and hospitalization expenses of patients in the experimental group were significantly decreased than those of the control group (P< 0.05). The mortality on during hospitalization and follow up in the experimental group were significantly lower than those of the control group. The SDSSAS rating of the 2 groups, especially the control group was increased (Table 3).

To look after critical ill patients, the ICU was a manpower-intensive, resource-intensive, and technique-intensive place. The ICU features centralized, classified and stratified management. ICU should be well staffed to cope with multiple and enduring rescue duty (7-9). ICU service demands highly qualified nursing staff and more rigorous work (basic nursing, clinical care, and specific nursing) (10, 11). Techniques such as cardiopulmonary resuscitation, cardiac monitoring, ECG recognizing, haemodynamics monitoring, and so on are of common occurrence in ICU. Thus, ICU nursing staff should master the above-mentioned techniques, to cooperate with the doctors well while rescuing (12). Rapid diagnosis at ICU is largely secured thanks to bedside heart color ultrasound, bedside chest radiograph and mobile CT. The characteristics of bedside heart color ultrasound (13, 14) are A) acute in demand due to an urge of quick diagnosis B) hard to operate because high quality images are not easy to acquire due to the posture of the patients as well as indoor light interference C) demanding in skill for the examiner are to equipped with clinical experience and familiarity with clinical emergency so as to secure a rapid diagnosis D) quick in feedback for clinicians always participate in the process, which means diagnostic result will be instantly offered. In addition, it boasts the advantages of agency, accuracy, and noninvasiveness in getting the information of cardiac structure and function. It does not interfere with the rescue

process, offers guidance to medical intervention, accessed, and accesses prognostic results. Thus, it has become one of the most reliable methods of diagnosing and curing acute myocardial infarction (15). ICU deals correspondingly with difference diseases in a systemic and stratified manner. It can achieve fast diagnosis and offer useful treatment strategy, which contributes immensely to stabilize the patients' conditions, cut off hospital stays as well as therapy costs (16).

ICU can significantly improve the clinical efficacy in curing senile ischemic heart failure, is more cost effective as well. In addition, exercise of good intervention effects on patients' psychology. It helps to build reliable nurse-patient relationship, to monitor patients, to stabilize patients' emotional state, to enhance patients' cognitive ability, and to know patient's condition better. Still, patients self-esteem should be protected and their families should be noticed, which will help secure better doctor-patient cooperation. Therefore, improved clinical efficacy and relieved depressed anxiety are promisingly hopeful if patients with serious senile ischemic heart failure are given specialized ICU therapy.

Conclusion

Specialized ICU therapy significantly improved clinical efficacy and relieved depressed anxiety for patients with serious senile ischemic heart failure.

Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

Acknowledgements

This study received no support by any funding. The authors declare that there is no conflict of interests.

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Table 1: Comparison of cardiac function between control and experimental groups

Group	Sum	Left ventricular end-diastolic diameter (mm)		Left ventricular ejection fraction (%)		NYHA I rating	II-III rating	NYHA I rating	II-III rating
		Before	After	Before	After	Before		After	
Control	32	65.4±3.2	56.7±4.1	32.1±6.2	48.7±4.6	9	23	21	11
Experimental	32	64.9±5.3	59.2±4.6	33.2±5.4	42.3±4.4	10	22	15	17
t(X^2)		0.412	3.105	0.826	3.416	0.714		3.513	
P		0.832	0.032	0.912	0.028	0.635		0.024	

Table 2: Comparison of clinical efficacies between control and experimental groups

Group	Sum	Hospital stays (d)	Therapy cost (￥1000)	Stent implantation	Coronary artery bypass surgery	Pure medication	In-hospital mortality	Follow-up mortality
Control	32	12.3±2.7	2.1±0.6	7	6	19	3	4
Experimental	32	23.4±5.3	3.2±0.7	8	7	17	7	9
t(X^2)		3.846	3.913		0.715		3.102	3.715
P		0.017	0.015		0.884		0.027	0.024

Table 3: Comparison of SDSSAS ratings between control and experimental groups

Group	SDS scale		SAS scale	
	Before	**After**	**Before**	**After**
Control	56.4±7.8	59.3±9.2	12.3±4.1	21.7±5.5
Experimental	55.3±6.4	67.4±8.3	11.5±3.6	28.3±6.1
t	0.712	3.326	0.904	3.845
P	0.833	0.029	0.735	0.024