

Original Article

Effect of continuity of care involving group activities on treatment compliance and quality of life in patients with coronary heart disease

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Abstract: Objective: To explore the effect of continuity of care (CofC) involving group activities on treatment compliance and quality of life in patients with coronary heart disease (CHD). Methods: A total of 126 patients with CHD enrolled in The Second Affiliated Hospital of Nanchang University from June 2016 to June 2017 were selected and randomly assigned to the study group (n=63) and the control group (n=63). Patients in the study group were treated with CofC involving group activities, and the ones in the control group with telephone follow-ups, since being discharged from the hospital. In addition, the treatment compliance, self-efficacy, quality of life, adverse cardiac events, and nursing satisfaction in both groups after intervention were compared between the two groups. Results: The rate of good compliance in the study group (92.06%) was significantly higher than that in the control group (79.37%), whose difference showed statistical significance ($P<0.05$). The self-efficacy scores of both groups after intervention were significantly higher than those before intervention, and the difference between the scores before and after the intervention in the study group was apparently higher than that in the control group ($P<0.001$). There was no difference in the quality of life scores between the two groups before intervention (all $P>0.05$). But after intervention, the quality of life scores of both groups were significantly lower than that before the intervention (all $P<0.05$); the difference values in all measurements of the study group before and after the intervention were higher than those in the control group, which show statistical significance (all $P<0.05$). The incidence of adverse cardiac events in the study group (4.76%) was significantly lower than that in the control group (15.87%) ($P<0.05$). And the total satisfaction of care of the study group (95.24%) was significantly higher than that of the control group (82.54%) ($P<0.05$). Conclusion: The CofC involving group activities can improve the treatment compliance and self-efficacy of patients with CHD as well as their quality of life, and reduce adverse cardiac events among them, and thus contribute to the improvement of satisfaction of care, which is of relatively high promotion value.

Keywords: Group activities, continuity of care, coronary heart disease, CHD, treatment compliance, quality of life

Introduction

Coronary heart disease (CHD) is a common disease in cardiology, which mainly occurs in the middle-aged and elderly people. Although the breakthrough progress in clinical treatment such as application of drugs and interventional therapy has been made, which decreases the mortality rate of patients with CHD, but the treatment effect is susceptible to compliance of patients and psychological conflict due to the long-term medication and its incurability [1]. Therefore, intervention should be carried out in patients, which holds its purpose for not only

preventing and controlling the occurrence of all kinds of adverse cardiovascular events, but also improving the compliance of the patients and their quality of life [2-4]. However, cramming health education is mainly adopted in patients with CHD clinically in early time [5]. Knowledge only about CHD for patients is less effective in improving compliance of patients and changing their harmful habitual behaviors, which is difficult for patients to pay attention to their conditions and self-management [6]. CofC involving group activities is much more helpful than simple telephone follow-up. Research shows that CofC involving group activities

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Table 1. Comparison of general information between the two groups

	n	Sex (male/ female)	Average age	Average duration of disease
The study group	63	38/25	58.31±4.77	8.12±4.35
The control group	63	35/28	58.27±4.62	8.34±4.21
χ^2/t		0.293	0.048	0.288
P		0.588	0.962	0.773

Table 2. Comparison of treatment compliance between the two groups (n, %)

	Good compliance	Moderate compliance	Poor compliance
The study group (n=63)	58 (92.06)	2 (3.17)	3 (4.76)
The control group (n=63)	50 (79.37)	7 (11.11)	6 (9.52)
Z	4.418	2.991	1.128
P	0.042	0.084	0.288

among patients with cerebral apoplexy can significantly improve the self management and compliance of functional exercise, and thus improve their quality of life, which may be related to the participation and assistance of their relatives and friends as well as the implement of continuous care [7, 8]. However, this model is rarely applied in the care program among patients with CHD. Satisfactory results in the CofC involving group activities for patients with CHD had been achieved in our hospital, and were summarized and reported in this paper.

Materials and methods

Research subjects

One hundred and twenty-six patients with CHD treated in The Second Affiliated Hospital of Nanchang University from June 2016 to June 2017 were randomized into two groups, the study group (n=63) and the control group (n=63). This study was approved by the Medical Ethics Committee of the Second Affiliated Hospital of Nanchang University, and all the patients or their families signed informed consents.

Inclusion criteria: All patients were diagnosed as CHD conforming to the diagnostic criteria for CHD formulated by the Chinese Society of Cardiology and the Editorial Board of Chinese Journal of Cardiology in 2007 [9]; all patients aged from 30 to 75; all patients were well-cooperated with treatment, examination and related

tests; all were above the level of primary school education.

Exclusion criteria: Patients with no clear consciousness, communication disorder or previous history of mental illness were excluded; patients who came from an itinerant family and were unable to cooperate with the follow-up or interviews were excluded; patients combined with any other severe visceral diseases were excluded.

Methods

The patients in control group were followed up via telephone. They were followed up for the first time within half a month after discharge and then once a month in the next three months, during which the patients were asked about the treatment condition, self-perceived symptoms, and were offered with or explained about relevant knowledge of CHD, as well as were reminded of on-time return visit [10].

The research group implemented CofC involving group activities, which was depicted in detail as follows: the patients gathered together for centralized training were provided psychological guidance and given lectures by psychological experts for two days within one week after discharge; then the patients' conditions and personalities were analyzed by the nursing staffs through communication, according to which the patients were divided into several small groups (each group contained 5 or 6 patients) so that the patients could communicate with each other and share their experience of treatment closely as well as seek mutual help or assistance from the members in their group; special lectures on CHD including diet, life, sleep were carried out in each small group every week to explain the importance of self-management and provide implementation methods as well as encourage the patients to strengthen self-management [11]. The patients were encouraged under care staffs' real-time supervision, and their bad habitual behaviors around their condition were assessed and then intervened via telephone or by interview. At the same time, relatives of the patients were pro-

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Table 3. Comparison of self-efficacy of the two groups

	Before intervention	After intervention	Difference value	t	P
The study group (n=63)	1.53±0.51	3.62±0.24	2.09±0.16	29.431	0.000
The control group (n=63)	1.58±0.55	2.87±0.31	1.29±0.25	16.218	0.000
t	0.529	15.184	21.393		
P	0.598	0.000	0.000		

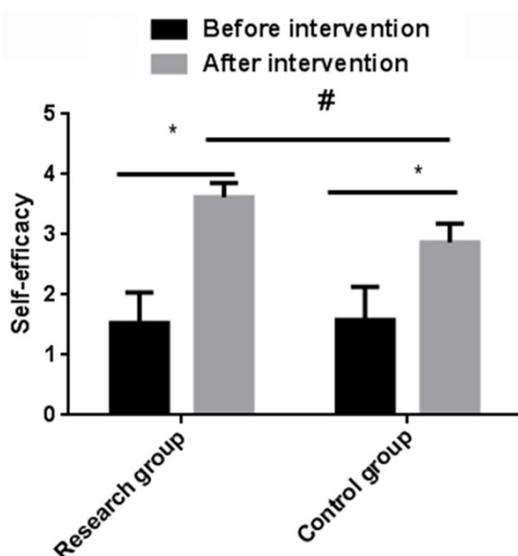


Figure 1. Comparison of self-efficacy of the two groups. Compared with before intervention, *P<0.05; Compared with control group, #P<0.05.

vided with tips or notices for care and encouraged to care more about the patients with CHD to help them to overcome the disease once a month in the guidance via telephone.

After guidance of psychological experts, the psychological problems unsolved in the patients were gathered through communications and presented to us by the care stuffs. And then the patients were individually given proper guidance or interventions on their psychological problem according to those feedbacks. The total intervention lasted three months.

Measurements

Treatment compliance: A questionnaire of treatment compliance was used to evaluate the compliance of the patients, which covered seven questions about medicine-taking, diet, exercise, emotion, condition monitoring, return visit, and medicine-carrying. Each question was scored on a scale of 0 to 4, representing

“never” (0 point), “occasionally” (1 point), “often” (2 points), “very often” (3 points) and “always” (4 points). Then the average value of all the seven points was taken, which was assessed as good compliance (0 point), moderate compliance (1-2 points); or poor compliance (3-4 points).

Self-efficacy: General self-efficacy scale (GSES) was used to evaluate this measurement, which held 10 scoring items. Four-grade scoring was adopted in each item, and the higher the score, the higher the self-efficacy.

Quality of life: Sickness impact profile (SIP) was applied in assessing the quality of life of patients from five aspects, which involved body, diet, sleeping, housework and general function. The higher the score, the lower the quality of life in this dimension.

Adverse cardiac events: Adverse cardiac events contained myocardial infarction, angina pectoris, and arrhythmia were mainly taken into account in this study.

Other minor outcome measures: Age, sex, and course of disease were compared in general characteristics. A questionnaire of nursing satisfaction for cardiology designed by the Second Affiliated Hospital of Nanchang University was used to investigate the satisfaction of care. Each questionnaire was scored on a scale of 0 to 100, which was assessed as a very satisfactory one (≥ 90), a satisfactory one (80-89), a fair one (60-79) or a dissatisfactory one (≤ 59). Satisfaction = (very satisfactory + satisfactory)/63 * 100%.

Statistical analysis

The data obtained in this study were analyzed using SPSS package for Windows, version 19.0. Measurement data in both groups were expressed as mean \pm standard deviation ($\bar{x} \pm sd$), on which the t-test was performed. And enumeration data were expressed as n. The

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Table 4. Comparison of quality of life of the two groups ($\bar{x} \pm sd$, score)

		Body	Food	Sleeping	Housework	General function
The study group (n=63)	Before intervention	26.88±4.52	12.79±5.20	28.27±5.38	27.69±4.62	24.96±5.72
	After intervention	15.25±3.47 ^a	7.54±1.67 ^a	20.25±3.21 ^a	19.17±3.43 ^a	17.94±3.35 ^a
	Difference value	11.63±2.69	5.25±2.31	8.02±2.19	8.52±1.97	7.02±2.78
The control group (n=63)	Before intervention	26.71±4.86	13.12±5.37	28.08±5.92	27.37±4.81	25.23±5.64
	After intervention	20.37±3.94 ^a	10.23±1.88 ^a	23.46±3.16 ^a	21.26±3.73 ^a	20.28±3.43 ^a
	Difference value	6.34±2.85	2.89±1.13	4.62±2.01	6.11±1.93	4.95±1.95
*t		10.714	7.284	9.052	6.936	4.838
*P		0.000	0.000	0.000	0.000	0.000

Note: ^aP<0.05, intra-group comparison that was made between pre-intervention and post-intervention; *t, t-test of difference value between the two groups; *P, P value of difference value between the two groups.

Table 5. Comparison of adverse cardiac events between the two groups (n, %)

	Angina pectoris	Arrhythmia	Myocardial infarction	Total Incidence
The study group (n=63)	1 (1.59)	2 (3.17)	0	3 (4.76)
The control group (n=63)	5 (7.94)	4 (6.35)	1 (1.59)	10 (15.87)
χ^2	1.575	0.175	0.000	4.203
P	0.207	0.680	1.000	0.040

value of the scores in the study group and control group were 2.09±0.16 and 1.29±0.25 respectively, both of which were statistically significant (all P<0.001). (Table 3, Figure 1).

Comparison of quality of life of the two groups

ratios were compared with χ^2 test. The ranked data were compared with rank sum test. P<0.05 is considered statistically significant.

Results

Comparison of general information between the two groups

As shown in Table 1, the difference between the two groups of general data was not statistically significant (all P>0.05) but comparable.

Comparison of treatment compliance between the two groups

As shown in Table 2, the overall compliance of the study group was better than that of the control group. The proportion of good compliance in the study group was 92.06%, which was significantly higher than that in the control group (79.37%) (P=0.042).

Comparison of self-efficacy of the two groups

There was no significant difference in scores of self-efficacy between the two groups before the intervention (P=0.598). The self-efficacy scores in the two group were both increased after the intervention, and the self-efficacy scores in the study group was significantly higher than that in the control group (all P<0.001). The difference

As shown in Table 4, there was no significant difference in the scores of quality of life between the two groups before intervention (all P>0.05). After the intervention, the scores of quality of life in both groups were significantly lower than those before the intervention (all P<0.05). The difference values in all measurements of the study group before and after the intervention were higher than those in the control group, which show statistical significance (all P<0.05).

Comparison of adverse cardiac events between the two groups

As shown in Table 5, the total incidence of adverse cardiac events in the study group was 4.76% during the three month, which was significantly lower than that in the control group (15.87%). The difference between both groups was statistically significant (P<0.05).

Comparison of satisfaction of care between the two groups

As shown in Table 6, the total satisfaction of care of the study group was 95.24%, which was significantly higher than that of the control group (82.54%). Significant difference was statistically shown between the two groups (P<0.05).

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Table 6. Comparison of satisfaction of care between the two groups (n, %)

	≥90	80-89	60-79	≤60	Total satisfaction
The study group (n=63)	39 (61.90)	21 (33.33)	2 (3.17)	1 (1.59)	60 (95.24)
The control group (n=63)	30 (47.62)	22 (34.92)	8 (12.70)	3 (4.76)	52 (82.54)
χ^2	-	-	-	-	5.143
P	-	-	-	-	0.023

Discussion

CHD is a kind of chronic disease with a high incidence in our life, which can cause angina pectoris, myocardial infarction, etc., and may seriously do lots of harm to patients [12, 13]. CofC for patients with CHD is taken seriously at present due to long period of treatment and care in this chronic disease. Telephone follow-up was mainly used in traditionally CofC, during which knowledge about CHD was mainly conveyed to patients with CHD [14, 15]. Care and support for patients with CHD did not attached importance to, which may cause a range of feelings of isolation and further affect treatment compliance and quality of life [16, 17].

The CofC involving group activities not only pays attention to the follow-up of patients after discharge, but also intervenes in a group-involved way to establish a group-based relationship circle centered on patients. In this circle, patients have similar conditions and personality, which is good for them to get support and help from one another. At the same time, patients can gain confidence in sharing experience, which is conducive to improving treatment compliance. Guidance from psychologists can help patients eliminate their fear and pessimism about the disease they suffer, thereby weakening the negative effect on the patient's physical and psychological conditions, which brings the patients into a physically and psychologically pleasant state and thus improves the quality of life [18, 19]. A study reported that CofC involving group activities in the patients with chronic obstructive pulmonary disease in a community could significantly improve self-efficacy of the patients and reduce the times of hospitalization and medical expenses [20]. Another study reported that CofC involving group activities in the patients with CHD could significantly improve the patients' positivity for treatment, ability of self-management and treatment compliance on the basis of conventional education [21]. All stud-

ies suggested that CofC involving group activities could effectively improve the positivity and compliance treatment of patients and thus get a better control of a disease.

In this study, treatment compliance in the study group was better than that in the control group, and the scores of self-efficacy as well as quality of life were higher than those in the control group after the implementation of CofC involving group activities, which was consistent with the findings of relevant studies [22]. The consistency might be due to the fact that CofC involving group activities could be a way to have a better understanding of psychosocial needs of patients and thus help patients set achievable health goals as well as actively get them trained in self-management. And therefore, patients can enhance their ability to find problems and solve them, their self-efficacy and confidence in treatment, and their immunity as well as quality of life.

At the same time, other scholars said in their paper that CofC involving group activities in patients with CHD after interventional therapy could effectively improve patient's heart function, reduce the incidence of adverse reactions, and thus improve their quality of life [23]. In this paper, the incidence of adverse cardiac events in the study group (4.76%) was significantly lower than that in the control group (15.87%), which was consistent with the report of these scholars. This may be related to active care and support for the patients as well as interactions in CofC involving group activities, which greatly improved the patients' treatment compliance such as on-time medication-taking and regular visits, and effectively reduced adverse cardiac events. Therefore, the total satisfaction of care in the study group was 95.24%, which was significantly higher than that in the control group (82.54%). It indicated that CofC involving group activities effectively improved the satisfaction of care, which was obviously better than telephone-only follow-up.

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In this study, there was no evaluation on the cardiac function of patients with coronary artery disease, and the differences in the efficacy of this care model in patients with different grades of cardiac function were not compared separately owing to the short observation months. All that was not considered in this study will be involved in a next study within a longer time.

In conclusion, CofC involving group activities can improve treatment compliance, self-efficacy and satisfaction of care as well as quality of life of patients with CHD, and reduce adverse cardiac events, which is worthy of promotion and application in clinical practice.

Disclosure of conflict of interest

None.

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