

Original Article

Impact of social support on patients with delirium after cardiac surgery

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Abstract: Background: Delirium is an acute, reversible disease. After cardiac surgery, patients usually need to prolong ventilation support, increase ICU stay and hospital stay once a delirium is present. Social support is one of the most potential resources which patients can be used to cope with and treat illness, and it can help patients to maintain a good mental state. This study was to observe the status of social support of patients with delirium and explore the effective nursing measurements to improve the social support of these patients. Methods: In this study, 139 patients who received cardiac surgery were randomly recruited, and divided into two groups (control group and the delirium group). The status of social support was evaluated with the Social Support Rating Scale. Results: There was significant difference in total score of social support between two groups (42 ± 9.00 vs. 35.5 ± 7.00 , $P < 0.01$). Patients with delirium received less social support as compared to those without delirium. Conclusion: Nursing staff should evaluate the status of social support correctly, and take measures to help patients to enhance and widen their social support network and use resources effectively. The positive and supportive surroundings should be raised to improve the social support level of the patients.

Keywords: Delirium, social support, cardiac surgery

Introduction

Delirium is an acute, reversible disease that may cause a serious damage to human health [1]. After cardiac surgery, patients usually need to prolong the ventilation support, increase the ICU stay and hospital stay once a delirium is present, which seriously affects the quality of life and increases the postoperative mortality [2, 3]. According to the statistics, the incidence of delirium is about 3%-47% after heart surgery [3], especially in patients receiving cardiac surgery under cardiopulmonary bypass. Social support is the perception and actuality that one is cared for, has assistance available from other people, and that one is part of a supportive social network. Studies have shown that social support is one of the most potential resources that patients can use to cope with and treat illness. No matter what form is, social support can help patients to maintain a good psychosomatic state [4]. This study was to investigate the status of social support in patients after cardiac surgery and explore the

effect of social support on the delirium after cardiac surgery.

Patients and methods

Selection of participants

This study was approved by the Ethics Committee of the Tenth People's Hospital of Tongji University. A total of 182 patients who were consecutively admitted to the Department of Cardiac Surgery in Tenth People's Hospital of Tongji University between October 2013 and July 2014 were assessed. Patients were 18 years old or older and received cardiac surgery. Informed consent was obtained from each patient. Mini-Mental State Examination Test (MMSE) was used to screen for possible cognitive impairment (MMSE score ≤ 24) [5] by two investigators on the day before surgery. Patients with pre-operative delirium and dementia diagnosed by a psychiatric examination were excluded from this study.

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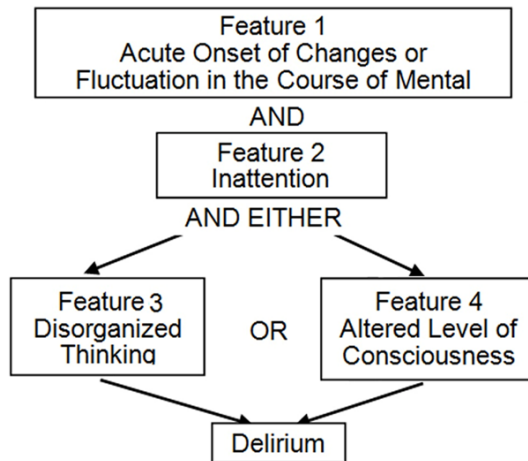


Figure 1. Flow diagram of confusion assessment method for the ICU (CAM-ICU).

Of these patients, 43 were excluded for the following reasons: 11 patients declined to participate in this study, 5 underwent emergency surgery and 17 were in poor general conditions (such severe circulatory failure and cardiogenic shock). In these patients, preoperative assessment about social support could not be conducted. Another 10 patients were excluded because they died with 6 days after surgery.

Preoperative assessment

Patients underwent a standardized interview conducted by the trained interviewers. Demographics, including gender, age, marital status and education level were recorded and assessed. The status of social support was evaluated with the Social Support Rating Scale (SSRS). The SSRS contains 10 items, measuring three dimensions of social support: subjective support (4 items), objective support (3 items), and support-seeking behavior (3 items). Higher scores indicate stronger social support [6]. The scale has been widely used in China with high reliability and validity.

Post-operative assessments

Post-operative assessment for delirium was conducted daily from the day after surgery to the day discharging. Delirium, as defined by the CAM [7], has 4 features: (1) an acute onset of changes or fluctuations in the course of mental status, (2) inattention, (3) disorganized thinking, and (4) an altered level of consciousness (i.e., other than alert). The patient is determined

to be delirious (i.e., CAM-ICU positive) if he/she manifests both features 1 and 2, plus either feature 3 or 4 (**Figure 1**).

Statistical analysis

For the assessment of a bivariate relationship of preoperative variables with postoperative delirium, independent two-tailed t test was used to compare the means of continuous variables, and two-tailed χ^2 test for the comparison of proportions. Correlation analysis was conducted with backward stepwise logistic regression analysis. A value of $P < 0.05$ was considered statistically significant.

Results

Demographics

Of 139 patients, 85 (61.2%) were males; the mean age was 62 ± 9.0 years (range, 25-81 years). A lot education level was found in 116 (83.5%) patients; 14 (10.1%) were divorced or single. Delirium was diagnosed in 42 patients and 97 had no delirium. There were no significant differences in the age, gender, education level and marital status between two groups ($P > 0.05$) (**Table 1**).

Social support between two groups

The total score of social support was 35.50 ± 7.00 in delirium patients, which was significantly lower than in patients without delirium (42.00 ± 9.00 ; $P < 0.01$). In addition, scores were different between two groups in the objective support, subjective support and support-seeking behavior. This suggests that patients who developed delirium after cardiac surgery receive less social support, including objective support and subjective support (**Table 2**).

Discussion

Objective support of patients with delirium after cardiac surgery

Our results indicated that objective support of patients were associated with postoperative delirium in patients who underwent major cardiac surgery. The objective support that the patients received includes the material social support, spiritual social support and patients' residence situation. The score of objective support after cardiac surgery in patients with delir-

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Table 1. General demographic characteristics of the subject (n=139)

Variable	Delirium group		No Delirium group		χ^2 values	P values
	Case number	Constituent ratio (%)	Case number	Constituent ratio (%)		
Age (years)					6.39	0.088
<40	3	7.14	4	4.12		
40-59	5	11.90	23	23.71		
60-79	29	69.04	68	70.11		
≥ 80	4	9.52	2	2.06		
Gender					1.03	0.350
Male	23	54.76	62	63.92		
Female	19	45.24	35	36.08		
Education level					4.81	0.096
Primary school or below	24	57.14	40	41.24		
Middle school	10	23.81	42	43.30		
University or above	8	19.05	15	15.46		
Marital status					1.94	0.512
Married	35	83.33	90	92.78		
Divorced or single	7	16.67	7	7.22		

Table 2. The comparison of delirium group and non- delirium group in social support

Variable	No Delirium group (97)	Delirium group (42)	OR	P values
Objective support	10.00 \pm 4.00	7.50 \pm 4.00	0.85 (0.74-0.97)	0.0066
Subjective support	24.32 \pm 5.27	21.52 \pm 5.15	0.90 (0.84-0.97)	0.0045
The social support utilization	8.00 \pm 2.00	6.50 \pm 1.00	0.50 (0.37-0.67)	<0.0001
Social support scale (score)	42.00 \pm 9.00	35.50 \pm 7.00	0.89 (0.84-0.94)	<0.0001

ium was 7.50 \pm 4.00, which was significantly lower than in patients without delirium (10.00 \pm 4.00). This implies that the material support and spiritual support received by patients with delirium are not enough after cardiac surgery. In 42 patients with delirium, although 98.10% of heart surgery patients "lived together with their families", only 79.20% and 72.12% of them only got 1-2 sources of social support. There were also 4.42% of patients who did not receive any social support.

Subjective support of patients with delirium after cardiac surgery

Subjective support is related to the individual's subjective feeling [8]. This study evaluated the subjective support that patient's received in and out of the family (such as family members, friends, neighbors and co-workers, etc.). Results showed that the subjective support score in patients with delirium after cardiac surgery was 21.52 \pm 5.15 which was markedly lower than in patients without delirium (24.32 \pm

5.27). Thus, the social support of patients with delirium was satisfactory. The social support network in these patients was mainly confined to "1-2 persons". Thus, it is needed to broaden the social support network and promote the patient's contact with indirect interpersonal groups or formal institutions, such as colleagues, friends or community, which may provide access for the use of their support.

Moreover, our results showed children gave the highest support to patients with delirium (accounting for 82.8%), followed by the spouse (about 68.90%) because the relationship between husband and wife as well as parents and children is the closest. In addition, the social support from neighbors and colleagues was very little, which may be related to the overall participants in this study. The participants in this study were older or retired, and mostly older than 60 years, and thus they had less contact with colleagues than before, which also weakens their relationship with colleagues.

Neighbors outside the family should become much closer in touch with patients, but neighborhood gradually fades, and neighbors will not to take the initiative to care for each other or to help each other due to the current trends from development of entire society, as well as the change in housing structural unit [9]. Our findings also revealed the lack of initiative in patients to seek support outside the family.

Social support availability for patients with delirium after cardiac surgery

Social support is a way to help or support the act of the individual [10]. It is necessary to actively create conditions for individuals to take the initiative to receive social support. This study evaluated the availability of social support in patients with delirium in terms of the way by which the patient talked and sought when they encountered troubles, as well as participated in group activities. Results showed that the score of availability of social support for patients with delirium after cardiac surgery was 6.50 ± 1.00 , which was significantly lower than in patients without delirium (8.00 ± 2.00). Further analysis showed that only a few patients with delirium after cardiac surgery had troubles in daily life and took the initiative to pour out annoyance, (21.15 percent); 52.65% of patients only occasionally participated in group activities. In addition, the proportion of patients actively using existing social resources was very small. Therefore, we should not only try to enhance the subject and object social support in patients after cardiac surgery, but help them to learn how to use social support.

Correlation between social support and delirium after cardiac surgery

Our results showed that the subjective support, objective support and availability of social support were protective factors for cardiac surgery patients. The more the social support received by patients, the lower the incidence of postoperative delirium is. It also indicates that good, effective social support will help to reduce the patient's anxiety post-operatively. As a part of sources of social support, nurses should play its effective role in providing more social support, such as introducing the relevant knowledge of cardiac surgery, postoperative intensive care unit (ICU) environment and postoperative rehabilitation.

Suggestions

Nurses should establish the concept of social support

Building a perfect social support networks for cardiac surgery patients is helpful to ensure the supply of objective and subjective social support. Therefore, nurses should first establish the basic concepts of social support for cardiac surgery patients. In China, this social support networks must be based on the family and hospital because patients establish their relationships and contacts and get emotional and material support through these support networks to solve difficult problems and reduce stress [11]. Nursing staff should become a member of the social support network, bridge between the provision and utilization of resources, and consciously create an atmosphere to help patients to seek assistant.

Second, before providing patients with social support, nurses should also assess the family situation and need of patients, and help them to determine whether she/he is in need of social support and what kind of social support is needed. Only in this way will patients generate psychological satisfaction for social support. Nurses may also try to establish a household health records and other related databases [12], and continue to evaluate and enrich these databases according to the change in actual situations.

Furthermore, in order to help nurses to understand how to provide better social support for patients, it is necessary to strengthen the continuous nursing education and training, improve the nurses' knowledge and skills on the social support (such as communication skills), and encourage nurses to learn new courses, such as social psychology and other related courses.

Strengthening existing social support networks for patients

Our results showed that family members were the main source of social support in patients after cardiac surgery. Thus, nurses should take the family as a unit, and actively carry out community-based nursing intervention [13]. In addition, nurses may also strengthen the support from the relatives, neighbors and friends of

patients to fully use the pre-existing support network around patients.

Constructing new social support networks

When existing social support networks are exhausted, such as family members' death or retiring, or neighbors relocation, there is few or even no one had a similar life experience in existing support networks. Or patient needs the expert to guide and help in the treatment or rehabilitation of diseases. There is an urgent need to establish new social support networks [14]. Nurses should first encourage patients to strengthen contacts with others and expand their social networks; at the same time, nurses should offer information and provide patients ways and methods to get help and support, improving the use of support.

Second, nurses can also help patients to actively participate in some activities from supportive communities and organizations, such as "patients club" [15]. To help the members of organizations to share experience on the similar problems and their useful information will facilitate the disease treatment and improve the social support of patients.

Disclosure of conflict of interest

None.

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