Original Article

Effects of a Nursing Supportive Program on Anxiety and Stress Levels in the Family Members of Patients After Cardiac Surgery in the ICU

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ABSTRACT

Background: This research was conducted to investigate the effects of a nursing supportive program on anxiety and stress levels in the family members of patients admitted to the intensivee care unit (ICU) after cardiac surgery.

Methods: This research was a quasi-experimental study. A control group and an intervention group (each = 35), both comprised of the family members of post-cardiac surgery patients admitted to the ICU, were studied. The intervention group received a nursing supportive program initially 2 hours after their patients entered the ICU (1st day) and thereafter on the 2nd and 3rd days. The control group received only the routine information. Demographic variables and an adjusted Depression Anxiety Stress Scales (DASS-21) were used to assess the anxiety and stress levels of the family members of the patients.

Results: Demographic variables and the DASS scores had no statistically significant differences in stress levels between the 2 groups before the intervention. However, after the intervention, the mean score of the stress level in the intervention group dropped significantly in comparison with the control group ($P = 0.0001$). Anxiety levels in both groups were reduced after the intervention. However, although a statistically significant difference was observed between the 2 groups 2 hours after ICU admission and on the 2nd ICU day ($P = 0.0001$), there was no significant difference on the 3rd ICU day ($P = 0.993$).

Conclusions: In light of the findings of the present study, our nursing supportive program, which was aimed at providing information, emotional and mental support, and reassurances to the family members of post-cardiac surgery patients hospitalized in the ICU, was able to decrease their stress levels and to some extent their anxiety levels. *(Iranian Heart Journal 2017; 17(4): 36-41)*

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Hospitalization is an experience full of stress and anxiety for many patients and their families. [1] Admission to the intensive care unit (ICU) after heart surgery is an important event for the patients and their families and creates physical and psychological problems not only for the patients but also for their families. The emotional status of the family members can have positive or negative impacts on the patients' response and recovery. [2]

Some factors can suddenly affect the health of the family and change its structure. In fact, family members are the representative of their patients hospitalized in the ICU. Hospitalization of patients in the ICU causes problems for their family members; problems that come into conflict with their supportive role. These problems usually appear in the form of shock, anxiety, anger, disappointment, feeling guilty, and fear. Stress and anxiety are the most common issues of those families. [3]

Studies have shown that the most important reason for anxiety and stress in a patient's family is lack of sufficient information about the prognosis and treatment of the disease and unfamiliarity with the ICU environment and its sophisticated equipment. Family members want to be informed of changes in the clinical conditions of their patients as soon as possible. [4] Various studies have been conducted to determine the needs of the families whose patients are hospitalized in the ICU. Bailey et al [6] classified some of these needs in 5 groups: 1) need for information, 2) need for confidence, 3) need for empathy and sympathy, 4) need for comfort, and 5) need for psychological support. [5]

Nurses can support these families through establishing effective communication with them, listening to their worries and feelings, paying attention to their questions and answering them, or helping them to find the answers. [6] They can also respect these families, support their adaptive mechanisms, identify the unique needs of each family, provide them with suitable information to facilitate coming to decisions about their patients, and provide the possibility of visiting and talking to other families in order to express and share their feelings. Indeed, nurses can expand the nurse/family relationship in all the stages of care. [7-10]

Accordingly, we sought to investigate the effects of a nursing supportive program on the levels of stress and anxiety in the families of post-cardiac surgery patients admitted to the ICU.

METHODS

The present study was a quasi-experimental research to investigate the effects of the implementation of a nursing supportive program on the levels of stress and anxiety in the families of the patients hospitalized in the ICU after heart surgery in Rajaie Cardiovascular, Medical, and Research Center, Tehran, Iran, in 2015. The sample size required was calculated to be 35 participants in each group of control and intervention. After obtaining written informed consent from all the patients' families, the researcher used the convenience sampling method and selected the samples and classified them in either the control group or the intervention group.

On the surgery day, the researcher was present in the reception part of the surgery room. The researcher met the patients' families and selected the family members who were emotionally closer to the patients. The inclusion criteria were comprised of having the main role in supporting the patient, age > 18 years, not having education in medical science fields, having enough ability to understand the subjects in Farsi, and having no history of known mental illnesses. The samples of the control and test groups were similar in relation to variables such as familial relationship with the patient, age, sex, and education level.

The control group received the usual proceedings such as informing the patients' families in special circumstances. The

intervention group received both the usual proceedings and the supportive program. The intervention in the present study, including the nursing supportive program for the patients' families, was performed by the researcher nurse while the patients were hospitalized in the ICU following cardiac surgery.

The nursing supportive program lasted for only 30 minutes and incorporated the provision of primary facilities such as seats in a private place to sit and partake of refreshments, as well as the opportunity for communication and conveyance of information not only about the patient's clinical status and recovery process according to the treating physician's or nurse's account but also about the care for patients with cardiovascular disease (through pamphlets). Great emphasis was placed upon listening attentively to the family's fears and worries, ensuring them that sufficient care was provided in the ICU, and helping them not to lose hope.

We used the Depression Anxiety Stress Scales (DASS-21), which contains the criteria for anxiety and stress. The reliability and validity of the criteria of this questionnaire in the general population have been previously investigated and confirmed through a study by Sahebi et al. [10] Both groups completed the DASS-21 questionnaire after their patients had been admitted to the ICU post cardiac surgery. The intervention program was commenced 2 hours afterward and subsequently on the 2nd and 3rd days of the patients' ICU stay. The control group completed the questionnaire on the 1st, 2nd, and 3rd days of their patients' ICU stay. Both groups were compared using SPSS, and the data were statistically analyzed.

RESULTS

The average age of the participants was 44 ± 2 years. Most of the participants were men: 51.4% of the subjects in the control group and 60% of those in the intervention group were men. The education level in the majority of the participants in both groups was high school diploma: 54.3% of the control group and 45.7% of the intervention group. In addition, 88.6% of the participants in both control and intervention groups were married. Totally, 54.3% of the participants in the control group were the children of the patients. In the intervention group, 60% of the participants were the wives or the husbands of the patients. Most of the subjects under study were housewives: 42.9% in the control group and 37.1% in the intervention group. Apropos the place of residence, 82.9% of the participants in the control group and 94.3% of those in the intervention group were city residents. Both groups were homogeneous *vis-à-vis* the variables of age, sex, education level, marital status, familial relationship with the patient, occupation, and place or residence; there were no statistically significant differences between the 2 groups.

As is shown in Table 2, at the beginning of the study, 28.6% of the participants in the control group and 37.1% in the intervention group exhibited normal levels of stress. Most of the participants experienced moderate and severe stress. According to the obtained results, the stress level of the intervention group decreased during the intervention (ie, 2 hours after the ICU admission of their patients) and thereafter on the 2nd and 3rd days of the study. A significant percentage of the participants reached a normal level of stress.

In the control group, 77.1% of the participants experienced extreme anxiety and 20% had severe anxiety. In the intervention group, 51.4% of the participants experienced extreme anxiety and 22.9% suffered from severe anxiety. After the intervention, the level of anxiety in both groups decreased. However, because there was a significant difference between the 2 groups at the beginning, a regression model was used. Using the regression model and omitting the confounding factor (anxiety in both groups at

the beginning was considered the confounding factor) demonstrated that the anxiety levels after the 1st intervention (2 hours after ICU admission) and the anxiety levels on the 2nd ICU day were significantly different between the control and intervention groups ($P = 0.0001$), but there was no significant difference between the 2 groups on the 3rd day ($P = 0.993$).

Table 1. Demographic characteristics of the family members of the patients hospitalized in the intensive care unit

Variables		Intervention Group (%)	Control Group (%)	P
Age (y)		40±2	48±1	0.296
Sex	Men	51.4	60	
	Women	48.6	40	0.470
Marital status	Married	88.6	88.6	
	Single	11.4	11.4	1.000
Wife or husband		42.9	60	
Familial relationship	Child	54.3	40	0.252
	other	2.9	0	
Education level	lower than high school diploma	34.3	25.7	
	high school diploma	54.3	45.7	
	university	11.4	28.6	0.133
Place of residence	urban	82.9	94.3	0.203
	rural	17.1	5.7	
Occupation	office worker	2.9	11.4	
	worker	5.7	8.6	
	retired	14.3	20	0.263
	housewife	42.9	37.1	
	self-employed	34.3	22.8	

Table 2. Comparison of stress levels between the control and intervention groups

Time	Baseline		2 Hours After ICU Admission		2nd ICU Day		3rd ICU Day	
Group	Control	Test	Control	Test	Control	Test	Control	Test
Normal stress level	28.6	37.1	57.1	94.3	88.6	97.1	94.3	100
Mild	25.7	28.6	31.4	5.7	8.6	2.9	5.7	0
Moderate	22.9	17.1	11.4	0	2.9	0	0	0
Severe	14.3	22.9	0	0	0	0	0	0
Extreme	8.6	8.6	0	0	0	0	0	0
P	0.359		0.0001		0.044		0.014	

Table 3. Comparison of anxiety levels between the control and intervention groups

Time	Baseline		2 Hours After ICU Admission		2nd ICU Day		3rd ICU Day	
Group	Control	Test	Control	Test	Control	Test	Control	Test
Normal stress level	0	0	0	25.7	11.4	88.6	60	95
Mild	2.9	5.4	5.2	42.9	28.6	11.4	40	5
Moderate	0	10.3	25.7	25.7	17.1	0	0	0
Severe	20	22.9	37.1	5.7	31.4	0	0	0
Extreme	77.1	61.4	31.4	0	11.4	0	0	0
P	0.012		0.0001		0.0001		0.0001	

DISCUSSION

The findings of the present study showed that the level of stress in the family members of the post-cardiac surgery patients hospitalized in the ICU in the intervention group decreased significantly after the supportive program, which was commenced 2 hours after ICU admission and thereafter on the 2nd and 3rd ICU days. Additionally, the level of anxiety dropped after the implementation of the supportive program and subsequently on the 2nd day of the study. Nonetheless, the

supportive program did not have a significant effect on the level of anxiety in the family members on the 3rd ICU day.

The findings obtained from the present study correspond to those reported by Muldoon et al, [11] who designed an interventional study and investigated the effects of informational cards on decreasing the stress level in the families whose patients were in the surgery room. The authors reported that 55.4% of the volunteers stated that the information on those cards was effective in reducing stress. (The participants' opinions were recorded as "agree" and "completely agree".) In our study, relevant information was provided more comprehensively and more extensively than in the above-mentioned study. The information provided in the current study (see METHODS) helped the families cope with stress and anxiety more effectively. Different studies have shown that an account of the patients' status in the ICU provided by the nurse helps their families to feel more hopeful, to be more satisfied with the personnel, to have more control over the circumstances, and to experience less stress and anxiety. Furnishing families with information about the status of their patients and expected results, investigating their feelings such as anger and guilt, informing them of what has been done and its reason, and suggesting some care methods which they can draw upon for their patients can lessen stress in those families. [10]

A study by Imanipour et al, [1] conducted among the families of cardiac surgery patients, showed that informational support, familiarization tours, and educational pamphlets were not always able to decrease the families' anxiety on the discharge day from the ICU. A study by Bailey et al [6] showed no significant relationship between informational support and anxiety in the families of the patients hospitalized in the ICU. The authors performed a descriptive cross-sectional study on 29 family members whose patients were hospitalized in the ICU

and found that those participants who had received more informational support based on the CCFNI (Critical Care Family Needs Inventory) did not necessarily feel less anxiety, which chimes in with the results of our study. In other words, the reason why the intervention did not affect anxiety can be the factors which cause the anxiety; consequently, it is necessary to consider all the causes and prevent them when seeking to control anxiety, especially when dealing with patients undergoing major operations such as coronary artery bypass graft sugary. [12-16]

It should be noted that the duration of our study was limited to the time period during which the patients were hospitalized in the ICU because of our limited financial and human resources. Investigating stress and anxiety when patients are discharged from the hospital requires monitoring patients and their families and continuing the informational support. These cases are outside the scope of the duties of the nurses working in the ICU.

CONCLUSIONS

ICU admission can by synonymous with mental confusion, fear, and anxiety for patients and their families. Given the significance of the role of families in the care of cardiac surgery patients, it is clinically valuable to decrease—even minimally—their anxiety levels. The results of our study demonstrated that the family members of the post-cardiac surgery patients hospitalized in the ICU experienced a great degree of stress and anxiety and interventions such as our nursing supportive program, giving informational and emotional support, were effective in decreasing their levels of stress and anxiety.

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