Research Article

Effect of Liaison Nurse Service on Transfer Anxiety of Patients Transferred From the Cardiac Surgery Intensive Care Unit to the General Ward

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Abstract

Background: Transition from intensive care unit to a general ward is a stressful situation for patients. It is believed that a liaison nurse can prevent adverse events during the transfer process.

Objectives: This study aimed to examine the effect of a liaison nurse on anxiety related to the transportation of patients from the cardiac surgery intensive care unit to a general ward.

Methods: This randomized clinical trial was conducted on 68 patients that were randomly assigned to the experimental and control groups. The demographic information and disease profile were collected at the baseline of the study. Liaison nurse services were provided for the experimental group during the transfer process. The Spielberger state-trait anxiety inventory (STAI) was used to measure the patients' anxiety at the start of the transfer and two hours after admission to the general ward. Independent samples and paired t-tests were used to compare the anxiety mean scores in the experimental and control groups.

Results: Before the intervention, the mean anxiety was 45.61 ± 12.42 and 40.11 ± 10.95 in the experimental and the control groups, respectively ($P = 0.057$). However, after the intervention, the mean anxiety score was significantly decreased to 33.20 ± 6.22 in the experimental group ($P < 0.001$) while it increased to 44.17 ± 10.23 in the control group ($P < 0.001$).

Conclusions: Liaison nurse services affected the patients' anxiety in the process of transition from the cardiac surgery intensive care unit to the general ward.

Keywords: Heart Surgery, Liaison Nurse, Anxiety, Intensive Care Unit

1. Background

Although discharge is a positive step in terms of physical recovery, it is stressful for the patients and their families, and patients may not have the mental readiness for transfer to the general ward. Many patients experience high anxiety during transfer from the intensive care unit (ICU) to other wards. A lack of nurse-patient communication after transfer from the ICU, making a sense of detachment in patient and family (1). Given the shortage of hospital beds, the increase of admissions to intensive care units, high cost and shortage of nursing staff and equipment in the health care system, there is an emphasis on early discharge (2). Despite the initial recovery in the ICU, some patients are still at risk of deterioration of their physical condition that leads to re-admission or death (2). Therefore, a variety of interventions and educational strategies have been initiated to identify critically ill patients at risk of acute conditions in the general wards (3).

An ICU liaison nurse integrates the services of an intensive care unit nurse and supportive services staff. In Australia, the ICU liaison nurse has been recognized as a facilitator of care for patients, who are discharged from the ICU (4). These nurses try to support the patients and their families, and also provide resources that assist nurses in the general ward during the transfer process (5, 6). However, some studies indicate that nurses in general wards usually complain of not receiving enough information to provide immediate care to the patients admitted from the ICUs (1).

The services of liaison nurse are not currently provided in medical centers in Iran. Because, transfer anxiety is prevalent, and due to the lack of empirical studies on the effects of liaison nurse on transfer anxiety, it is still am-

bigious whether liaison nurse services could decrease the transfer anxiety in patients during transportation from the ICU to a general ward.

2. Objectives

This study aimed to investigate the effect of ICU liaison nurse on patient anxiety during transportation from the ICU of cardiac surgery to general wards.

3. Methods

3.1. Study Design and Participants

This non-blind, randomized, controlled trial was conducted on patients transferred from the cardiac surgery intensive care unit to the general wards of hospitals affiliated with Tehran University of Medical Sciences (TUMS) in Tehran city, Iran. The study was conducted from September 2012 to December 2014. Sixty eight patients were consecutively selected and randomly allocated to the experimental and control groups.

The sample size was calculated based on the results of a study, which examined the effect of supportive nursing care in reducing patient anxiety and reported that the mean of anxiety before and after the intervention in the experimental group were 61.65 ± 6.48 and 48.51 ± 5.86, respectively (7). Then, according to the aforementioned study and considering $\alpha = 0.05$, $\beta = 0.1$, $S_1 = 1.27$, $S_2 = 1.17$, $\mu_1 = 5.07$, and $\mu_2 = 4$, 28, the number of subjects required in each group was estimated. However, we recruited 34 patients in each group to compensate probable attritions and achieve more reliable results.

The inclusion criteria were patients hospitalized for the first time in the intensive care unit, age > 18 years old, no hearing impairments, having no known anxiety disorder, and duration of ICU stay of greater than three days. The exclusion criteria included a patient's reluctance to remain in the study, decreased consciousness, and unpredictable events during the transfer process (i.e., pain and dyspnea).

3.2. Instruments

The first part of the instrument included six questions, related the patient's demographic and clinical characteristics including: age, gender, education level, family income, family history of heart disease, and history of open heart surgery in the family. The second part was the state-trait anxiety inventory form Y1 (STAI-Y1) (8). The STAI-Y1 contains 20 items that measure "state" anxiety (how an individual feels "right now"). Respondents rate their anxiety using a four-point scale, ranging from "not at all = 4" to "very much

= 1." The possible score ranges from 20 to 80. Reliability and validity of the instrument have been verified in Iran and the Cronbach Alpha coefficient was 0.94 (9). Patients completed the STAI before being transferred from the ICU to the general ward and two hours after the transfer.

3.3. Procedures

The researcher visited the selected patients at morning shift after 08:00 AM. The patients' demographic data were extracted from their medical records or by asking the patients. The control group received routine care (providing information about the transition process and staying with the patient during transfer to the general ward). The experimental group also received routine care in addition to being supported by an ICU liaison nurse until the end of the transfer process. The liaison nurse services was started from the decision to transfer the patient and continued for two hours after transmission to the general ward. The role of the ICU liaison nurse is an example of a "bundled intervention"(10), meaning that the liaison nurse undertakes a number of activities, that are together considered as a treatment package. The treatment package was developed through a review of literature (11) are then tailored for each patient, depending on their needs. As a result of the information gathered through the literature review, a task description for the liaison nurse was developed. The task description included: assessing the patients for transfer to the ward, focusing primarily on the coordination of ICU patient transfer with ward staff, assessing the ward staff skills and resources, preparing both the ICU and ward staff for patient transfer, and assessing the bed status. The other roles of the liaison nurse included the provision of clinical support and resources for ward nurses, as well as providing education and advices to increase their capacity to receive and manage the ICU patients. Importantly, the liaison nurse provided practical and emotional support and education to patients before and after discharge. The liaison nurse services were available six hours a day, Saturday to Thursday from the morning shifts, and up to four hours on the weekends. The weekend service was limited because fewer discharges occurred on the weekends. One part time nurse performed the liaison nurse services. He followed a set of guidelines and used an ICU text book; however, his contacts with the patients were on an individual basis.

3.4. Ethical Considerations

The ethics committee of TUMS approved the study (grant No: 92.s.130.2374). The study registration code in the Iranian registry for clinical trials is IRCT201401274443N7. Permissions were obtained from the hospital and ICU authorities. The researchers informed all of the patients

about the process of the study, being free to participation or withdrawal from the study. Patients were also assured of the data confidentiality, absence of any constraint to participation, and lack of any adverse effects. Also, a written informed consent was obtained from each participant.

3.5. Data Analysis

Statistical analyses were performed using the SPSS software version 13. The difference between the two groups regarding demographic data was assessed using independent t-test and chi-square test. Independent t-test and paired t-test was used to compare mean anxiety between the two groups and within each group before and after the intervention. A P value of less than 0.05 was considered statistically significant in all tests.

4. Results

No significant differences were observed between the two groups regarding the demographic and clinical characteristics (Table 1).

Table 1. Demographic and Clinical Characteristics of the Patients in the Experimental and Control Groups

Variables	Group		P Value
	Experimental	Control	
Gender			0.804
Male	20 (58.8)	21 (61.8)	
Female	14 (41.2)	13 (38.2)	
Family income			0.393
Enough	30 (88.2)	32 (94.1)	
Not enough	4 (11.8)	2 (5.9)	
Family history of heart disease			0.582
Yes	8 (23.5)	10 (29.4)	
No	26 (76.5)	24 (70.6)	
Education status			0.659
Illiterate	8 (23.5)	12 (35.3)	
Diploma	16 (47.1)	14 (41.2)	
University	10 (29.4)	8 (23.5)	
History of open heart surgery			0.614
Yes	0	1 (2.9)	
No	34 (100)	33 (97.1)	

Moreover, no significant difference was observed between the mean anxiety scores in the experimental and the control groups before the intervention. However, after the

intervention, the mean anxiety score was significantly decreased in the experimental group (P <0.001) while it significantly increased in the control group (P < 0.001) (Table 2).

Table 2. Comparing the Mean Anxiety Scores in the Experimental and Control Groups Before and After the Intervention

Anxiety	Group		P Value (T-Test)
	Experimental	Control	
Before intervention	45.61 ± 12.42	40.11 ± 10.95	0.057
After intervention	33.20 ± 6.22	44.17 ± 10.23	< 0.001
P value (Paired t-test)	< 0.001	< 0.001	

5. Discussion

This study showed that liaison nurse services significantly reduced the mean anxiety score related to the patients transfer from the cardiac surgery ICU to the general ward. Although the focus of care in the ICUs is on life saving, the discharge planning is usually ad hoc and influenced by the acuity of the patient's conditions (12). However, the healthcare organizations must be aware of the importance of patient support during the transportation phase. Unplanned discharging of the ICU patients might put them at risk of life threatening events during or immediately after discharge (12, 13). Previous studies also emphasized on the importance of the liaison nurse services during the process of discharge from the ICUs (5, 14, 15). Establishment of the liaison nurse services has several advantages that will increase the quality of care and patient safety, which consequently would increase not only the patients and families satisfaction, but also would increase the nurses confidence in providing nursing care for both nurses in the ICUs and in the general wards. Other consequences of the liaison nurse services are reduction in the rate of readmission to the INUs and the length of hospital stay, increase in the self-care abilities of patients, improvement in patient evaluation, prevention of some acute complications and providing a valuable source of knowledge not only for nurses working in the general wards, but also for patients and their families (4, 14, 15). The results of the present study was consistent with a recent meta synthesis, which explored the effectiveness of an ICU discharge support strategy and highlighted the patients and family members' fear of the unknown, which contributed to anxiety and vulnerability (16). Despite these findings, Chaboyer et al. investigated the effects of liaison nurse and reported

that the presence of a liaison nurse did not affect the patients' anxiety during transfer from the ICU to the general ward (11). Such an insignificant effect might be attributed to the environmental factors of the study settings. Therefore, the aforementioned researchers suggested further studies in this regard.

There are some limitations in this study. First, the STAI was relatively long and might not be appropriate to be used for ICU patients. Perhaps a specific and shorter instrument should be developed for assessment of transportation anxiety in ICU patients. Second, there are numerous issues including the support received from family, friends and other health professionals, which may affect anxiety levels. These factors were not measured in this study. Finally, transfer anxiety is a construct that has been discussed for several decades, however little empirical attention has been paid to it and a few studies were available for the purpose of comparison.

In conclusion, this study revealed the beneficial effect of a liaison nurse on reducing transfer anxiety during and after transfer from ICU to a general ward. Therefore, establishment of a special position for an ICU liaison nurse is suggested. Due to the lack of studies in this field in Iran and worldwide, more researches are required to find the best way to monitor and manage the anxiety of patients transferred from intensive care to the general ward.

Acknowledgments

Footnotes

References

1. Ohanga A. Transition of patient from intensive care unit to the ward: A ward nurse perspective. *J Climate.* 2009;**1**:715–28.

2. Wu CJ, Coyer F. Reconsidering the transfer of patients from the intensive care unit to the ward: a case study approach. *Nurs Health Sci.* 2007;**9**(1):48–53. doi: 10.1111/j.1442-2018.2007.00294.x. [PubMed: 17300545].

3. Elliott M. Readmission to intensive care: a review of the literature. *Aust Crit Care.* 2006;**19**(3):96–8. [PubMed: 16933636] 100-4.

4. Eliott S, Chaboyer W, Ernest D, Doric A, Endacott R. A national survey of Australian Intensive Care Unit (ICU) Liaison Nurse (LN) services. *Aust Crit Care.* 2012;**25**(4):253–62. doi: 10.1016/j.aucc.2012.03.004. [PubMed: 22561043].

5. Chaboyer W, Thalib L, Foster M, Elliott D, Endacott R, Richards B. The impact of an ICU liaison nurse on discharge delay in patients after prolonged ICU stay. *Anaesth Intensive Care.* 2006;**34**(1):55–60. [PubMed: 16494151].

6. Chaboyer W, Thalib L, Foster M, Ball C, Richards B. Predictors of adverse events in patients after discharge from the intensive care unit. *Am J Crit Care.* 2008;**17**(3):255–63. [PubMed: 18450682] quiz 264.

7. Ebrahimi H, Navidian A, keykha R. The effect of supportive nursing care in reducing anxiety of patients receiving electroconvulsive therapy [in Persian]. *Iran J Psychiatr Nurs.* 2014;**1**(4):13–24.

8. Spielberger CD. Manual for the State-Trait Anxiety Inventory STAI (form Y)(" self-evaluation questionnaire") 1983. Available from: https://ubir.buffalo.edu/xmlui/handle/10477/1873.

9. Adib-Hajbaghery M, Abasi A, Rajabi-Beheshtabad R. Whole body massage for reducing anxiety and stabilizing vital signs of patients in cardiac care unit. *Med J Islamic Republic Iran.* 2014;**28**(1):287–95.

10. Conn VS, Rantz MJ, Wipke-Tevis DD, Maas ML. Designing effective nursing interventions. *Res Nurs Health.* 2001;**24**:433–42.

11. Chaboyer W, Thalib L, Alcorn K, Foster M. The effect of an ICU liaison nurse on patients and family's anxiety prior to transfer to the ward: an intervention study. *Intensive Crit Care Nurs.* 2007;**23**(6):362–9. doi: 10.1016/j.iccn.2007.04.005. [PubMed: 17681470].

12. Watts R, Pierson J, Gardner H. Critical care nurses' beliefs about the discharge planning process: a questionnaire survey. *Int J Nurs Stud.* 2006;**43**(3):269–79. doi: 10.1016/j.ijnurstu.2005.04.005. [PubMed: 15979076].

13. McCormack B, McCance TV. Development of a framework for person-centred nursing. *J Adv Nurs.* 2006;**56**(5):472–9. doi: 10.1111/j.1365-2648.2006.04042.x. [PubMed: 17078823].

14. Williams TA, Leslie G, Finn J, Brearley L, Asthifa M, Hay B, et al. Clinical effectiveness of a critical care nursing outreach service in facilitating discharge from the intensive care unit. *Am J Crit Care.* 2010;**19**(5):e63–72. doi: 10.4037/ajcc2010965. [PubMed: 20810409].

15. Endacott R, Chaboyer W, Edington J, Thalib L. Impact of an ICU Liaison Nurse Service on major adverse events in patients recently discharged from ICU. *Resuscitation.* 2010;**81**(2):198–201. doi: 10.1016/j.resuscitation.2009.10.011. [PubMed: 19926387].

16. Bench S, Day T. The user experience of critical care discharge: a meta-synthesis of qualitative research. *Int J Nurs Stud.* 2010;**47**(4):487–99. doi: 10.1016/j.ijnurstu.2009.11.013. [PubMed: 20004396].