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Original Article

Nursing Section

The Effect of Peer Education on Treating Pain in Patients for Burn Debridement

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ABSTRACT

Introduction: Debridement is a daily care for burn patients that can cause severe pain due to skin damage. Pain is one of the primary side effects of burn wounds and relieving pain is a basic need for all patients.

Aim: To investigate the impact of peer education on the pain level of patients for burn debridement.

Materials and Methods: This clinical trial conducted from January 2014 to March 2015, consisted of 60 patients who were to undergo burn debridement. The patients in the control group received routine training regarding the methods to reduce pain and the patients in the intervention group were trained by their peers under the supervision of the researcher. Pain severity was re-evaluated in both the groups on that day after training. The data collection tool was the demographic information questionnaire and a Visual Analogue Pain Scale (VAS). Data were analysed using SPSS software (version 18) and descriptive-analytical tests.

Results: The mean score of pain severity at the beginning of burn debridement was 6.35±2.10 in the intervention group and 5.30±1.85 in the control group. After the peer education, the mean score of pain severity was 3.30±1.78 and 4.20±1.23 in the intervention and control group, respectively (p-value=0.02).

Conclusion: Peer education can significantly reduce the severity of pain associated with burn debridement. The use of non pharmacological effective techniques, such as peer education can be beneficial in relieving pain and preventing its exacerbation

Keywords: Burn wounds, Pain management, Visual analogue pain scale

INTRODUCTION

According to the statistics, about 2.5 million Americans suffer from burn injuries annually. Of these, about 100,000 persons are admitted to hospitals and more than 10,000 people die from post-burning complications that comprise the highest mortality rate after traffic accidents [1,2]. Epidemiologic studies performed in different burn centers in different countries accounts for burn injuries for 12.5% of the world's traumas. In fact, it is associated with significant financial loss and casualties for patients and their families and causes mortality, pain, disability, physical and mental problems and disability [3,4].

Burns are often associated with severe pain. Nowadays, pain control is considered as an essential part of care [5]. American Nursing Association regards pain as the fifth most important sign to emphasize its importance [2,6]. The usual method of pain control in burned patients includes using opioid analgesics along with anti-anxiety drugs [3].

Although opiates and tranquilisers reduce the discomfort and pain associated with burning dressing, they are usually not enough and have their own complications. Today, research is directed toward behavioural cognitive methods of pain management [7]. In addition to pharmaceutical treatments, non-pharmacological approaches (music therapy, educational intervention, meeting with relatives, massage, and respiratory techniques) are used to reduce patient's discomfort and pain [8].

Peer education by those who are informed and had a burn experience is one of these methods to provide information on illness along with control and follow up of care [2]. Peer education is exchanging information, attitude, and behaviour by those who are not specialized in that discipline, but have common experiences [9]. Meeting similar people provides relief and reassurance for patients and can help them to learn adaptive methods to overcome disease and increase their life expectancy [10].

Many supporters of the peer education claim that the placement of matched groups in a social class leads to a constructive dialogue and ultimately, a single function will be selected. In fact, the final impact of this kind of training is the change of behaviour in peer group [11]. This method has been effective in nursing care. Since, it reduces pain and anxiety in patients and increase their self-esteem and behavioural skills. Peer education is an economical method [12]. Due to the shortage of nurses in different departments of the hospitals across the country, it seems that nurses do not have enough time to communicate and educate patients. Thus, peer education can be effective in solving this issue. Because of their previous experience, peers can have a significant impact on reducing the anxiety of the patients through sharing their past successful experiences [13]. The present study aimed to determine the effect of peer education on the pain level of patients for burn debridement.

MATERIALS AND METHODS

In this two-armed clinical trial, a total of 60 patients referring to Shahid Motahari Hospital in Tehran who were candidates for burn debridement were investigated from January 2014 to March 2015. Using the following formula, the sample size in each group (control and intervention groups) was 30 patient. The participant were selected using available sampling method from Shahid Motahari Hospital.

The inclusion criteria included candidates for debridement for the

$$N = \frac{\left(Z_1 - \frac{a}{2} + Z_1 - b\right)^2 \left[\left(p_1\left(1-p_1\right)+p_2\left(1-p_2\right)\right)\right]}{\left(p_1 - p_2\right)^2} = 30$$

first time; having no cognitive problem, not having any education in the field of medicine; aged between 20-60 years; the extent of burns between 15%-65%; not using analgesics, anxiolytics, and antidepressants; and the ability to speak Farsi (Persian).

Patients who passed away or experienced new physical problems during the study and lost their ability to take care of themselves, or patient who withdrew their consent to participate in the study were excluded. Simple randomization method was used to allocate participants to two groups.

For selection of peers, the list of patients who underwent burns debridement, were evaluated and peers willing to participate in the study, at least having diploma degree, at least having one successful debridement, and can be present at the hospital. Finally, the peers who collaborated with the researcher until the end of the study were selected. Researcher trained peers about describing the purpose of the study, how to communicate with patients and presenting their positive experiences about methods reduce pain to patients.

After completing peer education (a two hour training session), the severity of pain of the patients was assessed using the VAS tool in both groups on the preoperative day. Then, the patients in the control group received routine training (on non-pharmacologic methods of reducing pain) via nurses or were given the relevant pamphlet. In the intervention group, patients were trained by peers. Pain severity was re-evaluated in both groups on the day after training. The data collection tool was demographic information questionnaire and a VAS tool to measure pain.

VAS tool was used to determine the severity of pain in patients. VAS tool for measuring pain was a 10 cms ruler, with 0 representing lack of pain and 10 for the maximum amount of pain. The mean pain severity was divided into five categories, including "without pain" (zero score), "mild pain" (score of 1-3), "moderate pain" (3-6), "severe pain" (6-9), and intolerable pain (10). This tool was designed by McGill in 1998 and so far, many scholars have used it and its validity has been confirmed [14]. In order to determine the reliability of pain severity recording sheet, simultaneous observation method was used and the reliability coefficient was calculated as (r=1) and the correlation was 100%. The questionnaire and the VAS tool were completed by the researcher for each patient.

STATISTICAL ANALYSIS

The information was evaluated using SPSS package 18.0 for Windows (SPSS, Chicago, Illinois, USA) and the final analysis was performed on 60 patients. Two sample Kolmogorov-Smirnov test was used to compare groups before the intervention and the data distribution was normal. Descriptive and inferential statistics, including independent t-test, paired t-test and chi-square test, were used for data analysis.

Variable		Intervention	Control	Test score
		n (%)	n (%)	
Age	20-30	8 (26.7)	10 (33.4)	p-value=0.7* Statistics: 0.3
	31-40	10 (33.3)	10 (33.4)	
	41-50	5 (16.7)	4 (13.3)	
	51-60	7 (23.3)	6 (20)	
Gender	Male	15(50)	15(50)	p-value=1** Statistics: 0
	Female	15 (50)	15 (50)	
Job	Service	13 (43.4)	10 (33.4)	p-value=1 *** Statistics: 0.72
	Worker	3 (10)	4 (13.3)	
	Not employed	14 (46.6)	16 (53.3)	
Education level	Diploma	22 (73.4)	22 (73.4)	p-value=0.63*** Statistics: 2.7
	Bachelor	2 (6.6)	4 (13.3)	
	Illiterate	6 (20)	4 (13.3)	
Marital status	Married	19 (63.3)	15 (50)	p-value=1*** Statistics: 1.009
	Single	11 (36.7)	12 (40)	
	Widow	-	3 (10)	
Care insurance	Social	16 (53.4)	13 (43.4)	p-value=0.24*** Statistics: 5.7
	Therapeutic services	12 (40)	15 (50)	
	Emdad foundation	1 (3.3)	-	
	Others	1 (3.3)	2 (6.6)	
Household head	Yes	17 (56.7)	21 (70)	p-value=0.42** Statistics: 0
	No	13 (43.3)	9 (30)	
Burn location	limbs	22 (73.4)	25 (83.4)	p-value=0.77*** Statistics: 3.77
	Face	1 (3.3)	-	
	Head and neck	1 (3.3)	4 (13.3)	
	Trunk	6 (20)	1 (3.3)	
Cause of burn	Gas	1 (3.3)	2 (6.7)	p-value=0.52*** Statistics: 8.2
	Liquid	8 (26.7)	7 (23.3)	
	Hot things	5 (33.4)	8 (26.7)	
	Oil	-	1 (6.6)	
	Fire	11 (36.7)	10 (33.3)	
	Electric	2 (6.6)	1 (3.3)	
	Chemical materials	3 (10)	1 (3.3)	
Burn percent	15-25	4 (13.3)	4 (13.3)	p-value=0.2*** Statistics: 8.2
	26-35	12 (40)	10 (33.3)	
	36-45	9 (30)	11 (36.7)	
	46-55	4 (13.3)	3 (10)	
	56-65	1 (3.4)	2 (6.7)	

[Table/Fig-1]: Demographic characteristics of the patients (n=60).
Independent t-test (*), Chi-square test (**), Fisher's-exact test (***)

RESULTS

The findings of this study showed that patients in intervention and control groups had similar baseline characteristics. Majority of the patients in both groups were between 20-40 years. In terms of gender, in both groups, 50% were female and 50% were male [Table/Fig-1].

As it is shown in [Table/Fig-2], most of the patients in the control and intervention groups had moderate pain (n=16, 53.33% and (n=13, 43.33%, respectively) before intervention. In order to compare the severity of pain in both groups, at the beginning and after debridement, t-test was used. Although, the severity of pain decreased after debridement, the statistically significant difference was only noted in the intervention group (p-value=0.02) and no statistically significant difference was observed in the control group (p-value=0.08) [Table/Fig-3]. Regarding the comparison of the mean difference in severity of pain before and after debridement in both groups, independent t-test showed that reduction in pain severity after debridement in the intervention group (t-value=0.385) was significantly higher than the control group (t-value=0.296).

DISCUSSION

The findings of the present study indicated that the reduction in

Study group	Score pain severity					
	Painless (0) n %	Mild (1-3) n %	Moderate (3-6) n %	Severe (6-9) n %	Intolerable pain (10) n %	Total
Intervention group	0	6 (20)	13 (43.33)	8 (26.7)	3 (10)	30 (100)
Control group	0	5 (16.7)	16 (53.33)	7 (23.3)	2 (6.7)	30 (100)

[Table/Fig-2]: Frequency distribution of pain severity before and after debridement.

Groups	Statistical index	Mean±SD	t	p-value
Intervention group	Before training	6.35±2.05	0.385	0.02
	After training	3.02±1.78		
Control group	Before training	5.30±1.85	0.296	0.08
	After training	4.20±1.23		

[Table/Fig-3]: Comparison of mean pain severity before and after debridement.

the mean pain severity of the participants after peer education was significantly higher in the intervention group compared to the control group. The results of the studies show that peer education has a considerable impact on the physical and mental recovery of burn patients by increasing their hope and sense of belonging and reducing isolation and self-harm at a psychological dimension [15-17].

The findings of this study are consistent with the previous studies regarding the effect of other non-pharmacological methods on the pain severity of patients. In a study that investigated the impact of relationship therapy program on the pain severity of burn patients, the findings showed that the therapeutic correlation reduced pain severity after dressing [18].

Badger K et al., also argued in their qualitative study on the effect of peer education on adult burn victims, that peer education plays a very important role in improving the sense of trust and hope in burn victims [19]. In the study by Tolley JS et al., the impact of peer education on adult burn victims in a psychosocial context, they maintained that peer education has a positive impact on adult burn patients and leads to a positive emotional response that is effective in the healing of burn wounds [15]. Also, the results of a study in Belgium aimed at assessing the psychological views during the dressing of burn patients, showed that psychological support of burn patients, has a significant effect on reducing the pain and anxiety of these patients [20,21]. The study by Frenay MC et al., also showed that, overall, psychological support interventions reduced pain and increased patient satisfaction. These results confirm the potential benefits of psychological assistance during dressing changes in burned patients [22].

On the contrary, in a study by Dehghani M et al., on the effect of peer education program on the stress level of Multiple Sclerosis (MS) patients, the findings did not show a significant difference in the stress score between the intervention and control groups before peer education [18].

LIMITATION

Among the limitations of this research are the individual differences and mental states of the participants which could not be accounted for.

CONCLUSION

Reduction of pain severity in patients with burn wounds in the intervention group highlights the importance of peer education. Therefore, nurses are the primary supporters of patients to reduce and relieve their pain, using effective non-pharmacological therapies with fewer side effects than pharmacological treatments, can be helpful in managing their pain and preventing its exacerbation. Given the increasing research in the field of non-pharmacological pain control and new patient education techniques, such as peer education; further research is necessary to reveal beneficial effects of peer education.

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