Original Article

Survey of the barriers of correct positioning of patients undergoing surgery from the viewpoint of operating room personnel working at educational hospitals of Ahvaz Jundishapur University of medical sciences, Ahvaz, 2018.

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ABSTRACT

Background and Aim: Surgical position is an important process in nursing care before, during and after surgery, and its incorrect implementation can be an important factor in causing patient injuries and thus their dissatisfaction. Therefore, the aim of this study was to determine the barriers of correct positioning of patients undergoing surgical operation from the viewpoint of the operating room personnel. Materials and Methods: This is a cross sectional study. A total of 132 nursing staff and surgical technologists working at the operating rooms of general hospitals affiliated to Ahvaz Jundishapur University of Medical Sciences were included in the study. Data were collected using a researcher-made questionnaire and analyzed using version 24 of SPSS software. Results: In this study, the "not evaluating the health status of organs before positioning" with an average of 3.37 from human barriers and the "there are appropriate equipment for correct positioning, but not available", with a mean of 2.84 were most scored. Also, 73.5% of the operating room personnel reported high levels of knowledge. Conclusion: According to the results of this study, the attention of managers can be focused on the barriers of correct positioning of patients in the operating room so that by providing tools, equipment and trained staff, decrease the injuries caused by positioning in patients and increase quality of care in operating rooms.

Keywords: surgery, operating room, positioning, nurse.

Introduction

The operating room is one of the most sophisticated health care environments. It is also a common place to create unfavorable events. Surgery position is an important process in nursing care during surgery, which refers to placing the patient on the surgical bed in a special condition and requires an agreement between the needs of the surgeon (requiring maximum visibility), the needs of the anesthetist (need to maintain respiratory and circulatory actions) and patient needs (need to return to levels of health and safety and security). In other words, positioning the patient describes the activities performed by the operating room personnel to ensure that the patient is in the best possible condition without damage to anatomical structures and facilitating the procedure [1].

The main goal of this process is to ensure the safety and efficacy of the patient and the balance of his body temperature, providing access to the surgical field, protecting the musculoskeletal and neurological systems, maintaining the integrity and accretion of the skin and tissues, placing the body in an appropriate direction and protecting breathing, circulating and the physiological state of the patient and eventually protecting his dignity. Therefore, the proper condition for surgical procedures is the basis of patient care. In

Access this article online	
Website: www.japer.in	**E-ISSN:** 2249-3379

How to cite this article: Khadije Amerpour, Hadis Ashrafizadeh, Simin Jahani*. Survey of the barriers of correct positioning of patients undergoing surgery from the viewpoint of operating room personnel working at educational hospitals of Ahvaz Jundishapur University of Medical Sciences, Ahvaz, 2018.J Adv Pharm Edu Res 2019;9(S2):186-191.
Source of Support: Nil, Conflict of Interest: None declared.

each operation, it is essential for the patient to be fixed in a particular position, because negligence to do so and sometimes involuntary movements during anesthesia can put pressure on the retentive devices and cause falling of positioned limbs, especially hands and feet. Therefore, if the patient's positioning is not correctly performed, it will cause positioning injuries [2, 3].

Positioning injuries are inherent risks in the post-operative period, which despite the regularity of the surgery, is the major cause of postoperative patient's disability and violation of his privacy [4]. How to place a patient during an operation can affect the ventilation, circulation, and nerves [1]. These effects include pressure ulcers, deep vein thrombosis and pulmonary embolism in long-term operations, ulnar nerve damage in the arm prone position and peroneal nerve damage in the lithotomy position, injury to the brachial nerve due to extension, especially in supine position. Some of the injuries are more likely to occur in a particular group of patients. For example, men aged 40 to 70 undergoing abdominal or pelvic surgery are at increased risk of developing ulna nerve neuropathy. Also, women over the age of 60 are faced with obturator nerve damage and lateral femoral cutaneous neuropathy because of lithotomy position in operations such as cystoscopy and other external genitalia operations [5]. In urologic surgeries, 7% of neurological injuries are directly related to patient's position. Also, the prevalence of neuromuscular damage in laparoscopic urogenital surgery is 2.7% and 0.16% of damage to the brachial nerve plexus in gynecologic laparoscopic surgeries is due to incorrect positioning, which these rates are higher than 0.14% of the prevalence of peripheral nerve damage in laparatomy surgeries. According to a study by the American Anesthesiology Association on closed complaints cases, it was found that 0.16% of the complaints were related to neurological damages, which is only one subset of a wide range of positioning injuries [4].

The results of the studies indicate that any kind of position, in the case of wrong implementation or even correct implementation, causes inherent complications in itself, including physiological complications such as hypotension due to impaired venous return to the heart or drop of oxygen saturation due to ventilation and circulation. However, sometimes complications are created following each position, due to the presence of a set of human and instrumental barriers. Conley and Nilsson noted not giving effective explains about the reason of using a checklist and how to use it, and the prolongation of the time interval between anesthesias and cutting the skin as the most important barriers in their study [6-8]. Erik Olgard Sorensen and colleagues show that the lack of adequate knowledge and skills, the lack of standard equipment, the lack of competence of staff, and the lack of recognition of the importance of interdisciplinary collaboration as reasons of positioning injuries [9]. In another study by Linda Ford and Carla Milsapse, limitation of human resources and lack of evaluation of the patient's condition to ensure the proper position before, during and after surgery are explained as causes of development of positioning injuries [10].

Investigating the studies conducted abroad shows that factors such as proper positioning have a significant role in maintaining and improving the health of patients and reducing the high prevalence of complications. Considering the emphasis which health system's stakeholders put on the importance of the this regard, and since there has not been any research in this field in Iran, the researchers conducted this study based on the above-mentioned aimed at identifying the barriers of the correct positioning of the patients undergoing surgery from the viewpoint of operating room staff. It is hoped with reaching creative and innovative ways for proper positioning and minimizing existing barriers, a small step will be taken in order to enhance this important process.

Methods

This cross sectional study was carried out to determine the barriers of correct positioning of patients undergoing surgery in educational hospitals of Ahvaz Jundishapur University of Medical Sciences in 2018. After approving the research project by the university and obtaining the code of ethics (IR.AJUMS.REC.1396.974), the researcher entered the research environment. The study environment included all general operating rooms of hospitals affiliated to Jundishapur University of Medical Sciences in Ahvaz including Golestan, Imam Khomeini, Razi, Sina, Taleghani and Aboozar. All hospital staff who had inclusion criteria were enrolled in a census method. Inclusion criteria included: having more than two years of working experience in the operating room, having an associate degree in nursing or surgical technology, and exclusion criteria was not answering all questions of the questionnaire.

To collect data, a researcher-made questionnaire was used which its items were based on the findings of valid papers and books. The first part of the questionnaire was related to the individual characteristics of the study units, including age, gender, educational degree, working experience, job shift, and employment status. The second part of the questionnaire consisted of six items about equipment barriers. The score of these items was calculated based on the five-part Likert scale, from completely agree to completely disagree, in which I completely agree got score of 5 and completely disagree got the score of 1. The third part of the questionnaire, the human barriers, was divided into two parts. The first part consisted of five items with a Likert scale, from completely agree to completely disagree, and the knowledge section included nine items with two spectra: I know and I do not know with the lowest score of zero and the highest score of 9. The level of personnel knowledge was classified into three levels as: good (more than 75% correct answers, scores 7 to 9), moderate (between 50 and 75% correct answers, scores 4 to 6), and poor (less than 50% correct answers, scores 0 to 3).

To assess the validity of the questionnaire, the content validity method and CVR and CVI were used by ten faculty members

and nurses working in the operating rooms. The questionnaire CVI and CVR was calculated as 0.79 and 0.6 respectively. Cronbach's alpha method, Cordrichersson method and Interclass correlation coefficient were used to determine the reliability of the questionnaire. At the end of the Cronbach's Alpha was calculated as 75%.

After receiving the recommendation letter from the university authorities and offering it to the general operating rooms of the mentioned hospitals and explaining the goals of research and obtaining informed consent, the questionnaires were distributed among all of the subjects (179 people) and completed by them. After collecting questionnaires, 47 of them were excluded from the study because they did not answer all the questions and the data of 132 participants were entered into the SPSS24 software. To describe the data, descriptive statistics (frequency, percentage and mean) were used and to determine the relationship between mean score of knowledge and demographic variables Pearson correlation coefficient was used for quantitative variables and Spearman was used for qualitative variables.

Findings

Of all the questionnaires, 132 were completely answered. According to Table 1, most units studied were at the age of 25-30 years, female, had a bachelor's degree and higher, had a contractor employment, had a work experience of 6-7 Years and their shifts were in rotation (Table 1).

The findings of this study showed that the item "proper equipment for correct positioning exist but they are not available" in the section of equipment barriers with a mean of 2.84 percent (Table 2) and in section of human barriers, the item "not evaluating the health status of organs before positioning" with the score of 3.37 percent (Table 3) had the highest scores. Also, 73.5% of the operating room staff had good knowledge (Table 4). There was no significant relationship between mean score of knowledge and demographic variables (P> 0.05) (Table 5).

Discussion

The aim of this study was to identify and understand the barriers of correct positioning of patients undergoing surgery from the viewpoint of the operating room personnel. Health care professionals must make sure of any possible damage to patients and prevent potential complications such as compression of neural pathways, carpal tunnel syndrome, deep vein thrombosis and multiple back pains by giving patients the right and possible positions. Transmitting and positioning patients correctly is a very important task and more importantly, checking the patient before and after exposure and signs and symptoms of positioning side effects [11-14]. Therefore, it is better to analyze the causes of the occurrence of this phenomenon in such a way that it can be prevented.

In this research, the most important barriers of the correct positioning of patients were as: there are proper equipment for correct positioning, but they are not available, lack of suitable equipment for the vulnerable limbs of patient and lack of a checklist for positioning.

Sorensen, in his research, showed that shortage of standard equipment is among the causes of positioning injuries [9]. The majority of studies have identified absence of safety checklists and lack of using them as the most important equipment barrier of patient correct positioning. Conley et al in a study entitled "investigating the impact of the implementation of surgical safety checklist", showed that the lack of an explanation of the effect of using a checklist and the description of how to use those checklist will lead to positioning injuries [8]. Nilsson et al in a study entitled "pre-operative checklist for increasing patient safety", stated that not using a checklist is one of the causes of reducing the patient's safety and increasing post-surgical positioning injuries [7]. Frank et al stated that for identifying the most important tool for patients positioning written instructions in that field must be provided [15]. In his study, Eric points out the crucial importance of completing the designed checklists to reduce the numerous complications related to lack of attention to patient safety in the operating room, and states that the implementation of these checklists in Wales and the United Kingdom led to a 14% reduction in complications of patients undergoing surgery, which has an important effect on the general health of the community [16].

There are many checklist and policies on patient safety in the operating room provided by the WHO [17]. According to the consent form, details of each action on the wrists of each patient are recorded and the site of the surgery must be checked with these checklists to avoid any mistakes [10]. The implementation of these checklists is very important, because poor implementation of a strategy is known as a barrier in the organization, which prevents the checklist from effective attraction [18]. Considering that the positioning of the patient is very important at the site of surgery and depending on the type of surgery, the patient's position changes during the operation, the need to pay attention to these instructions and the checklists can be noted that in Iran, there is no clear guideline in this regard. In the UK, the implementation of checklist published by the World Health Organization is supported by national and local workshops, patient safety and encouragement of hospitals for clinical testing [19]. Since the lack of a functional checklist in this field is known as a tool barrier in this study, the need for more attention to this issue still needs to be addressed.

In human barriers, the lack of evaluation of the health status of the patient's organs in order to ensure the proper position prior to surgery by the operating room staff, the lack of examination of the physiological conditions of the patient before positioning and the lack of cooperation and proper participation among the members of the surgical team for the proper positioning were reported as most important barriers.

In a study, Linda Ford considered the limitations of human resources as one of the main causes of postoperative positioning

injuries [10]. Sorensen in his research showed that inability of personnel and the patient carriers, as well as the lack of recognition of importance of interdisciplinary collaboration are among the causes of positioning injuries [9], and states that members of the treatment team who can overcome stress and can easily change their behavior are able to shared their own understanding based on their experiences with other colleagues and control critical situations, which indicates the importance of interdisciplinary collaboration to overcome existing problems [20-23] .

Other findings of this study showed that the operating room staff had sufficient knowledge in this regard. Sorensen in his research showed that the lack of knowledge and skills of personnel was one of the causes of positioning injuries [9]. Many considerations should be taken into account when listing patients in the list of surgical procedures. Nurse should identify the features that can lead to complications and difficult situations, and determine the proper equipment needed to secure the patient's condition. Medical staff should be aware of the correct positioning of patients during surgery, because patient safety is the ultimate goal of taking care of any patient [24].

The limitation of this study was that the views of management staff and supervisory organizations were not measured. Also, due to the drop in samples, the number of samples for generalization was small. It is suggested that future studies with wider statistical societies should be used, along with an assessment of the managerial perspective.

Conclusion

According to the results of this study, the attention of managers could be considered to the barriers of correct positioning of patients in the operating room, so that by providing tools, equipment and trained staff, injuries caused by positing in patients will be decreased and increase the quality of care in operation rooms.

Conflict interest

There is no conflict between the researchers.

Acknowledgments

This study is the result of a student research project for Khadije Amerpour, No. 96S42, at Ahvaz Jundishapur University of Medical Sciences. Researchers of this study sincerely thank and appreciate all the samples that responded the questionnaires carefully.

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Table 1. Demographic and occupation characteristics of Operating Room staff in educational hospitals of Ahvaz Jundishapur University of Medical Sciences

Variable		Frequency	Percent
Age	25-30	64	48.5
	31-35	43	32.6
	36-40	14	10.6
	41-45	7	5.3
	46-50	4	3
Gender	Male	41	31.1
	Female	91	68.9
Educational degree	Associate degree	39	29.5
	Undergraduate	90	68.2
	Postgraduate and higher	3	2.3
Working experience	1-2	99	75
	3-4	28	20.2
	5-6	5	3.8
Employment status	Contractual	19	14.4
	Official	35	26.5
	Practitioner	6	4.5
Shift	Conventional	72	57.5
	Morning	25	18.9
	Evening	4	3
	Night	8	6.1
	Rotation	93	70.5

Table 2. Prioritizing the equipment barriers of patient correct positioning from the viewpoint of operating room staff

Equipment barriers	Mean
There is appropriate equipment for correct positioning but they are not available.	2.84
There is no proper equipment to cover the vulnerable areas of the patient (bumps, neck area, etc.).	2.53
There is no appropriate checklist to guide how to perform patient's positioning.	2.46
There is not enough equipment for proper positioning.	2.34
There is no specialized equipment for special positions.	2.28
There is no proper equipment to cover other areas to protect the patient's privacy.	2.26

Table 3. Prioritizing the human barriers of patient correct positioning from the viewpoint of operating room staff

Human barriers	Mean
The health status of the patient's organs is not evaluated by the personnel of the operating room to ensure proper position prior to surgery.	3.37
Examining the physiological conditions of the patient before positioning is not performed.	3.35
There is no proper collaboration and cooperation between surgical team members for positioning.	3.24
There is not enough manpower to carry out the positioning process.	2.37
There is not enough manpower to implement gender mainstreaming.	2.35

Table 4. Determining the status of knowledge of the operating room staff regarding correct positioning of patients in operating room

Knowledge and awareness level		Frequency	Percent
Poor knowledge	(0-3)	11	8.3
Moderate knowledge	(4-6)	24	18.2
Good knowledge	(7-9)	97	73.5

Table 5. Determining the relationship between the staff knowledge mean score and demographic and occupation characteristics of operating room staff

Demographic variables	Knowledge mean score	
	r (correlation coefficient)	P-value
Age	-0.25	0.77
Gender	-0.48	0.58
Educational degree	0.12	0.16
Working experience	-0.07	0.41
Employment status	-0.10	0.21
Shift	0.02	0.76