PHYSICAL RESTRAINT PRACTICES AMONG ICU NURSES IN ONE UNIVERSITY HOSPITAL IN WEASTERN TURKEY

Neriman Akansel, RN, PhD, Uludag University School of Health, Department of Nursing, Gorukle 16059 Bursa, TURKEY

ABSTRACT

Background: Using physical restraints is a highly preferred practice in intensive care units. Most of the studies show that the main reason for restraining patients is to prevent dislodgement of medical equipments and nurses have positive attitudes about restraining practices.

Methods: This research was conducted for the purpose of determining the use of physical restraints, ongoing practices and perceptions about physical restraints among intensive care unit nurses**.** This was a as a descriptive -cross sectional study done with 80 intensive care unit nurses in May 2005. Nurses who agreed to participate in the study filled out the questionnaires prepared by the researchers. The survey questionnaire was based on the current literature and the author's observations on the restraining practice.

Results: Prevalence of physical restraint use is high in all ICUs. Gauze is the mostly used but not a proper material for restraining patients in all intensive care units. Documentation of restraint application is not a part of restraining practice (93.7 %). Reasons for using restraints as described by nurses are to prevent equipment dislodgement and providing safe working environment for themselves.

Conclusions: In this study, physical restraining practices of intensive care nurses and materials used for this practice are not appropriate for patient care. Perceptions and knowledge of nurses play an important role on the selection of the restraining method. For a better nursing care it is very important to develop a restraint policy and educate nurses to provide awareness about this highly used practice in health care settings.

Key words: Intensive care unit, nursing care, physical restraining practices

Corresponding Author:
Neriman Akansel, RN, PhD,
Uludag University School of Health,
Gorukle Campus
16059 Bursa,
TURKEY
E-mail: nakansel@uludag.edu.tr

INTRODUCTION

Physical restraints are defined as any device, material attached to or near patients' body that could not be controlled by patient [1]. Although physical restraints are often seen as a simple solution to the problem of the treatment interference, in critically ill patients one of the common themes is that physical restraints impending an individual's freedom [2]. Several studies have documented that the use of physical restrains is a common practice used in various clinical settings and they are mostly used in clinical settings to control disruptive behavior, wandering, maintain treatment plans and prevent patients to fall from hospital beds[3] but by far the most common reason in intensive care was to prevent the removal invasive tubes and devices [4]. However patients who are in ICU, not necessarily are agitated patients. Observational study reports that residents exhibited the same amount or more, agitated behaviors even when patients were restrained [5].

Evans et al. (2002a) [6] found that between 7- 17 % of the hospital patients are subjected to physical restraints. Patients have strong emotional reactions to being restrained; they also feel angry and upset [7]. The literature reports a wealth of evidence on the detrimental physical and psychological effects of physical restraints. These include hypertension, tachycardia, increased agitation, impaired circulation, aspiration, nerve and skin injury, constipation [8], decline in functional and cognitive state and increased agitation [1,7] and other complications associated, with immobility. It is also reported that restraints have negative effects on patients and their families, patients feeling embarrassed in remembering the experience of being restrained [9]. Evidence show that use of physical restraints can also lead to skin trauma, pressure sores, constipation, depression, anger, decline in functional and cognitive state and increased agitation [1,10].

METHODOLOGY

Aim

This research was conducted for the purpose of determining the use of physical restraints, ongoing practices and perceptions about physical restraints among intensive care unit nurses**.**

Design and Sample

This study was conducted at Uludag University Medical Hospital in Northwestern region of Turkey, Bursa. Data were collected in May 2005 from critical care nurses who work in a 1500 bedded university hospital with 9 intensive care units. The aim of the study was to determine the use of physical restraints, ongoing practices and perceptions about physical restraints among intensive care unit nurses**.** Although 80 nurses were eligible for this study 63 ICU nurses responded and response rate was 78 %.

Data Collection Method and Procedure

The questionnaire consisted of three parts. The first part included questions related to nurses demographic variables; the second part included questions related to restraint practices of nurses; the third part included phrases to determine nurses perceptions for restraint use where nurses gave agree/disagree answers.

Data Analysis

SPSS (Statistical Program for Social Sciences) 12.0 was used for data analysis**.** Results of this study were given by numbers and percentages and X^2 test was used for statistical analysis.

Ethical Consideration

Hospital review board and the Ethics Committee at the university approved the study in 2005. Nurses who answered the questionnaires gave a verbal consent to participate in this study.

RESULTS

Ages of nurses range between 21-41 years with a mean of 28.27 years. Eighty eight point nine percent (88.9 %) of nurses were female, while only 11.1 % of them were males. 15.9 % of the nurses work as head nurses in ICU's and 84.1 % of them work as staff nurses. Some of the nurses (17.5 %) have vocational high school diplomas, 42.9 % of nurses have associate degrees, and 39.6 % of the nurses have bachelor's degrees in nursing. Almost half of the nurses (42.9 %) included in this study had an ICU experience between 6-10 years with a mean of 2.45 years. Fourteen point three percent (14.3 %) of the nurses work in surgical ICU, 33.3 % of the nurses work in medical ICU, 41.3 % of the nurses work in anesthesia and reanimation unit.

Restraining is a highly preferred practice in ICU's since 90.5 % of the nurses report using restraints. Most of the nurses do not keep a record for their restraint use (93.7 %). Only a few of the ICU nurses (6.4 %) reported using special restraint materials while the rest of the ICU nurse's (89.2%) report that they use gauze as a restraining material. Half of the nurses report that they use four point restraints, 41.35 % of the nurses report that they usually restrain the wrists of the patients. Skin color of the patient (49.2%), pulse and color of the restrained extremity (46 %) were the mostly monitored factors during restraint use. Two nurses report that they do not evaluate anything during restraint use. Most of the nurses (76.2 %) report that they continue the restraining procedure as long as the patient's condition requires. 65.1 % of the nurses report that other health care staff (e.g. nurse's aides) also applies restraints. Most of the nurses (84.1 %) do not receive orders for restraint application and 95.2 % of the ICU nurses reported that they did not receive special education or any training about restraint practices.

Types of the mostly restrained patients in this study were as follows; agitated patients (96.8 %), patients with delirium (41.3 %), patients who are on respirators (30.2 %), unconscious patients (17.5%) and patients who receive sedation (4.8 %). The distribution of the nurse's physical restraining practices is shown in Table 1.

Table 1. Physical restraint practices in ICU's

Physical restraining practices in ICU's	n	%
The use of physical restraints in ICU's		
Yes	57	90.5 %
No	6	9.5 %
Type of restrain material used for physical restraining		
Roll of gauze	58	92.0 %
Special restraints	4	6.4 %
N/A	1	1.6 %
Type of physical restraints used in ICU's		
Four point restraints	32	50.8 %
Wrist restraints	26	41.3 %
Leg ankles	-	-
No answer	5	7.9%

The part of the day which the restraints being used the most		
08am-16 pm	9	12.7 %
16pm-08am	31	49.2 %
Other (depends on patient's condition)	18	28.5%
N/A	5	7.9 %
Types of assessments done by nurses after physically restraining ICU patients	31	49.2 %
Skin color of the patient	1	1.6 %
Pulse under the restrained extremity	29	46 %
Pulse and color of restrained extremity	2	3.2 %
No evaluation done		
Duration of the restraint procedure after the application of physical restraints		
2 hours	2	3.2 %
4 hours	4	6.3%
8 hours	5	7.9%
Depends on patient's condition	48	76.2 %
N/A	4	6.3 %
Receiving orders from physicians for application of the restraints		
Yes	6	9.5%
No	53	84.1%
N/A	4	6.3%
Documentation practices after applying physical restraints		
Yes	4	6.3 %
No	59	93.7%
Patient groups subjected to physical restraints		
Agitated patients	61*	96.8%
Unconscious patients	11*	17.5%
Patients who receive sedation	3*	4.8 %
Patients on respirators	19*	30.2%
Patients with delirium	26*	41.3%
Others	2*	3.2%

*** More than one answer was given**

According to nurses reasons for restraining patients are; to prevent dislodge of the medical equipment (89.2 %), to promote patient safety (93.7 %), to control patients' behavior (38.1 %). Almost all of the nurses (92.1 %) agree on the fact that restraint practices reduce fall rates from hospital beds and it also reduces injuries and 87.3 % of the nurses agree that physically restraining patient allows health practitioners to work safely. Perceptions of nurses about physical restraints were shown in Table 2.

Table 2. ICU nurse's perceptions for restraint use

ICU nurse's perceptions for restraint use	Agree	Disagree
Before using restrains alternative methods should be tried (True)	62 (98.4 %)	1 (1.6 %)
Information should be given to the patients before applying restraints (True)	63 (100%)	-
Patients who receive sedatives should be restrained physically (False)	14 (22.2%)	49 (77.8%)
Relatives should receive information about restraint use (True)	60 (95.2%)	3 (4.8 %)
Restrained patients know the reason for this practice (False)	11 (17.5 %)	52 (82.5 %)
Physical restraints prevent falling from hospital beds and this practice also reduces	58 (92.1 %)	5 (7.9%)

injuries (False)		
Physical restraints allows health practitioners to work safely (False)	55 (87.3%)	8 (12.7 %)
Physical restraints causes patient's to stay in hospital for long period (True)	4 (6.4 %)	59 (93.6 %)
Physical restraints increases mortality (True)	7 (11.1 %)	56 (88.9 %)
Physical restraints are not suitable for patients rights (True)	26 (41.3 %)	37 (58.7 %)
Physicians order must be taken to discontinue physical restraints (True)	17 (73 %)	46 (27 %)

Statistically no differences were found between ICU's according to their physical restraining practices (X^2=3.48, df=3, p>0.05). Also nurses education levels(X^2=3.03, df=4, p>0.05) and years in nursing profession (X^2=4.94, df=3, p>0.05) did not affect their physical restraining practices.

DISCUSSION

Physical restraining practices of nurses in ICU's

Traditionally, the burden of keeping patients safe and their medical equipment intact has been left to nurses. Keeping the medical equipment in place by restraining patients is a long lasting practice. Using restraints to prevent injury, nurses have expressed guilt over this practice yet they felt they had no options[11]. Despite growing literature about restraining; this practice is common in acute or residential settings[10] and prevalence of physical restraint use is high [12]. In this study, the reasons for applying restraints reported by nurses were to prevent dislodgement of the medical equipment (89.2%), to keep the patient safe (93.7%), to control the patient behavior (38.1%). Physical restraint use was found to be higher in our research (90.5%) compared to Evans et al.'s (2002 b) [10]study. Statistically no differences were found between ICU's according to their physical restraining practices (p>0.05).

The most preferred type of the restraints were four point restraints (50.8%) followed by bilateral wrist restraints (41.35%) in our study. Wrist/hand restraints usage on elderly in acute care settings was found as 22.4 % in one study [3]. Although our study is not done in elderly care facilities, wrist restraints used by nurses was found to be higher than Myers et al.'s (2001)[3] study. Mostly agitated patients (96.8 %), patients with delirium (41.3 %), patients who are on respirators (30.2 %), unconscious patients (17.5%) and patients who receive sedation (4.8 %) were subjected to physical restraints in this study. However, one observational study reports that residents exhibited the same amount or more, agitated behaviors when they were restrained [5]. Violence or threatened violence is the most frequently cited indication for restraint use according to Cannon et al's (2001) [13] study for psychiatric patients.

Our study also showed the lack of standard material specifically produced for physical restraint in this university hospital. Only a few of the ICU nurses (6.4 %) reported using special physical restraint materials, the rest of the ICU nurses (92 %) reported that they use the roll of gauze directly on patients wrists or ankles. There is no previous study that specifies gauze as a major restraint material. All physical restraints must be padded to decrease the chance of harming underlying tissues [14].

Most of the nurses (87.3 %) believed that restraints allow health practitioners to work safely in our study. Only 12.7 % of the nurses reported using restraints mostly on 8am-16pm shifts. Since health care staff number decreases at night shifts, this can be an explanation of high rate of restraint practices during these hours. Sixteen hour shifts are too long for nursing staff to focus on patients care as they should be. In one study, nurses working 8-8 ½ hour shifts obtained higher scores in physical and professional domains of practice. On the other hand less effective performance is associated with long working hours [15]. Further studies suggest that reduced nurse: patient ratios may increase the use of both physical and chemical restraints [16]. Choi and Song (2003)[4] report no differences in the frequency of restraint use during the day, evening and night shifts. Our study reveals different results where nurses report the use of restraints mostly during 16 pm-08 am shifts. It is estimated that the low nurse: patient ratio in the hospitals, and long working hours could be main reason for increased use of physical restraints. Observational studies should be done to determine highly preferred hours for restraint use. Also differences in nurses caring behaviors should be identified according to shift length. Tying patients down shouldn't be seen as a security measure by health care staff working in ICU's. It is not an acceptable practice and it is also unethical to use restraints because of low staffing levels [17]. Extensive research shows those restraints do not only prevent injury, but they are likely to cause injury, functional decline and even death [11].Shorr et al. (2002)[18] report that, patients with orders for restraints were more likely to fall than patients without restraint orders. Almost all of the nurses (92.1%) have perception about restraint use

can prevent fall rates from hospital beds according to our study. In study of Tinetti et al. (1992) [19], higher fall related injury rates were found for restrained people in residential care settings. Two categories of physical injury are identified in the systemic review. The first category is lacerations, bruises, nerve damage; second category is reduced functional ability, loss of muscle control [6]. In addition to physical injuries, many restrained patients also suffer from psychological harms associated with restraints [9].

Nursing assessment of physically restrained patients

Skin color of the patient (49.2 %), pulse and color of the restrained extremity (46 %) were mostly assessed during the physical restraining procedure in this study. Most of nurses (76.2 %) report that the length of restraining time depends on patients' condition, which means that this can last from a couple of hours to a couple of days continuously. Decision for discontinuing restraint use is usually made according to patient's condition in our study. Only two of the nurses reported using physical restraints for two hours, four nurses reported using them for four hours. Restraining patients more than two hours without interruption is not a reliable nursing practice. The American Geriatrics Society (1997)[14] recommends restraints should be removed or discontinued at reasonable intervals, also periodic staff education as to the hazards of restraint use and other management strategies should be ongoing practice. According to the literature, airway opening, mental status, safety, sleep cycle, pain and physical disorientation, needs related to hydration, elimination and nutrition must be assessed every two hours [20]. Since meeting daily needs of restrained patients is part of the nursing care, nurses shouldn't forget that only looking for physical signs of possible damage is not a proper nursing care. Research can be done on length of the restraint practice during the day, patients memories may be questioned about their feelings of restraining procedure. Since not all the patients are unconscious during their ICU stay feelings of restraining procedure can be best described only by patients.

There is also a belief among nurses that physically restraining patient allows health practitioners to work safely (87.3 %). These perceptions of nurses also show that nurses do not have the proper understanding of physical restraint application. The reasons for restraint use must be addressed with special policies in the hospitals. Because wrong practices can also do a lot of harm to patients or may increase injury rates among restrained patients. Restraint devices should not be used routinely in health care settings [17].

ICU nurses' attitudes and perceptions towards physical restraints

Most of the ICU nurses (95.2 %) reported that they did not receive special education or any in-service training about physical restraint practices and nurses who reported receiving in service training about physical restraining practices were very few. Some of the nurses (65.1 %) reported that other health care staff (e.g. nurse's aides) also applies physical restraints to hospitalized patients. Cannon et al (2001)[13] report that only 11 % of staff had formal training, 40 % of them had informal training, and 13 % of them had no training at all on restraining practice. Our study is also different from Cannon's study when it was compared to restraint education rates of nurses. Nurses education levels and the degree they have received did not affect their physical restraining practices overall ($p>0.05$). The reason for this could be that, courses given during nursing education in Turkey do not include physical restraining practices. These finding are consistent with findings of Hantikainen & Kappeli (2000)[21] where they found no differences in the perceptions of restraint use between qualified and unqualified staff. Even though there is no guarantee that education will increase knowledge and sufficiency of practices of nurses applying the restraints without any proper knowledge and harming patients is unacceptable. Not having protocols for use of physical restraints in the hospitals can lead to complications and serious life threatening conditions. In one study, staff showed positive and at the same time confused attitudes about restraint use but nursing staff have perceptions of that restraints are restraining freedom of the patient [21]. In another study, nurses report positive or moderately positive attitudes on restraint use [22].

In our study, 58.7 % of the nurses disagree on phrase that "*restraints are not suitable for patient's rights*". According to this result, it is apparent that nurses do not have negative attitudes for restraint application on patients. The reasons for restraint use must be addressed with special policies in the hospital, restraint application procedures must be one of the important topics to teach during nursing education. Because wrong practices can also do a lot of harm to patients or may increase injury rates among restrained patients. Restraint devices should not be used routinely in all health care settings [17].

Documentation of physical restraint practice

In this study, 93.7 % of the nurses report that they do not use any documentation before or after applying physical restraints on patients. Because of this insufficient practice, it is hard to say why patients are being physically restrained, or what kinds of results were observed. The result of this study is consistent with some other studies where nursing documentation of physical restraint has been found less than adequate [23]. A study by Choi and Song (2003)[4] showed that nurses mostly record reasons and sites of the restraints, while none of them describing the patient responses or complications associated with restraint application. Gallinagh et al (2002)[2] reported that minority of nurses document adequate details on physical restraint use. Most of the nurses (93.7 %) do not document restraint use in our study. Also 73 % of the ICU nurses disagreed that physicians order must be taken to discontinue physical restraints. In this study, only two of the nurses reported taking verbal instructions from physicians. Results of this study were similar to that of Choi and Song study (2003)[4] where most of the ICU nurses do not receive any order from physicians either for application or removal of restraints.

A physician order is required to physically restraint a patient. The order must be dated and timed, must indicate the period for which restraint is to be used also the order must be renewed by physician every 24 hours. On the other hand, verbal orders must be signed by physicians within 24 hours [11,20].

Because most of the nurses (95.2 %) reported that they have not received any education or training for this highly used practice, educating nurses about restraining procedure can be one of the short term goals for this problem. Developing a policy for every nursing practice that has been carried out should be another solution.

CONCLUSION

This study was conducted for the purpose of determining the physical restraining practices among intensive care nurses. It made clear that physical restraints are highly preferred practice in intensive care units. Most of the nurses prefer restraining patients for increasing security, preventing patients from falling down from hospital beds or preventing dislodgement of medical equipments. A protocol which describes the ways of applying restraints must be developed. Educating nurses about restraint practices will reduce false perceptions and misuse of physical restraints in patient care

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