

Full Length Research Paper

Nursing Conduct for Major Trauma Patients: Initial Care Provided at the Red Zone of an Emergency Department

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The main objective of this study was to identify nursing procedures in the initial care of multiple-trauma patients. A cross-sectional and quantitative research was carried out with 12 nurses at a trauma-reference hospital in May of 2014. Data were collected through the verification of the nurses' activities, provided to the trauma patient in the emergency room. The results showed that only 33.3% of the professionals are urgency and emergency specialists. Most of the nursing cares occurred incompletely at the initial evaluation, according to the international trauma protocol. None of the professionals performed cardiac monitoring in the victim; there was neither evaluation nor recording of the level of consciousness. In addition, only 41.7% of the nursing cares were immediate. The nurses' fragility regarding the approach to the victim with traumatic injuries as well as the difficulty to follow international protocols recommended for such situation was noticed. Therefore, it was suggested to improve technical-scientific knowledge in order to reduce deaths and secondary injuries resulting from external causes.

Keywords: Emergencies; Multiple trauma; Nursing assessment; Nursing care; Wounds and injuries.

INTRODUCTION

Severe major trauma (SMT) is considered a set of lesions that can lead to the compromising of body structures due to external causes, resulting from two-body energy exchange (Guerado, 2015b). Trauma is a widespread public health problem: research indicates

that, by the year of 2025, it will be the largest cause of death and permanent disability in the age group of 05-40. In Brazil, the number of deaths reached 110,000 in 2010, and this factor could become a broad socioeconomic and health problem worldwide (Brazil,

2014; WHO, 2009).

Trauma is a physiology breakdown resulting from the exchange of tissues and external environment, causing energy exchange between them (Doll et al., 2017). Annually, 5.8 million people die from trauma in the world; Brazil accounts for 10% of these deaths. The absence of effective prevention measures will increase this percentage until the year of 2030. In the age group from 15 to 29, injuries caused by traffic accidents are the ones that most lead to death, while homicides and suicides are in the third and fourth position (WHO, 2009).

Expenditure on deaths due to external causes brings great losses to society all around the world, since they reach the working age range, as well as higher social costs than cardiovascular and neoplastic diseases. There are several methods and modalities to prevent most traumas, but unfortunately, there is little awareness in the society when it comes to prevention measures (Kavosi et al., 2015). Multiple-trauma patients require a complete evaluation that should be sufficient to treat or discard existing injuries, decreasing the percentage of iatrogenic injuries. The victims should be evaluated as having several lesions, always following systematization, prompt primary and secondary care (Guerado, 2015a; Bustos et al., 2015).

The Airway, Breathing, Circulation, Disability, Exposure (ABCDE) trauma protocol is a systematic approach to the immediate assessment and treatment of critically ill or injured (Thim et al., 2012). Moreover, ABCDE approach is a valuable tool for identifying or ruling out critical conditions in daily practice by the Advanced Trauma Life Support (ATLS) and the priorities followed the five steps of the ABCDE trauma protocol, which requires careful attention to life-threatening conditions (Salomone and Pons, 2012). The following steps carries out that protocol, the letter "A" that needs to keep the airway decongested and protected. Letter "B" that stands for breathing, ventilation and oxygenation evaluation. Letter "C" that corresponds to the patient's circulation maintenance. Letter "D" that resembles neurological evaluation through the Glasgow Coma Scale, and letter "E" that correlates to exposing the patient and protect against hypothermia (Lawton et al., 2014).

This model of evaluation was systematized because it was found that the trauma kills, following a predictable chronology. Thus, for example, airway obstruction kills faster than loss of breathing capacity, which kills faster than the reduction of circulating blood volume, followed by the most lethal problem: the presence of a mass, expansive, and intracranial lesion (Jordi et al., 2015).

The ATLS is a worldwide protocol for hospital care, designed for health professionals in a general way - doctors, nurses, paramedics, rescuers, and firefighters, who work in trauma patient care both inside and outside the hospital environment. Therefore, the completely specific issue of nursing care adapted in this

environment is contemplated in this protocol (Pfeifer and Pape, 2016; Lampi et al., 2013).

In order to reduce the risk of death for this client, it is necessary to overview the frame and the biomechanics of the occurrence, to set up care plans as fast as possible and to attend main priorities (Fraga-Maia et al., 2015).

The main systemic and physiological changes due to trauma are those related to respiration, circulation, temperature, and changes in the level of consciousness. Therefore, etiology and early sign identification is an important factor in the decision-making process of correct diagnosis for each victim, helping the nurse to take therapeutic and preventive measures for secondary injury (Almeida and Fontes, 2013). The treatment of the severe-trauma victim requires a prompt evaluation of the lesions and the establishment of life support therapeutic measures (Mocerri and Drevdahl, 2014). The nursing professionals must update their knowledge regarding technical, scientific, and cultural expertise to provide better care for all.

The role of these professionals is to assure continuing education to their team through the pursuit of knowledge. Furthermore, the nurses need to offer a service that does not provide iatrogenic injuries to the client due to malpractice, negligence, or recklessness (Brazil, 2014). The nursing process (NP) associated to the international trauma protocol is essential for nurses to perform their role in the care of severe major trauma patients, since the nursing diagnosis is the factor that will facilitate the assistance to the victim (Silva et al., 2014).

In Brazil, emergency care is characterized by high rates of multiple-trauma victims due to external causes. The initial approach is fundamentally important in reducing morbidity, mortality, and secondary injuries due to the precarious care.

This study aimed to analyze the nurse's performance regarding the care of multiple-trauma patients and the ABCDE trauma protocol knowledge and usage.

MATERIALS AND METHODS

This is a cross-sectional study with a quantitative approach developed in May 2014 at the Agreste Regional Hospital in Caruaru, Pernambuco. This high-complexity public hospital is a reference institution in the assistance to multiple-trauma patients. More than 4 thousand hospital cares are performed per month (Brazil, 2014).

The study population was composed by 14 nurses, except 02 of them who did not consent to participate in the research, which makes the sample size to be composed of 12 nurses who agreed voluntarily and freely sign the voluntary informed consent form (VICF). After the nurses signed that form, the instrument was applied as the participants were being observed

regarding the proposed topic in their workplace.

To protect participant human rights, the Research Ethics Committee of the Higher Education Association from the City of Caruaru approved the current study under the reference number 619.396.

The inclusion criteria considered was being a bachelor of science of nursing (BSN) who works in an emergency department (ED) of that trauma hospital, at least, for 6 months in a daily shift and assessed the multiple-trauma patient during the data collection. The exclusion criteria corresponded to the professionals who were on vacation, licensed or had any interruption during the patient evaluation.

The data were collected through the application of a socio-demographic and observational survey during the initial assistance to the multiple-trauma patient, respecting the priority requirements from world-wide accepted trauma international protocols, as the ATLS. It is worth mentioning that a pilot study was done to pretest the questionnaire before the commencement of the study.

The data storage and analysis was performed by using descriptive statistics through the Statistical Package for Social Sciences (SPSS), version 20.0.

RESULTS

The participants represented 85.7% of all BSN in the red zone. Starting from the socio-demographic profile, the age range was between 23 and 45 years; 83.3% were younger than 39 years of age; 83.3% were female; 58.3% single and 41.7% with any child.

Regarding nursing variables, table 1 shows that only 33.3% of the professionals were emergency nurses (EN); 50.0% were in the job insecurity situation because they were exercising activities with weak labor ties. 91.7% nurses worked in 24 hours nurses shift work for weeks; 83.3% accumulated jobs; 50.1% had 6 years or more as BSN, and 66.7% worked for 5 years or less in ED.

The nursing's procedures performed according to professional's specialization is shown in table 2. As recommended by the initial evaluation of the ABCDE concept for major trauma, in relation to item A, 50.0% of the multiple-trauma patients had cervical collar installation, and approximately 71.4% of the cervical protection was not performed for EN. EN performed 100.0% opening airway. On item B, only 50.0% victims received breathing evaluation and treatment. Furthermore, 50.0% of the nasal cannula was installed by EN.

For item C, the EN installed only 30.0% of the peripheral venous accesses; however, they performed 75.0% of hemostasis. It should be noted that neither BSNs nor ERs analyzed in this study installed cardiac monitoring in multiple trauma patients. For the item D, which evaluates neurological status, none of the nurses

reported consciousness' level through the Glasgow Coma Scale (GCS), or even described the data at patient's chart. Consequently, the variable could not be analyzed. Regarding the victim's exposure, item E, it was observed that 62.5% of the protection against hypothermia was performed by RNs who work in the ED, and 80.0% of the victims were also dismissed by these professionals.

Table 3 shows the distribution of the procedures performed according to the response time by the type of occurrence. All car accident victims received immediate care; approximately 50.0% of motorcycle accidents were attended in 11 to 20 minutes, whereas none of the other types of injuries such as aggressions and cold weapons had been attended in less than 11 minutes.

DISCUSSION

The accidents are configured as a transfer of energy from one or more objects to the victims that causes injuries. Moreover, it can lead to severe health problems and a severity of varying lesions. Trauma reflects in a large problem of public health worldwide because traffic accidents present a high incidence of young victims, negative social and economic impact that has direct consequences in the work force. In Brazil, external causes represent the third cause of deaths, and in the last two decades, traffic accidents have the lead as the main cause of those deaths (Pestana et al., 2013; Brazil, 2014).

EN or trauma nurses (TN) are essential for providing quality trauma care as a key for reducing risks and medical complications, while providing safety and quality of life for the client. The professionals who work in the ED need to use a highly technical-scientific knowledge, a patient-focused and holistic care for guiding the initial care and improving quality. Continuously, the decision-making process has to be skillful for each situation in their daily life, and they need to face all interurrences as important technical maturation (Toppler et al., 2016). However, as observed in table 1, this priority did not occur in the unit of study, since not all professionals are specialists and most of them have little experience in that area.

The nurses should be specialists, and must have had a theoretical base, leadership, proactivity, agility, maturity, emotional intelligence and professional updating to act in an unexpected situations and risks that involve the patient in an objective and synchronized way with all staff as well (Jordi et al., 2015, Brazil, 2014).

Beyond all expertise and continuous technical and scientific enhancement, it is a BSN or EN's duty to improve itself as professionals for promoting the best assessment, treatment, holistic and individual care for benefitting the person, the family and the community. A Brazilian study, with 146 nurses, emphasizes that nurses recognizes that continuous education is an important

Table 1. Professionals by nursing specialties. Caruaru-PE, Brazil, 2014.

VARIABLE	PATIENTS	
	N	%
SPECIALTY		
Emergency Nurse	3	25.0
Obstetrics Nurse/Occupational Health Nurse	2	16.7
Public Health Nurse	2	16.7
Emergency Nurse / Public Health Nurse	1	8.3
Others	4	33.3
Total	12	100.0
TYPES OF EMPLOYMENT AGREEMENT		
Temporary Workers	6	50.0
Civil Servants	4	33.3
Private Worker- Work and Social Security Papers	2	16.7
Total	12	100.0
WORK SHIFT		
24h x 120h (scale shift)	11	91.7
8h (daily)	1	8.3
Total	12	100.0
2 OR MORE JOBS		
Yes	10	83.3
No	2	16.7
Total	12	100.0
TIME WORKED AS NURSE (YEARS)		
< 1	1	8.3
1 a 5	5	41.6
6 a 11	2	16.7
12 a 20	2	16.7
≥ 21	2	16.7
Total	12	100.0
TIME AS EMERGENCY NURSE (YEARS)		
< 1	3	25.0
1 a 5	5	41.7
6 a 11	3	25.0
≥ 12	1	8.3
Total	12	100.0

Source: Caruaru, 2014.

Table 2. Nursing procedures by nursing specialty. Caruaru-PE, Brazil, 2014.

PROCEDURES BY NURSES	REALIZED	EMERGENCY SPECIALTY			
		YES		NO	
		n	%	n	%
AIRWAY MAINTENANCE WITH CERVICAL SPINE PROTECTION					
Cervical Protection		2	28.6	5	71.4
Airway maintenance		3	100.0	0	0.0
Non testable		1	16.7	5	83.3
BREATHING					
Nasal cannula		3	50.0	3	50.0
Non testable		3	30.0	7	70.0

Table 2. Continue

CIRCULATION					
Peripheral venous access	3	30.0	7	70.0	
Hemostasis	3	75.0	1	25.0	
Arterial pressure monitoring	0	0.0	2	100.0	
Non-invasive cardiac monitoring	0	0.0	0	0.0	
EXPOSURE					
Hypothermia prevention	3	37.5	5	62.5	
Unclothe the victim	1	20.0	4	80.0	
Patient immobilization	1	33.3	2	66.7	

Source: Caruaru, 2014.

Table 3. Distribution of realized procedures by response time of attendance for type of attendance. Caruaru-Pernambuco, Brazil, 2014.

RESPONSE TIME	TYPE OF ATTENDANCE					
	Accident by car		Accident by motorcycle		Others	
	n	%	n	%	n	%
Immediate	12	100.0	5	41.7	0	0.0
Until 10 minutes	0	0.0	1	8.3	0	0.0
Between 11 to 20 minutes	0	0.0	6	50.0	12	100.0
Total	12	100.0	12	100.0	12	100.0

Source: Caruaru, 2014

tool that has a positive influence in the nursing care in a way that they could enhance their knowledge (Bezerra et al., 2012).

The advances made over time in emergency care have contributed to the development of complex and specialized technologies that allow the survival of trauma patients, independently of the injury's level. However, there is a current growing worldwide discussion on combining technological advances with a care based on critical-reflexive reasoning performed by professionals working in the multiple-trauma patients' initial care (Larsson et al., 2016).

The ABCDE is a method that must be followed by the trauma victim's initial care, and the professional uses this attribute to identify lesions, determining intervention measures with the objective of keeping stable the patient's hemodynamics, and treating the irregularities, following an order of priorities known worldwide. (Lawton et al., 2014; Lampi et al., 2013). A study performed in a private hospital located in Santa Catarina, Brazil, aimed to identify an international protocol usage in the ED which verified that trauma protocol is effective (Mattos and Silvério, 2012).

The multiple trauma patients should be treated in a short period of time and depending on the biomechanics of the trauma and the anatomic region that has been reached, the severity of the event causes great damage to their vital functions, and it may cause, because of delayed care, irreversible sequels and even death

(Pfeifer and Pape, 2016). The treatment of major trauma life-threatening conditions requires an immediate action (Soares et al., 2015).

The execution of that process during the observational survey of the nurse's work under study was performed, even if incompletely, and it was noticed that some professionals distribute the tasks with the members of their team upon the client's admission. The EN needs to know technically and scientifically about the ABCDE procedures before its performance with the severely injured trauma patient (Jordi et al., 2015; Mocerri and Drevdahl, 2014).

When referring to all the activities developed by the EN in a hospital, we can say that even when these professionals are involved in providing direct care to the patient, in many cases; there is an overload of administrative activities to the detriment of the assistance and teaching activities (Mocerri and Drevdahl, 2014).

It is necessary to highlight the needs of nurses to rethink their professional practice, since they assume their primary function as a co-ordinator of nursing care, implementing it through a planning scheme. At the same time that it is guaranteed the development of its basic activities (administrative, assistance and teaching) and, consequently, promoted the best organization of the team's work, which starts to direct its efforts in much of a common objective that is to provide quality assistance, taking into account the real needs presented by patients

under their care (Soares et al., 2015).

During the execution of that study, it was observed that there was a limitation regarding to the specialties' duties once the ABCDE protocol steps were hardly charged to all EN and TN because they were considered experts in those areas. There were no significant difference between specialists and BSN related to assessment and treatment of those multiple trauma patients. It is worth mentioning that only a minimum of all nurses in charge at that ED were EN.

CONCLUSION

Hospital and emergency nursing, likewise the care provided by those specialties, should be linked to the victim injury type and to the specific procedure for each client. Those factors should be taken into account, seeking the scientific analysis in the care and leading to performance excellence.

Implementing globally known protocols are an important tool to aid the decision-making for emergency nurse because it is due to the fact that professionals organizes and prioritizes nursing actions for the severe trauma victim, who needs constant evaluation and classification in a stressful environment such as the ED.

The way nursing care was performed in the studied institution showed the professionals' fragility regarding the initial approach to the traumatized patient. It is noticed the need for reflexive perception in order to understand the reason for each care, contributing to the demystification of the technical aspect assigned to nursing professionals.

RECOMMENDATIONS

It is recommended that the application of emergency protocols as ABCDE trauma protocol as well as the coaching of emergency nurses, in order to guarantee the excellence of the care provided to patients. Not only to the severely injured ones, but also to those who suffer from other health problems and need safe, quality and holistic nursing care.

CONFLICT OF INTERESTS

No conflict of interest was declared by the authors.

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