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ORIGINALES

Active search contributes to the identification of adverse events and incidents in intensive care unit

Busca ativa contribui na identificação de eventos adversos e incidentes em unidade de terapia intensiva

Búsqueda activa contribuye a la identificación de eventos adversos e incidentes en unidad de cuidados intensivos

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ABSTRACT:

Objectives: Analyze adverse events and incidentes in the intensive care unit of a university hospital and check which portion of the active search contribuition in identifying occurrences.
Methods: Retrospective study, documentary of nature quantitative.
Results: It was recorded 253 events/incidents, of which 239 (94%) were recorded by active search. Injury pressure was the incident more frequently (n=88; 34.78%) and affected more patients (n= 54; 48.9%). It was found that 136 (53.8%) events/incidents were mild.
Conclusion: The active search has proved to be a management strategy that corroborated so substantially to the identification of risk situations in the intensive care unit.
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Key-words: Patient safety; Quality of health care; Intensive care units; Nursing.

RESUMO:

Objetivos: Analisar eventos adversos e incidentes ocorridos na unidade de terapia intensiva de um hospital universitário e, verificar qual a parcela de contribuição da busca ativa na identificação das ocorrências.
Métodos: Estudo retrospectivo, documental de natureza quantitativa.
Resultados: Registrou-se 253 eventos/incidentes, dos quais 239 (94%) foram identificados pela busca ativa. Lesão por pressão foi o incidente com maior frequência (n=88; 34,78%) e acometeu maior

número de pacientes (n=54; 48,9%). Constatou-se, que 136 (53,8%) eventos/incidentes foram de grau leve.
Conclusão: A busca ativa se mostrou uma estratégia gerencial que corroborou de maneira substancial à identificação das situações de risco no âmbito da unidade de terapia intensiva.

Palavras-chave: Segurança do paciente; Qualidade da assistência à saúde; Unidade de terapia intensiva; Enfermagem.

RESUMEN:
Objetivos: Analizar los eventos adversos e incidentes en la unidad de cuidados intensivos de un hospital universitario y comprobar cuál es la parte de contribuición de la búsqueda activa en la identificación de las ocurrencias.
Métodos: Estudio retrospectivo, documental cuantitativo.
Resultados: Se registraron 253 eventos/incidentes, de los cuales 239 (94%) fueron registrados por búsqueda activa. Lesión por presión fue el incidente con más frecuencia (n=88; 34,78%) y afectó a más pacientes (n=54; 48,9%). Se observó que 136 (53,8%) eventos/incidentes fueron leves.
Conclusión: La búsqueda activa ha demostrado ser una estrategia de gestión que corrobora sustancialmente a la identificación de situaciones de riesgo en la unidad de cuidados intensivos.

Palabras clave: Seguridad del paciente; Calidad de la atención de salud; Unidad de cuidados intensivos; Enfermería.

INTRODUCTION

Adverse Event (AE) can be defined as an undesirable occurrence arising from the care provided (directly or indirectly) to the patient, which results in harm/aggravation to their health condition. In the same sense, incident refers to the "event or circumstance that could have resulted, or resulted, in unnecessary harm to the patient" [1:7].

From these concepts, it is important to remember that an AE or incident may relate to medications; to the use of medical or hospital equipment/device; to the condition/ situation of institutional infrastructure, as well as to the direct (or lack of) provision of care[1-3].

Thus, in an attempt to mitigate the occurrence of AEs and incidents in the scope of health services throughout Brazil, the Ministry of Health instituted on April 1, 2013, the National Program for Patient Safety (PNSP)[4]. In order to strengthen and legitimize the PNSP, it was established in July 2013 the obligation to create the Patient Safety Center (NSP) in all health facilities in the country. Among the activities to be developed by the NSP, there is the notification - together with the Notification System in Sanitary Surveillance (NOTIVISA) – of incidents and AEs related to health care[2,4] .

Researchers linked to the University of São Paulo (USP) point out that sensitizing employees on the voluntary notification[5] is among the most used strategies by professionals dealing with hospital risk management to identify the incidents and AEs that occurred within their respective institutions.

A study demonstrates that educational interventions can be quite useful, since they strengthen the awareness process and, thus, corroborate with improvement in the rates of non-arbitrary notifications[6].

It should be emphasized that in teaching hospitals, especially, students from all areas of training should be encouraged to participate actively in institutional educational programs. Despite the programmed educational activities, many professionals still feel insecure and even indifferent to the act of notifying, either due to ignorance or due to

fear of a punitive reaction from the managers towards the notifiers[7.8]. In this way, it is necessary that hospital managers implement alternative strategies in order to enable the identification of events/incidents and, thus, to enable the planning of specific/directed actions to their respective needs.

Regarding the frequency of incidents/events that pose a risk to patient safety, the prevalence is known to be higher in hospital institutions due to the complexity and danger of the services offered[1.3]. In the hospital context, it is observed that patients hospitalized in the Intensive Care Unit (ICU) are highly prone to and vulnerable to events/incidents, which may impair their health status[9].

Therefore, this study was based on the following guiding question: what are the events/incidents that affect patients hospitalized in the ICU of a general hospital linked to the Sentinel Network, and how many were identified through the active search? Thus, this study hypothesizes that the main events/incidents that occur in the ICU are related to the loss of skin integrity of the patient, particularly due to Pressure Injury (PI). In addition, it is believed that the active search could have collaborated so that the managers carried out the identification of the risk situations.

In view of the provisions, this study aims to analyze adverse events and incidents occurred in the general ICU of a university hospital and to verify the contribution of the active search in the identification of the occurrences.

METHOD

Cross-sectional, descriptive and retrospective study, developed from quantitative documentary analysis. The sample consisted of secondary data related to the events/incidents that occurred in the period of one year (January to December 2014) among patients hospitalized in the general ICU of a university hospital belonging to the Sentinel Network and that were registered by the Hospital Risk Management Service (SGRH) of the institution.

The following variables were analyzed: form of registration of the event/incident (voluntary notification or active search); type and frequency of occurrence; patients affected; severity of the event (mild, moderate, severe or lethal).

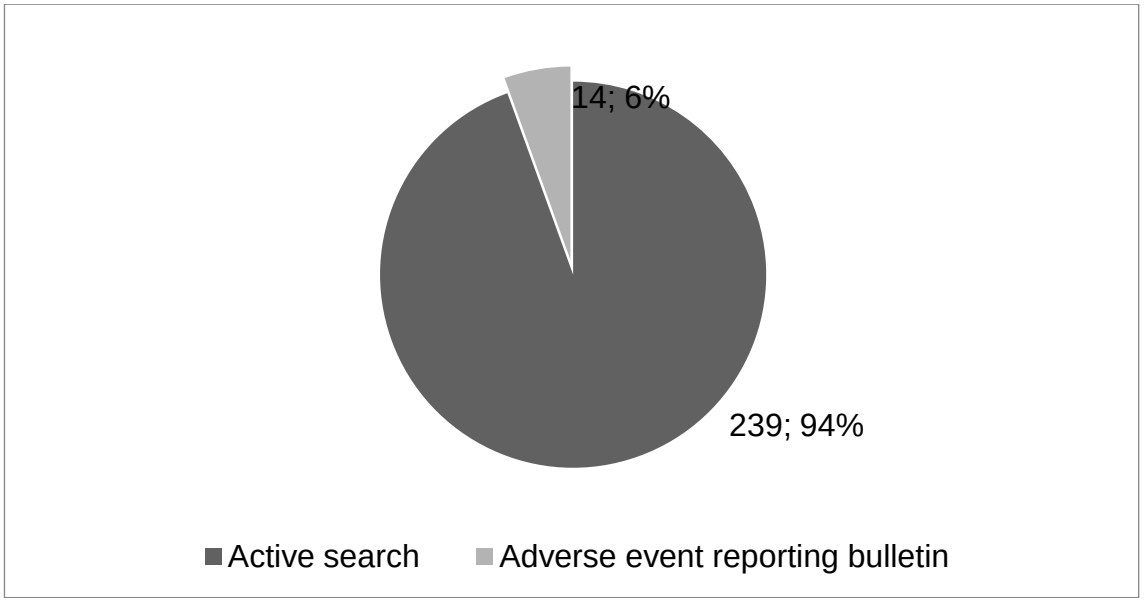
It is also highlighted that the severity of the events was determined based on the classification presented by the scientific literature[10], which is based on what is defined and presented by the World Health Organization (WHO).

The data were collected in October 2015 through a form prepared by researchers, and tabulated in Excel spreadsheets ®, version 2010, and exported to software R[11] to determine the (absolute and relative) frequency distribution of the variables. In addition, considering that the normality (Shapiro-Wilk) and homoscedasticity (Test F) assumptions were accepted, the Pearson correlation test was applied in order to verify the association between the number of patients affected by the events/incidents and their severity. For this analysis, the *p*-value <0.05 was considered significant. Prior to the development of the study, the Research Ethics Committee (CEP) of the institution to which the researchers are affiliated provided approval, and a favorable opinion was issued under No. 1,134,658 in July 2015.

RESULTS

Throughout the year 2014, there were 253 adverse events/incidents in the general ICU of the studied hospital. Of these, 239 (94%) were found through active search carried out on patients' electronic records (Figure 1).

Figure 01. Distribution of adverse events/incidents, according to the form of identificacion. Cascavel-PR, 2016.



The events/incidents affected 111 patients and situations of pressure injury were recorded on 88 (34.8%) occasions (Table 1)

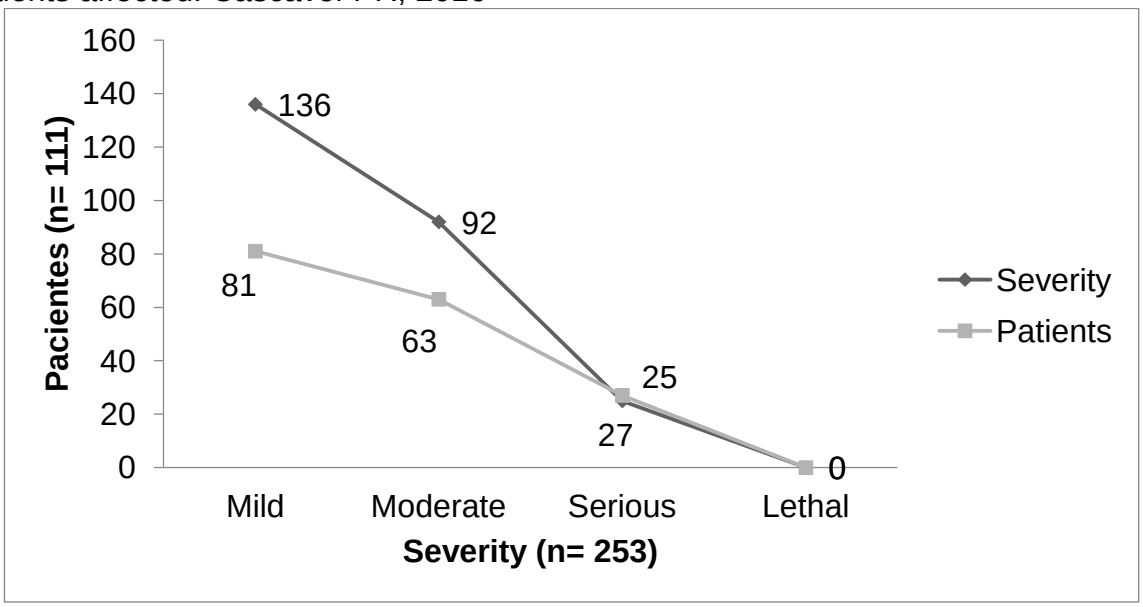
Table 01. Distribution of adverse events/incidents, according to type, frequency and number of patients affected. Cascavel-PR, 2016.

Type of Events/incidents	Frequency (n=253)		Patients (n=111)	
	N	%	N	%
Delay/no-patient care	06	2.37	06	5.4
Operative wound dehiscence	04	1.58	03	2.7
Accidental extubation	04	1.58	03	2.7
Phlebitis	02	0.79	02	1.8
Fall of the bed	01	0.40	01	0.9
Medication related	03	1.19	03	2.7
Related to loss of skin integrityl*	82	32.41	52	46.8
Related to the use of assistance equipament	23	9,09	20	18
Unplanned removal of invasive devices†	40	15,81	28	25,2
Pressure injuries (PI)	88	34,78	54	48,6

*Records of phlebitis and PI are excluded; †Record of accidental extubation are excluded. Approximate percentage value.

Regarding the severity classification, Figure 2 shows that 81 (73%) patients were affected by 136 (53,8%) events/incidents classified as mild.

Figure 2 Distribution of the events/incidentes, according to severity and number of patients affected. Cascavel-PR, 2016



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DISCUSSION

From the analysis of the events/incidents that occurred in the general ICU, it was verified that the total number of records (n = 253) resulted in a monthly average of approximately 21 occurrences. Such data become insignificant when compared, numerically, with other realities of Brazil[9,12] and the world[13,14]

Nevertheless, it is worth mentioning that in order to do a deeper comparative analysis, we must consider the proportionality, since this study was conducted in a single ICU that has only 15 beds.

In a survey carried out in a Brazilian municipality[9], it was observed that the period of analysis of the occurrence of events/incidents (forty days) was lower than that of this study and the number of occurrences was higher (n = 1,082); however, researchers collected data from four ICUs. In the same way, other authors identified a total of 15,054 events/incidents, which is the result of data analysis in two university hospitals of high complexity. According to what was described, one of the intensive units had 910 beds and the other one had 258 beds[12].

When considering that the prospective analysis of eight months performed in an ICU of 76 hospitals in Spain[13] presented the occurrence of 1,424 events/incidents, it is concluded that the number of records of the Brazilian institution evaluated in this investigation was high. The same occurs when comparing the data from a 90-month evaluation carried out in a single ICU with 13 beds of a university hospital in England[14]

From this point, it is understood that for an effective quantitative analysis of the events/incidents occurring in each health service, it is necessary to consider the reality of the institution itself and the locality in which it is inserted.
Thus, the exponential difference between the number of occurrences recorded by the voluntary notification and that made through the active search stands out (Figure 1).

It was found that in 94% (n = 239) of the situations, the occurrences were identified through analyzes of records from active search in electronic medical records. Thus, it is reasonable to infer that the active search put into practice at the hospital institution evaluated was appropriate and positively assisted the hospital risk management service in the identification of adverse events and incidents within the scope of the general ICU.

However, it should be emphasized that such an alternative strategy presents important points to be considered prior to its establishment, among which two main aspects stand out: 1) human resources (quantitatively necessary or specific for such activity, and qualitatively able to evaluate the multidisciplinary team's evolutions and thus be able to identify the events/incidents); 2) electronic medical records system (which allows for the full and at any time retrieval of all data produced by the health team).

Human resources should be trained and supervised by the coordinator of the hospital risk management service (or corresponding institutional body) or by its advisory members when activities are not performed directly by them. In addition, it is possible that the active search is performed through analysis of physical records; however, this will require greater availability of time and ability to recognize the content of the handwritten evolutions performed by the various professionals, which often appear in a little understandable or even unreadable manner. Based on this, it becomes clear the need for investments in human resources by the institutional managers, so that they can perform essential activities in the search for patient safety and improvement of quality of care[15].

In this sense, the data suggest that the low record of occurrences through voluntary notification (n = 14; 6%), as mentioned previously, may be related to the lack of knowledge of the professionals related to this topic, or due to fear of possible punishment by the institution, which are some of the many reasons that lead the professional not to report the incidents[16].

Such omissive attitudes are often based on feelings such as shame, self-punishment, fear of other people's criticism, and litigation[17]. Therefore, participation, recognition of events/incidents and enhancement of professionals should be encouraged, thus developing a non-punitive culture, which is often promoted through shared management[18].

The nurse, besides being responsible for the nursing team, should commit to attend multidisciplinary meetings that deal with issues related to risk management and patient safety, as well as to promote discussions about positive changes regarding the institutional culture[19].

It is necessary to emphasize that identifying and reporting events/incidents can help the members of the competent departments to list strategies that aim to reduce occurrence rates in the unit and in the institution as a whole, since situations also arise from the complex dynamics of the organizational system and do not originate solely and exclusively from human failure (individual or collective[20].

The notification should be understood as a way of building a database to inform the institution of the unexpected and undesired facts that affect the individual in a care situation. Therefore, it provides a safer planning of health care actions[1].

In this way, it is confirmed that when there are great difficulties in identifying the event/incident voluntarily, it is important that managers, concerned with patient safety, use alternative strategies to recognize the situations.

In the present study, PI showed the highest number of records, both in terms of frequency (n = 88, 34.78%) and in the number of patients (n = 54, 48.6%) (Table 1).

In the context of hospital institutions, mitigating the high PI index is a constant challenge in the daily life of professionals, since such an occurrence corroborates the increase in patients' morbidity and mortality, as well as increase financial costs with hospital therapeutic management[21].

In ICU, all patients are considered to be at high risk for developing PI due to the pathophysiological conditions they present and to the decrease of physical mobility due to bed restriction[22]. In this regard, it is emphasized that elderly patients deserve special attention, since there is a more pronounced decline in their basal physiological conditions [23].

In a similar number to that observed in PI records, there are events/incidents related to loss of skin integrity, which occurred 82 (32.41%) times and affected 52 (46.8%) patients. Impaired skin integrity is interpreted by the taxonomy as "altered epidermis and/or dermis" due to external factors that modify it, which include: thermoregulation disorders, chemical substance, moisture, mechanical factors (e.g. adhesives which pull out the external follicles, besides contention and or excessive pressure), physical immobilization, medications, etc.[24].

Most patients in the ICU need the Nursing team to perform the change of position for them, most of the time every two hours. This technique requires that the team takes care not only of the individuals, but also of the devices that help their care. Because of this, staff should be attentive so that there are no accidental withdrawals of invasive devices. As shown in Table 1, in a one-year period, unplanned withdrawals of invasive devices (except accidental extubation) occurred in 40 (15.81%) situations, with 28 (25.2%) patients.

In this perspective, a recent research indicates that the institution of a computerized alert system can corroborate with the patient's safety in the ICU, especially with regard to prevention, monitoring and decision-making regarding occurrences of non-programmed withdrawals of invasive devices[25]. Likewise, it is important to remember that the occurrence of delirium in critically ill patients is frequent, and this condition may also contribute to the loss of devices[26]

Regarding the occurrence of events/incidents associated with medication, in this study both the prevalence (n = 3; 2.7%) and the number of patients (n = 3; 2.7%) were considerably low. Despite this, it should be stressed that work overload, often illegible medical prescription and incorrect identification of patients are factors that are most commonly involved in medication errors[27]. In addition, failures in the continuity of prescription and in the preparation and/or administration of drugs are not uncommon in ICUs[12].
Such events/incidents can cause great concern for hospital management as they cause harm to the patient, longer hospitalization and, consequently, increase institutional expenses[15]. In the same way, and despite the low number of records of phlebitis in this study (n = 2; 0.79%), it is important to reinforce that this is considered a

complication of intravenous therapy with medication and that it is directly related to Nursing care. Therefore, it is necessary to intensify the actions for prevention and early identification, which must be accomplished through the permanent education of professionals[28].

As pointed out by Brazilian researchers[29], data from the literature confirm that the fall of a patient is the most common adverse event among hospitalized patients, totaling about 70% of accidents occurring inside the hospital.

In this study, in one year there was a record that a single patient had suffered a fall from the bed. In spite of this small number, it is important to remember that the data analyzes were performed on ICU occurrences, a unit in which the risk of bed falls, even though it is not zero, is traditionally small, given the characteristics of both the unit and the patients hospitalized there.

Regarding the association between the number of patients affected by the events/incidents according to their severity, there was a strong inverse and statistically significant correlation (*p*-value: 0.004), considering that the higher the number of patients affected by an event/incident, the lower the severity of the occurrence (Figure 2).

Despite this, it should be noted that all adverse events and incidents identified in this study were classified as avoidable, that is, situations that can be prevented from adopting interdisciplinary measures and strategies[9,15,16] Last but not least, it is underlined that the occurrence of preventable events/incidents can cause severe harm to patients and, as a consequence, imply judicial liability for professionals due to the ethical and legal aspects that they are subject to[16].

CONCLUSION

The identification of PI as the most prevalent incident, both in terms of frequency and in relation to the number of patients affected, can be explained partially by the characteristics of the unit in which the analysis of the occurrences occurred.

In addition, the results indicated that the active search proved to be a managerial strategy that corroborated in a substantial way for the identification of risk situations within the scope of the intensive care unit studied. Nevertheless, the patient's safety culture must be widely disseminated throughout all units of hospital institutions, and all professionals must be continuously engaged in improving care processes.

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