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Prevention measures related to adverse events in the intensive care unit

Medidas de prevención relacionadas con eventos adversos en la unidad de cuidados intensivos

Medidas de prevenção relacionadas aos eventos adversos na unidade de terapia intensiva

ABSTRACT

Adverse events represent a serious problem in health care in the intensive care unit, directly impacting the length of hospital stay and mortality of patients. Objective: Identify preventive measures related to adverse events in the intensive care unit through literature review Method: Integrative literature review, carried out in the databases: Scientific Eletronic Library Online and Latin American and Caribbean Literature in Health Sciences and Google academic, published between 2014 to 2020, used the descriptors: Preventive measures, adverse events, intensive care unit and patient safety Results: twelve articles were selected with the following discussion categories: Adverse events with a higher incidence rate in the intensive care unit, factors related to the occurrence of adverse events in the intensive care unit and preventive measures for these adverse events. Conclusion: To prevent adverse events, strategies should be implemented by nursing managers to improve care, reduce work overload for professionals, complete records in electronic medical records, continuing education, effective communication between the multidisciplinary team, establishment of institutional norms and minimization of care failures.

DESCRIPTORS: Preventive measures; Adverse events; Intensive care unit; Patient safety.

RESUMEN

Los eventos adversos representan un problema grave en la atención de la salud en la unidad de cuidados intensivos, impactando directamente en la duración de la estancia hospitalaria y la mortalidad de los pacientes. Objetivo: Identify preventive measures related to adverse events in the intensive care unit through literature review Método: Revisión integrativa de la literatura, realizada en las bases de datos: Scientific Eletronic Library Online y Literatura Latinoamericana y del Caribe en Ciencias de la Salud y académica de Google, publicada entre 2014 a 2020, descriptores utilizados: medidas preventivas, eventos adversos, unidad de cuidados intensivos y seguridad del paciente. Resultados: se seleccionaron doce artículos, con las siguientes categorías de discusión: Eventos adversos con mayor tasa de incidencia en la unidad de cuidados intensivos, factores relacionados con la ocurrencia de eventos adversos en la unidad de cuidados intensivos y medidas preventivas para estos eventos adversos. Conclusión: Para prevenir eventos adversos se deben implementar estrategias por parte de los gerentes de enfermería para mejorar la atención, reducir la sobrecarga de trabajo de los profesionales, completar registros en historias clínicas electrónicas, educación continua, comunicación efectiva entre el equipo multidisciplinario, establecimiento de normas institucionales y minimización de fallas en la atención.

DESCRIPTORES: Medidas preventivas; Eventos adversos; Unidad de terapia intensiva; Seguridad del paciente.

RESUMO

Os eventos adversos representam um grave problema na assistência de saúde na unidade de terapia intensiva, impactando diretamente no tempo de internação hospitalar e mortalidade dos pacientes. Objetivo: Identificar medidas de prevenção relacionadas aos eventos adversos na unidade de terapia intensiva por meio de revisão de literatura Método: Revisão integrativa da literatura, realizada nas bases de dados: Scientific Eletronic Library Online e Literatura Latino-Americana e do Caribe em Ciências da Saúde e Google acadêmico, publicados entre 2014 a 2020, utilizado os descritores: Medidas preventivas, eventos adversos, unidade de terapia intensiva e segurança do paciente. Resultados: doze artigos foram selecionados tendo como categorias da discussão: Eventos adversos com maior taxa de incidência na unidade de terapia intensiva, fatores relacionados a ocorrência de eventos adversos na unidade de terapia intensiva e medidas de prevenção destes eventos adversos. Conclusão: Para prevenção dos eventos adversos, devem ser implementadas, estratégias pelos gestores de enfermagem visando melhoria da assistência, redução de sobrecarga de trabalho dos profissionais, registros completos em prontuários eletrônicos, educação continuada, comunicação efetiva entre equipe multiprofissional, estabelecimento de normas institucionais e minimização de falhas assistenciais.

DESCRITORES: Medidas preventivas; Eventos adversos; Unidade de Terapia Intensiva; Segurança do paciente.

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INTRODUCTION

The National Health Surveillance Agency (Anvisa - Agência Nacional de Vigilância Sanitária)⁽¹⁾, in 2004, classified an adverse event (AE) as an incident that results in damage to health, which may cause impairment of the body and/or some subsequent effect, including pathologies, injury, pain, death, disability or dysfunction, which may be physical, social or psychic.

Adverse events represent a serious problem in health care, especially in the intensive care unit (ICU), where patients have more serious health conditions, directly impacting the increase in hospital stay and patient mortality.⁽²⁾ Its occurrence is related to the practice of health professionals, such as the lack of attention in the preparation and administration of medications and the negligence of professionals in relation to the care provided during care.⁽³⁾ It is essential that health professionals keep up to date on technical nursing procedu-

Its occurrence is related to the practice of health professionals, such as the lack of attention in the preparation and administration of medications and the negligence of professionals in relation to the care provided during care.

res, through training courses and training in the workplace.

According to the National Health Surveillance Agency (ANVISA), resolution RDC No. 36, constitutes that patient safety is defined as the reduction, to the minimum acceptable, of the risk of unnecessary harm associated with health care.⁽¹⁾ It is an important component in providing quality assistance.

Government efforts have guided good practices to minimize AEs such as the National Patient Safety Program (PNSP - Programa Nacional de Segurança do Paciente) which was instituted through ordinance No. 529/13 of the Ministry of Health (MH) and aims to contribute to the qualification of health care in all health establishments, also the Resolution of the collegiate board (RDC - Resolução da diretoria colegiada) 36/2013 that institutes actions for patient safety in health services.

Patient safety is a major challenge for healthcare today. Admitting the occurren-

ce of errors or adverse accidents with serious consequences for patients is leading health managers, nursing staff and medical staff to look for alternatives to reduce risk situations in hospital institutions.⁽⁴⁾

Therefore, this study highlights the importance of addressing the measures to prevent adverse events in the Intensive Care Unit (ICU), considering that the quality of care provided by nursing is directly associated with patient safety and that nursing professionals are frequently exposed to the occurrence of adverse events. This research was carried out due to the need to compile the findings in the literature, evidencing a gap about the theme addressed.

Therefore, it emerged as a research question: What are the preventive mea-

asures to reduce the occurrence of adverse events in the ICU? Thus, its general objective is: to identify preventive measures in the literature related to adverse events in the ICU and as specific objectives: to identify adverse events with greater occurrence in the ICU through an integrative literature review.

METHOD

To answer such a research question, the present study is configured as an integrative literature review in order to know the measures to prevent adverse events in the ICU.

Study of integrative literature review, which proposes to point out gaps in knowledge, providing the researcher with

guidance on topics that need scientific exploration.⁽⁶⁾ This research was carried out according to the six recommended steps and in accordance with the Revised Standards for Quality Improvement Reporting Excellence (SQUIRE 2.0).⁽⁷⁾

For the first stage, the PICo strategy was used, which represents an acronym for Problem (P), Intervention (I), Context (Co), which are elements of the research question and the construction of the guiding question of the study, as pointed out in chart 1.⁽⁸⁾ Thus, based on such structuring, the research was guided by the following question: What are the preventive measures for adverse events in the ICU.

A survey was carried out in the electronic databases Scientific Electronic Library Online (SciELO) and Latin American and Caribbean Literature in Health Sciences (LILACS) and academic Google, the search was carried out from August to December 2020, using the following DEC descriptors: Preventive measures; Adverse events; Intensive Care Unit, patient safety;

Performing the systematization of the data through the technique of content analysis, the Boolean "AND" was used since it favors the intersection in the course of the research.

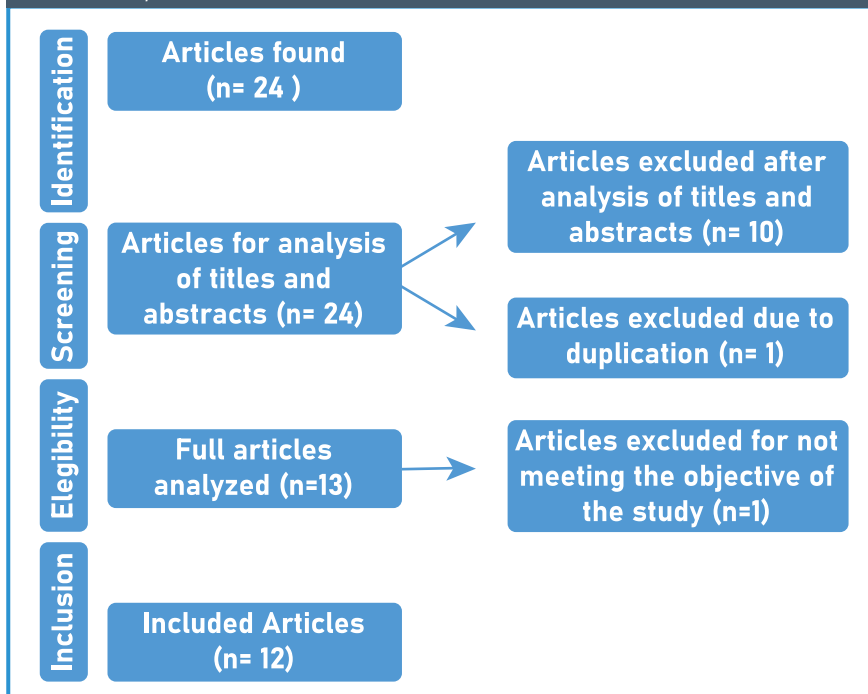
The titles and abstracts were read and original articles in Portuguese were adopted as inclusion criteria, published in full between the years 2014 to 2020 that addressed the theme of the study. Duplicate articles, which did not address the topic of the study, and those that were outside the temporal delimitation were excluded. This delimitation is due to the maintenance of updated data.

24 (twenty-four) articles were found, of which: 20 (twenty) from the Scielo database, 2 (two) from the Lilacs database and 2 (two) from the academic Google. Of these 10 (ten) articles were excluded after analyzing the titles and abstracts because they did not meet the theme addressed and 3 (three) after reading in full because of the issue and 1 (one) due to duplication. Resulting in 10 (Ten) articles that composed this study.

Chart 1 - Application of the PICo strategy

STRATEGY	DEFINITION	APPLICATION
P	Problem	Adverse events
I	Intervention	Prevention Measures
Co	Context	ICU

Figure 1 - Flowchart of presentation of the inclusion and exclusion process of the studies, PRISMA.



RESULTS

12 articles were found to compose the present work and corresponded to the theme of the present work between the year 2014 to 2020, in the databa-

se of SCIELO, Google academic and BDENF.

In view of the above, the articles were separated by year of publication, being carefully read and recorded. Table 1 presents the synthesis of the stu-

dies analyzed, according to: authors and year, title, journal, objective and results. The studies were organized in ascending order from 2014 to 2019.

Analytical reading of the selected articles was carried out, which made it

Chart 1 - Epitome of selected articles (n=12) regarding authors and year, journal, title, objective and results. Salvador, Bahia, Brazil, 2020.

AUTHORS/YEAR	TITLE/ JOURNAL	OBJECTIVE	RESULTS
Barbosa TP, Oliveira GAA, Lopes MNA, Poletti NAA, Beccaria LM./ 2014 ⁽⁹⁾	Care practices for patient safety in the intensive care unit Acta paul. enferm.	To verify good nursing care practices for patient safety in an intensive care unit.	Together, good practices are being carried out with an index above 90%, with the exception of changes in decubitus, restrictions on clean limbs and the fan circuit.
Novaretti MCZ, Santos EV, Quitério LM, Daud-Gallotti RM./ 2014 ⁽¹⁰⁾	Nursing workload and incidents and adverse events in ICU patients Rev. Bras Enferm.	To identify the influence of nursing workload on the occurrence of incidents without injury and adverse events in 399 patients admitted to Intensive Care Units (ICU)	In these admissions, approximately 78% of incidents without injury and adverse events in patients were related to the sphere of Nursing. These are related to work overload, increased the number of days of hospitalization and the risk of death of the patients studied.
Souza RF, Alves AS, Alencar IGM/ 2018 ⁹⁽¹¹⁾	Adverse events in the intensive care unit Rev. enferm. UFPE online	Characterize the adverse events of an Intensive Care Unit	152 adverse events were found. The profile of the patients stood out for being male, young adults, with an average of 45 years.
Costa TD/ 2015 ⁽¹²⁾	Evaluation of nursing care from the perspective of patient safety in the Intensive Care Unit: in the view of professionals, patients and family members Federal University of Rio Grande do Norte	Evaluate nursing care from the perspective of patient safety in Intensive Care Units.	The results of the analysis of the "structure" and "processes" demonstrated that most of the findings were outside the standards of adequacy, which points to precarious conditions in the structures and incipient processes in the health services.
Roque KE, Tonini T, Melo ECP/ 2016 ⁽²⁾	Adverse events in the intensive care unit: impact on mortality and length of stay in a prospective study Revista Científica Fac Mais	Assess the occurrence of adverse events and their impact on length of stay and mortality in the intensive care unit (ICU).	324 adverse events were confirmed in 115 patients hospitalized over a year of follow-up. The incidence rate was 9,3 adverse events per 100 patient-days.
Minuzzi AP, Salum NC, Locks MOH, Amante LN, Matos E./ 2016 ⁽¹³⁾	Contributions of the health team to promote patient safety in intensive care Esc. Anna Nery	Present the recommendations of health professionals in an Intensive Care Unit to improve the culture of patient safety.	124 recommendations were obtained, which were categorized according to the aspects of the instrument. Highlighting recommendations related to the support of hospital management for patient safety, in particular, the supply of material resources;
Grilo PK, Barbosa RL, Andolhe R, Oliveira EM, Ducci AJ, Bregalda RS et al./ 2017 ⁽¹⁴⁾	Nursing workload, stress/ Burnout, satisfaction and incidents in trauma intensive care unit Texto contexto - enferm	Assess the occurrence of adverse events related to nursing workload, stress/burnout and satisfaction.	There were 1,586 incidents, predominantly incidents without damage (78,44%). Among the nursing staff, 77,40% had average levels of stress; 17,00% had Burnout; 56,6% were dissatisfied and considered the environmental characteristics inadequate.

Silva R, Amante LN, Salum NC, Girondi JBR, Sebold LF./ 2018 ⁽¹⁵⁾	Incidents and adverse events in intra-hospital transport in intensive care Revista de Enfermagem do Centro-Oeste Mineiro	Identify incidents and adverse events in intra-hospital transport in intensive care.	In the period, 1,559 intra-hospital transports were performed in 1.348 patients, Clinical events occurred in 117 transports (7,5%) and non-clinical in 125 transports (8,0%).
Batista CF/ 2018 ⁽¹⁶⁾	Factors that influence the occurrence of adverse events Incidents and adverse events in intra-hospital transport in intensive care in the intensive care unit Rev. Eletr. Evid & Enferm	Analyze publications related to the factors that influence the occurrence of adverse events (AE) in an adult Intensive Care Unit (ICU)	The non-effective participation of managers, and other members of the interdisciplinary team, are factors that influence the occurrence of AE, another important factor is the excessive workload and reduced number in the nursing team.
Cruz FF, Gonçalves RP, Raimundo SR, Amaral MS./ 2018 ⁽¹⁷⁾	Patient safety in the ICU: a literature review Revista Científica FacMais	Point out the main adverse events/errors that are committed in the ICU and the recommended measures for nursing professionals that aim to ensure patient safety in the ICU.	It was noticed that the main errors and failures that occur within the Intensive Care Units are related to three categories: medications; records in the medical records and follow-up of the SAE.
Souza CS, Barlema JGT, Rocha LP, Barlem ELD, Silva TL, Neutzlinga BRS./ 2019 ⁽³⁾	Safety culture in intensive care units: perspective of health professionals Rev. Gaúcha Enferm	Knowing the culture of patient safety in intensive care units	Two categories emerged: Perception about error and Error management
Reis CEP/ 2019 ⁽¹⁸⁾	Patient safety protocol in the Intensive Care Unit: the importance of the nursing team Revista Científica Multidisciplinar Núcleo do Conhecimento	Emphasize the theme of the nurse's view on the care and needs of the patient, especially regarding the improvement of the process in the quality of care	23 articles were found, and an exploratory reading of them was carried out, of which 13 articles were excluded because they characterize escape from the topic

Source: Elaborated by the authors themselves, 2020.

possible to organize the subjects and synthesize them, which aimed at fixing the essential ideas for the solution of the research problem. In order to operationalize the research, the findings will be discussed in categories.

DISCUSSION

Adverse events with a higher incidence rate in the ICU

According to Souza, Alves e Alencar⁽¹¹⁾ in their study, it was found that there were 152 adverse events in the ICUs. The profile of the patients stood out for being male, young adults, with an average of 45 years. The main adverse events identified were medication er-

rors (29,6%), pressure injury (21%), unplanned extubation (17%), health-care associated infections (15,13%), loss of tube (9,90%), among others.

Cruz and collaborators⁽¹⁸⁾ stand out as the most prevalent adverse events in the ICU: pressure ulcers, bloodstream infections, phlebitis, hypotension, which are largely within the competence of nursing. The main recommendation consists of communication, training and awareness of nursing professionals about errors and adverse events.

Roque, Tonini and Melo⁽²⁾ in their research, they state that the most prevalent adverse events were 150 due to pressure ulcers (48,2%), 17 due

to damage caused by vascular catheter management (5,3%), 15 due to damage caused by ventilatory management (4,6%) , two due to damage caused by handling urinary catheters (0,6%), one due to damage caused by handling gastric catheters (0,6%) and one due to hypoglycemia (0,3%). Of the patients, 23,4% died during the ICU stay, of the 115 patients who had an adverse event, 35,6% died. Thirty-two patients had 51 adverse events associated with healthcare-associated infection, corresponding to a proportion of 9%. Primary bloodstream infection (6,1%), pneumonia (4,7%) and central vascular access infection (3,4%).

Factors related to the occurrence of adverse events in the ICU

The errors that occur in health care are considered to come from individual failures and are also related to the institution's organizational system. Since they can directly and indirectly influence the quality of care. As a suggestion for improvement, a non-punitive culture as a way of discussing errors by health management, adhering to effective communication, focused on collective learning, an important item of health safety goals to be used in healthcare practice.⁽³⁾

According to Novaretti et al.⁽¹⁰⁾ when it comes to the intensive care unit, several multidisciplinary teams are involved in the care provided to the patient. The hospital environment, in which the patient is considered severe, has characteristics that make it more susceptible to errors during hospitalization.

According to Minuzzi et al.⁽¹³⁾, failures and adverse events that affect the critical and semi-critical patient can cause severe consequences, even leading the patient to death. It is possible to mention all the processes resulting from the failures that, as human factors that are directly linked to patient safety, that the professional must be with his attention entirely focused on the patient.

Minuzzi et al.⁽¹³⁾ it also portrays that in the hospital environment, some distractions may occur such as side conversations and some studies show that the highest rate of adverse events is related to the administration of incorrect medication. It is also associated with factors related to the use of technology in which the lack of maintenance causes insecurity and inefficiency in the entire process. The last factor would be related to the material resources in which input expenditure management is usually inefficient, causing the lack of essential materials for patient care, and it is also considered a major risk factor.

It is known that the number of medications has always been associated with the occurrence of adverse events, especially within the ICU, to ensure the patient's survival, 5 or more medications are used, and consequently the risk of errors is increased, representing 98,3% of adverse events.

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The work overload of health professionals is directly related to the increase in adverse events in hospital units. Thus, nursing managers must be in constant contact with human resources managers so that improvement goals can be instituted for the health team, developing strategies and developing safe practices that provide the necessary support for employees.⁽¹⁰⁾ The objective of managers, in this context, should be aimed at minimizing the impacts related to nursing care, reducing work overload.

Novaretti and collaborators⁽¹⁰⁾ it also adds that the workload of nursing professionals must be understood as a consequence of several factors, since the nurse does not only act as assistance to the patient, but also the training and qualification of nursing professionals, management of inputs, articulation with other health professionals, promoting organization, providing guidance to patients and family members, ultimately promoting multiprofessional management for the benefit of the patient.

According to Grilo et al.,⁽¹⁴⁾ nursing professionals can also be subjected to high levels of stress, work overload, inappropriate work environment and associated with this dissatisfaction and professional demotivation. In this way, it can compromise the patient's safety.

According to Silva et al.,⁽¹⁵⁾ in-hospital transport is an extension of the care provided in the Intensive Care Unit. However, the results of this study show the risks to which the patients are exposed during the displacement, considering that the occurrence of incidents that resulted in an adverse event was verified. It emphasizes that

most of the incidents found were related to equipment and the adverse events observed were related to physiological changes.

To Batista ⁽¹⁶⁾ the ineffective participation of managers and other members of the interdisciplinary team are factors that influence the occurrence of Adverse Events, another important factor is the excessive workload and the reduced number of the nursing team.

Cruz et al ⁽¹⁷⁾ state that the main errors and failures that occur within the Intensive Care Units are related to three categories: medications, medical records and follow-up of SAE.

In order to promote the quality of nursing care and patient safety, it is essential to establish which adverse events are more recurrent, the profile of the patients involved and the factors associated with the damage. ⁽²⁾ So that, through this, it becomes possible to reduce care failures.

Prevention Measures of Adverse Events in the ICU

In order to prevent adverse events, it is necessary to implement institutional measures, which are: Professional training and definition of technical standards. Health professionals must also notify errors so that the indicators are reliable, however, some professionals are resistant to accept or recognize their errors, generating indices of underreporting. ⁽¹¹⁾

It is essential to record the complete data regarding the patient's clinical condition electronically to promote continuity of care, since patient information can be viewed at any time by the multiprofessional team. Registration must be carried out to facilitate the understanding of all professionals, in a succinct, objective, clear and detailed manner, also avoiding the occurrence of adverse events. It can be used as a strategy to promote the quality of care, based on the analysis of the indicators obtained through the records. ⁽¹²⁾

It is also worth mentioning the patient safety protocol that must be followed in accordance with Ordinance No. 529, from the Ministry of Health (2013), in 2004, the World Health Organization (WHO) developed with the main objective of preventing damage to patients.

It is also worth mentioning the patient safety protocol that must be followed in accordance with Ordinance No. 529, from the Ministry of Health (2013), in 2004, the World Health Organization (WHO) developed with the main objective of preventing damage to patients. Thus established, the international goals of Patient Safety that are:

- Identify the patient correctly;
- Improve communication efficiency;
- Improve safety for high-risk drugs;
- Eliminate wrong procedures, on the wrong patient;
- Reduce the risk of hospital infections;
- Reduce the risk of injury to the patient resulting from falls.

According to Reis ⁽¹⁸⁾ the form of communication and therapeutic approaches provide an indispensable support to care, since the nursing team is the team that has the greatest contact with patients and their families, also emphasizes that the implementation of continuing education for professionals is of great importance and professional qualification must be continuous so that the team can achieve its objectives and minimize the impacts directed to assistance, providing safe and quality assistance.

CONCLUSION

This study highlights the importance of nursing professionals in patient safety in the Intensive Care Unit (ICU), minimizing adverse events and identifying possible causes for them not to occur. They must pay attention that, if they occur, they are notified and treated promptly. To prevent adverse events, strategies must be implemented by nursing managers to improve care, reduce the workload of professionals, complete records in electronic medical records, continuing education, effective-

ve communication between the multidisciplinary team, establishment of institutional standards and minimization of care failures.

The quality of the care provided to the patient also includes the management of institutional risks and their indicators aimed at principles and guidelines with the purpose of offering humanized and safe care, expanding the good operating practices of the health service and guaranteeing the quality that ensure the how services are offered with quality standards.

The present study highlights the serious problem of adverse events in health care provided in intensive care, the risk factors associated with the incidence of events and preventive measures. Having as main limitation, the inadequate records of adverse events in the ICU, which was identified through the data presented in the studies that supported this research. ■

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health care provided in intensive care, the risk factors associated with the incidence of events and preventive measures. Having as main limitation, the inadequate records of adverse events in the ICU, which was identified through the data presented in the studies that supported this research. ■

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