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RESEARCH

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Análise do aprazamento de enfermagem em uma UTI: foco na segurança do paciente

Analysis of nursing aprazamento in an ICU: focus on patient safety

Análisis de aprazamento de enfermería en una unidad de cuidados intensivos: se centran en la seguridad del paciente

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ABSTRACT

Objective: The study's goal has been to identify the nonconformities related to drug use. **Methods:** It is a descriptive and cohort study, which has performed file analysis and has utilized a quantitative approach for data analysis. The study was carried out at a General Intensive Care Unit from a university hospital in *Rio de Janeiro* city**. Results:** By the analysis of 362 prescriptions were found the following nonconformities: drug administration schedule at intervals not consistent with the prescription (80.5%); the stamp absence from the appointment responsible person (46%); medications either dispensed by medical discretion or suspended, and also under a SOS situation (19%); and among others. **Conclusion:** The following are the recommended nursing actions that could be performed as barriers toward the nonconformities found by this study: double-checking continuity; designing a guide for drug administration scheduling; having a private place for the execution of drug administration scheduling; using a signal on the apparel of the appointment responsible person; and also

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performing the drug administration schedule over a digital system in order to avoid drug interactions.

Descriptors: Medication errors, patient safety, critical care nursing.

RESUMO

Objetivo: Identificar as não conformidades relacionadas ao aprazamento medicamentoso. **Método:** Trata-se de um estudo transversal, descritivo, com análise documental e abordagem quantitativa, realizado em uma Unidade de Terapia Intensiva Geral de um hospital universitário do Rio de Janeiro. **Resultados:** Foram analisadas 362 prescrições. As não conformidades encontradas foram: aprazamento com intervalos não condizentes com a prescrição (80,5%), ausência do carimbo do responsável pelo aprazamento (46%), aprazamento em medicações à critério médico ou suspensas (19%), dentre outros. **Conclusão:** Ações de enfermagem que poderiam ser realizadas como barreiras frente as não conformidades encontradas seriam: continuação da dupla checagem, elaboração de um guia para o aprazamento; um local privativo para a realização do aprazamento ou utilização de uma sinalização na roupa do aprazador e aprazamento com sistema digital a fim de evitar interações.

Descritores: Erros de medicação, Segurança do paciente, Enfermagem de cuidados críticos

RESUMEN

Objetivo: Identificar los casos de incumplimiento relacionados con aprazamento drogas. **Método:** Se trata de un estudio descriptivo, con análisis documental y el enfoque cuantitativo, realizado en una UCI polivalente de un hospital universitario de Río de Janeiro. **Resultados:** Se analizaron 362 prescripciones. Las no conformidades encontradas fueron: aprazamento con intervalos inconsistentes a la prescripción (80,5%), ausencia del sello responsable de aprazamento (46%), aprazamento en medicamentos SOS, ACM o suspendida (19%), entre otros. **Conclusión:** Las acciones de enfermería que podrían llevarse a cabo como barreras contra el error sería: continuaron doble verificación, la preparación de una guía para aprazamento; un lugar privado para el aprazamento o el uso de una señal en aprazador prendas de vestir y aprazamento con sistema digital para evitar interacciones.

Descriptores: Errores de medicación, Seguridad del paciente, Enfermeria de cuidados críticos

INTRODUCTION

Among all adverse events occurring in the care of patients, Medication Errors (ME) have received a prominent role in scientific research, and have attracted the attention of the public and health professionals since the report published by the Institute of Medicine (IOM) from the United States of America, 1999, "*Errar é Humano – Construindo um Sistema de Saúde mais Seguro*" (To Err is Human: Building a Safer Health System). The document found that about 44,000 to 98,000 Americans died each year in the USA due to adverse events and that 7,000 deaths were related to ME.[1]

Medication Errors are defined by World Health Organization (WHO) as "failures in the drug treatment process that can lead, or have the potential to lead, to harm the patient. These are errors related to prescription, dispensing, omission, schedule, unauthorized administration of the medication, dose, presentation, preparation, administration, among others".[2]

The additional costs of handling medication-related injuries in hospitals account for $3.5 billion of dollars per year, making these incidents politically and financially intolerable, due to their consequences for the patient and costs for health institutions and for society.[3]

In an Intensive Care Unit (ICU) the approach of ME and their consequences for the patient and nursing team deserve particular focus. The complex drug therapy, the use of numerous potentially dangerous drugs associated with the severity and clinical instability of the patients, justify a focused analysis, because in those circumstances the consequences can be more harmful.[4]

Another investigation has also demonstrated the ME frequency in ICU care practice as a factor that interferes with patient safety.[5]

The ME rates vary according to the studies. A study conducted in a university hospital in the USA analyzed a total of 321 ME reports, out of which 72.5% were attributed to the prescription process, 14.6% to the administration process, 6.6% to the dispensing process and 6,3% to that of transcription.[6]

The nursing team is able to prevent the occurrence of up to 86% of errors in the prescription, transcription and dispensation processes. On the other hand, it can only prevent 2% of these errors from reaching the patient.[7] In this sense, the drug administration schedule (DAS) has been discussed as one of the sources of medication error, and may present nonconformities leading to adverse events, such as drug interactions, sub or drug overviews.

For this reason, studying how medications are scheduled becomes relevant. The present study addressed the No. 3 goal of the National Patient Safety Program, "improving safety in prescription, use and administration of medications", more specifically in relation to the safety of prescription drugs. The nonconformities related to DAS were studied. It was sought to know as follows: What are the nonconformities of the drug DAS in an ICU? Aiming to identify the nonconformities resulting from the DAS.

METHODS

It is a descriptive and cohort study, which has performed file analysis and has utilized a quantitative approach for data analysis. Descriptive studies describe the reality, are not intended to explain or intervene in it. Another important role that descriptive studies can have is to give professionals in a particular area or sector insight into their demographics. Although there is a tendency to consider descriptive studies as "minor" or restricted use studies, since they could not be made inference, these studies can be a very important management tool in health systems.[8]

The research complied with the ethical aspects established by Resolution No. 466/12 from the Health Ministry and was approved by the Research Ethics Committee of the institution where the study was carried out, under the Legal Opinion No. 1.734.269. The investigated place was in a General ICU of a *Hospital Universitário da Rede Sentinela*, located in *Rio de Janeiro* city. It is a sector with 10 beds of hospitalization, where one of them is for respiratory isolation, but always used when any patient needs a bed of intensive care. The nursing team works on a 12 x 60 hour shift. It has 01 nurse in either day or night shift, 02 day-by-day different nurses in non assistance duty, 01 nursing manager, 07 first year resident nurses and 08 second year resident nurses, whose half of them monthly study in other learning scenarios. Three nursing professors take turns and supervise an average of 4 undergraduates in 4 days of the week, usually during the morning. Regarding the nursing technicians, each team (day and night) counts on average with 5 of them, in addition to 2 day-by-day different nursing technicians.

The medical prescription used in the sector is digitalized, performed by the doctor, resident or medical intern under supervision, through a computerized system. The DAS is performed by the nurse, resident or nursing intern under supervision, done manually, in a space designated for this purpose in the medical prescription form. One of the strategies used in the researched sector as barriers to prevent the error corresponding to double-check of the DAS of the prescriptions by nurses and nursing residents.

The study sample was non-probabilistic for convenience, and was made up of prescriptions for the patients hospitalized in the sector, available for consultation in medical records. Data collection was carried out from September to October 2016, through a checklist with questions related to patient identification, total DAS of prescriptions, interval between doses, erasures, checking medications administered, Presence of justification in cases of unmanaged medications, stamp and signature of the person in charge of DAS, double-checking between two nurses, correction of double-check errors, and identification of who performed DAS. The double-check correlations were those that presented correction of the DAS done by hand.

To identify the type and frequency of nonconformities present in the prescription, the measures of central tendency and dispersion were used: absolute and relative and average frequency for the variables of the study.

RESULTS

There have been analyzed 362 prescriptions that totalized 5,201 DASs. The average number of medications by prescription was 14,0. Similarity was identified in the scheduling of scheduling between schedulers, preoccupation with the use of odd hours, use of non-standardized schedules in order to avoid drug interaction and DAS balance between the daytime and nighttime periods. The DAS was complete in all the prescriptions analyzed. In other words, all the prescribed items were scheduled.

The majority of the DAS performed, 61% (n = 221), was done by the first and second year residents, followed by nurses 29% (n = 105), non-nurses 9% (n = 32) and nursing students under supervision 1% (n = 4).

The double-checking is a measure taken in the sector as a barrier against possible errors in the DAS. This procedure was performed in 92% (n = 333) of the prescriptions analyzed. Errors were found in 68% (n = 226) of prescriptions that had double-checking. And after the double-checking, the error remained in 72 prescriptions, i.e., in 22% of the prescriptions analyzed by double-check.

Table 1 - Nonconformities found after double-checking the DASs

Nonconformities	N	%
DAS at intervals not consistent with the prescription	*58*	80.5
Incorrect patient identification data	*51*	71
Absence of the stamp from the person responsible for the DAS	33	46
DAS in prescriptions without medical stamp	*29*	40
Absence of the stamp from the person responsible for double-checking the prescription	22	30
DAS and administration of medications dispensed by medical discretion, suspended, or under a SOS situation	14	19

Source: Research data, 2016.

DAS at intervals not consonant with the prescription was the most found nonconformity even after the double check of the prescriptions (80.5% - n = 58), followed by incorrect identification of the patient (71% - n = 51), all related to the incorrect bed. Absence of the stamp from the person responsible for the DAS was also identified (46% - n = 33); DAS in prescriptions without medical stamp (40% - n = 29); Absence of the stamp from the person responsible for double-checking the prescription (30% - n = 22) and DAS of medications dispensed by medical discretion, suspended, or under a SOS situation (19% - n=14).

A total of 173 prescriptions were also found. Out of those, 71 (41%) prescriptions were without justification of at least one DAS of unchecked drugs. And erasure in the DAS begetting interpretation difficulty in 36% (n = 130) of the prescriptions analyzed.

In the prescriptions that were not double-checked (8% - n = 29), the error occurred in 34% (n = 10) of them. There were errors regarding the interval between doses, not complying with the prescribed in 60% (n = 6) of the prescriptions, and DAS of medications dispensed by medical discretion, suspended, or under a SOS situation 20% (n = 2).

DISCUSSION

It can be seen that most of the DASs were performed by resident nurses. This is explained by the fact that they represent daily, except on weekends, a larger number of professionals working in the sector during the period of data collection.

It was also observed that all prescriptions without double check occurred at the weekends, when, in general, there is only one nurse present in the unit investigated.

The present study identified the DAS performed by non-nurses in 9% of the prescriptions analyzed. Apprehending medical prescription is a nurse's activity, so it is possible not only to prevent drug interactions, but also to ensure a contextualized practice in science, since nurses are responsible for scheduling medication administration and intervals between those for prescription.[9] Another study, which states that the DAS of medications is a nurse responsibility, because this process includes a clinical and laboratory daily evaluation of the patient in order to avoid complications related to the route of administration, drug toxicity.[10]

Another finding was the reduction of the occurrence of errors after double-checking, a strategy used at the study site. Historically double-checking has been used for a long time, such as in the industrial area and aviation, aiming to increase safety mainly in the most critical processes.[11]

The double-checking procedure in the health area consists in the conference of a given procedure by the same professional twice, or even by two different professionals. This is one of the strategies that aim to minimize assisting errors by maximizing patient safety. Likewise, it can be done in addition to double-checking, triple-checking and so on, not restricted only to prescription medication, but applied to any and all actions developed in the health care setting.[11]

The DAS and double-checking performed with technical-scientific base can result in the effectiveness of the treatment. It is important to highlight the correction of almost error by double check in 32% of the prescriptions analyzed. Although the incidence of errors was lower in prescriptions without double check in the analyzed period, the quantitative of prescriptions without double-checking to make a comparison with those double checks should be higher.

One of the nonconformities found after the nursing DAS was the DAS of prescriptions without the medical stamp. The name of the prescriber and the number of his professional registration are considered extremely important data, since these data validate the prescription and enable the administration and dispensing of the medicine. Furthermore, it is an ethical issue, especially for nursing professionals since they administer the medication without legal authorization.[12]

In the study were found medications dispensed by medical discretion, suspended, or under a SOS situation. It is important for the staff to be aware of changes and suspensions of medications, as this practice is directly related to medication errors. In addition to not being a practice recommended by the protocol of No. 3 goal of the Health Ministry. The professional that does the DAS is often based on the previous prescription, but he/she needs to be aware of the changes occurred. It is also important the communication between the medical and nursing team in the occurrence of these situations, which may have a direct effect on the patient.

Hence, it is shown how important the communication between the team is, because if there is no communication of the changes, the nursing team follows a prescription of an outdated therapeutic regimen, causing harm to the patients.[13]

The absence of justification in the medications that were not checked was also found in the present study. This fact is demonstrated in a survey, which presents the omission of information in the nursing record in 75.5% of the unmanaged doses, an error committed by nursing professionals, who are responsible for more than 50% of the information in the medical records, which represent an important instrument of nursing care.[14] Such nonconformity can be attributed to the professional's lack of time, the habit of recording and the recognition of the importance of this act in patient safety.

Erasures were also found in relevant numbers, both in the DASs and in the double-checking practice. In the context of patient safety, medical prescriptions play a unique role in the prevention of errors and it is now known that ambiguous, illegible or incomplete prescriptions, as well as the lack of a standardization of prescribed drug nomenclature; The use of abbreviations and the presence of erasures are factors that may contribute to ME.[15] The erasure for the correction of the DAS may lead to ambiguous interpretation; an alternative to this question could be the digital DAS. This may also have repercussions in relation to the drug interactions, since it can be linked to a program that prevents the DAS from incompatible medications.

The ME may lead to an increase in hospitalization time, complications in the evolution of the health situation, the need for new diagnostic and therapeutic interventions, and even situations of permanent disability or patients' death.[16] Due to the nursing professionals' role in drug preparation and administration, many mistakes made and undetected at the beginning or middle of the system can be attributed to the nursing team, intensifying the responsibility of the team and making it one of the last barriers of prevention.[17]

Researchers claim that several factors may predispose to medication errors, such as overwork, lack of attention during medication prescribing, dispensing and administering processes, communication failures between teams and between sectors, lack of information about the patient, difficulty in accessing information about medications, as well as environmental and individual factors.[18]

Incorporating principles to reduce human error by minimizing memory lapses, promoting access to drug information, and developing internal training standards reduces the likelihood of failures and increases the chance of

intercepting them before resulting in harm to the patient. In this sense, strategies such as the standardization of processes, the use of information technology resources, permanent education and, above all, the monitoring of professional practices in all stages of the process involving the medicine must be included.[19]

Another preventive measure of errors related to DASs could be the use of a private place to perform the DAS, and also using a signal on the staff apparel, such as a vest or badge with an identification that would draw the attention of the other coworkers, in order to avoid diverting attention at the time of the DAS. Additionally, the DAS could be performed over a digital system in order to avoid drug interactions.

CONCLUSIONS

It was possible to identify the nonconformities related to the drug administration schedule, then reaching the study's purpose. Given the results, double-checking was observed as a good strategy to be continued in the investigated unit, and as an example for other sectors that do not develop this practice. However, such a procedure must be carried out carefully and thoughtfully. Adherence following pre-established patterns without critical thinking about medications to be missed may result in harm to the patient due to drug interactions and interfering with the planned outcome.

A barrier strategy against error could be the design of a guide for the drug administration scheduling and double-checking, with the indispensable items for the accomplishment of the drug administration schedule. The items are listed as follows: patient identification data, complete and legible prescription, stamp of the doctor in charge, evaluation of the prescribed medications related to the patient's time, realization of the timetable choices without standardization and respecting the pharmacological properties of the medicines.

It is also important to raise the awareness of the professionals by training the nursing team in order to reinforce the need to right down notes during nursing evolutions, and also incentive annotations at any intercurrence, mainly related to medication, since it will be from those relevant data that behavior improvements will be undertaken; such as: implementation of continuing education and retraining courses.

REFERENCES

1. Kohn, L.T.; Corrigan J.M.; Donaldson, M.S. To err is human: building a safer health system. 3ª ed. Washington: National Academy of Institute of Sciences; 2000.
2. World Health Organization. World Alliance for Patient Safety, Taxonomy: The Conceptual Framework for the International Classification for Patient Safety: final technical report. Genebra; 2009.
3. Aspden P. Preventing medication errors: committee on identifying and preventing medication errors. Board on health care services. Washington: The National Academy Press; 2007.
4. Toffoletto M.C, padilha K.G. Consequências dos erros de medicação em unidades de terapia intensiva e semi-intensiva. Rev Esc Enferm USP 2006; 40(2):247-52.
5. George EL, Henneman EA, Tasota FJ. Nursing implications for prevention of adverse drug events in the intensive care unit. Critic Care Med. 2010; 38(6): 136-44.
6. Winterstein A.G. Nature and causes of clinically significant medication errors in a tertiary care hospital. Am J Health Syst Pharm. 2004; 61(18): 1908-16.
7. Leape, L. L. et al. Systems analysis of adverse drug events. JAMA. 1995; 274, (1) p.35-43.
8. Aragão, J. Introdução aos estudos quantitativos utilizados em pesquisas científicas. Revista Práxis. ano III, nº 6 - agosto 2011.
9. Fontenele, RE. Araújo, TL. Análise do planejamento dos Horários de administração de Medicamentos em unidade de Terapia intensiva cardiológica. R Enferm UERJ, Rio de janeiro, 2006 jul/set; 14(3):342-9.
10. Silva, 2010 Silva, G. Erro de medicação: estratégias e novos avanços para minimizar o erro. Rio de Janeiro. Publicado em 02 de março de 2010. CD-ROM.
11. Watcher, R. M. Compreeendendo a segurança do paciente. Porto Alegre: Artmed, 2010. 320 p.
12. Oliveira, R.C.;Camargo,A.E.B.;Cassiani,S.H.B.Estratégias para prevenção de erros na medicação no setor de emergência. Rev.Bras. Enf, São Paulo,v.58,n.4,p.399-404,2005.
13. Cassiani,S.H.B; Freire,C.C;Gimenes ,F.R.E. A prescrição médica eletrônica em um hospital universitário: falhas de redação e opiniões de usuários. Revista Escola Enfermagem USP. São Paulo,v.37,n.4,p.51-60, 2003.
14. Melo, L.R;Pedreira,M.L.G. Erros de medicação em pediatria: análise da documentação de enfermagem no prontuário do paciente. Revista Brasileira de Enfermagem. São Paulo,v.58.n.2,p.180-185,mar/abr 2005.
15. Gommans J., et al. Improving the quality of written prescriptions in a general hospital: the influence of 10 years of serial audits and targeted interventions. Internal Med J 2008, 38: 243–8.
16. Camerini F.G; Silva L.D. Segurança do paciente: análise do preparo de medicação intravenosa em hospital da rede sentinela. Texto & Contexto Enfermagem. Florianópolis, 2011;20(1).
17. Miasso A.I., et al. Processo de preparo e administração de medicamentos: identificação de 0problemas para propor melhorias e prevenir erros de medicação. Rev. Latinoam Enfermagem. 2006 maio-junho; 14(3):354-63.
18. Roughead E.E., Semple S.J. Medication safety in acute care in Australia: where are we now? Part 1: a review of the extent and causes of medication problems 2002-2008. Aust New Zealand Health Policy. 2009; Aug 11;6:18.
19. Ferracini FT. Estrutura organizacional. In: Ferracini FT, Filho WM. Prática farmacêutica no ambiente hospitalar: do planejamento à realização. São Paulo: Atheneu, 2005.

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