



RESEARCH ARTICLE

Iatrogenic Related to the Knowledge Deficit of Patient Safety in the Care: A Descriptive Analysis

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Abstract

Objective: This study aims to portray the patient's safety interfaces in intensive care in a Brazilian public health institution and the presence of iatrogenies.

Design: This study has an exploratory descriptive approach of qualitative condition; the research was carried out from 2009 to 2010.

Setting: The study was carried out in six units, which require intensive care in health, of a large public hospital in the state of Pernambuco.

Subject: Of the 163 participants in the qualitative study, thirty-one were nurses, a hundred and ten were nursing technicians and twenty-two were nursing assistants.

Measurements and main results: This study also highlights the performance deficit in relation to the protocol used in the diet, that 91 (55.8%) health professionals do not perform intensive therapy in diet administration according to the protocols.

Interventions: Updates and training programs are being developed intensively in the hospital with the purpose of promoting the best functional performance of the employee and maintaining the institution's sustainability in the health market.

Conclusion: In intensive care in Brazil, it is still emphasized that educating the health professional is fundamental to increase the quality of care to the critical patient and, thus, to reduce the negative indicators of iatrogenies.

Keywords

iatrogenic, iatrogenesis, Errors in care, Intensive therapy, iatrogenic diseases

Introduction

Iatrogenic conditions are those that result from the intervention of the multidisciplinary health team, whether correct or incorrect, justified or not, but which result in detrimental consequences for the patient's health [1]. Few studies have focused on assessing the risks to patients, especially those hospitalized in emergency and intensive care services, and only in the last decades attention has been drawn to the importance of these problems [2]. Iatrogenic status becomes more important in hospitalized patients in emergencies or intensive care, in which both their incidence and the intensity of their manifestations tend to be more pronounced [3]. In the Hospital of Restoration in Recife/PE, about 4500 hospital records of patients showed that patients hospitalized in critical sectors such as emergency and intensive care centers had twice as high iatrogenic rates as patients with 16-44 years of age [4]. As the care in sectors such as emergencies and intensive care centers has a multidisciplinary character, where professionals

from various areas are associated to offer a global assistance to the patient, the concept of iatrogenia in intensive care has a broader meaning, relating to the ducts taken by the various team members [1]. The documentation of iatrogenic complications has been generally unclear and vague, with few hospital services adopting protocols to verify the complications determined by the diagnostic and therapeutic measures adopted [5]. The problematization is far from being solved, on the contrary, it is probable that, for the same reason, it is increasing [4,6-8]. In a simplified way, it is considered that the Brazilian Unified Health System (SUS) proposes a model in which all citizens [9], irrespective of their socioeconomic condition [10], are entitled to access the health service and receive care [7-9,11,12] in a hierarchical network according to the complexity of the service [9]. Thus, this study aimed to portray the patient's safety interfaces in intensive care in a Brazilian public health institution and the presence of iatrogenies.

Methods

This study has an exploratory descriptive approach of qualitative condition; the research was conducted from 2009 to 2010. In six units, this requires intensive care in health, a large public hospital in the state of Pernambuco/Brazil. The selection of the study sample [9], in relation to the qualitative and quantitative indicators, had as general characteristic for inclusion in the research the following criteria: Being a health professional (nurse, nursing technician, physiotherapist, physician, nutritionist) away from their duties at the institution's intensive care center, to have a one-year inpatient stay in the facility, since the considerable period of adjustment of the employee to the unit of work would be six months. Exclusion criteria were: Health professionals who presented health leave, maternity leave, premium leave, medical certificate withdrawal and instruments with less than 50% completion. Through the inclusion criteria, 263 health professionals were selected, mainly nurses and nursing technicians from the respective intensive care centers of the public health institution. Still, regarding the qualitative demonstration of the study, health professionals who did not respond to the qualitative block of the instrument were included as exclusion criteria. For quality evaluation data were collected through the direct observation of health professionals and the analysis of medical records and evalua-

tions in hospitalized patients (medical prescription and vital signs check), after presentation of the objectives and ethical aspects to the participant or responsible. Thus, 100 health professionals who did not meet the criteria for inclusion in the study were excluded. Finally, the study represented 163 health professionals for the qualitative cut of the research. The research project was presented to health professionals, in the case a document of acceptance in the participation in the research was delivered signature and consent (Free and Informed Consent Term).

In order to finish due to ethical issues, CNS Resolution n.196/96 of the National Health Council was respected, with submission of the project to the Research Ethics Committee of Hospital da Restauração - PE, a free and informed consent form. The survey was approved under the CAAE n. 0096.0.102.000-09.

Results and Discussion

Iatrogenesis in any of the processes in intensive care may have very serious consequences [13], however when the error refers to the identification of the patient [4,14], this negative result can develop a chain of undesirable events [9], the study reinforces the negative indicators in emphasizing that 89 (54.7%) (Table 1) of the health professionals responsible for intensive care made errors in patient identification [4], actions further reinforced by error in the barrier method with 82 (50.4%) (Table 1) or in the intensive care center or red wing of major emergencies made the error in the identification [4] of the patient and errors in the methods used as a barrier to reduce the errors [8]. The study reinforces that the identification of the patient by means [15] of a bracelet [4], expresses a greater response [11] when compared to the procedure done in the bed [9]. It is verified in previous studies [4] in relation to the identification of the client by bracelet [15] also does not reach levels of quality considered satisfactory [6,16] since the quality of the assistance in relation to identification [15] of the patient by bracelet is classified in the same way [7,9], that is, borderline [8,9]. The result of this study highlights [8] the high number of hospital infection in intensive care 87 (53.3%) (Table 1) as adverse causes and strengthens the error in the accomplishment of the drug therapy [11], 91 (55.9%) (Table 1) which is presented as a consequence by the absence of

Table 1: Evaluation of the iatrogenic elements of the process teaching theoretical learning in intensive care in the process of updating and training in intensive care from the perspective of the health professional (n = 163).

| Elements evaluated in the process of teaching theoretical learning | Concept | | | | | | | |
|--|-----------|------|------|------|---------|------|-----|------|
| | Excellent | % | Good | % | Regular | % | Bad | % |
| Teaching method | 30 | 18.4 | 45 | 27.6 | 38 | 23.4 | 50 | 30.6 |
| Educational material used | 24 | 14.3 | 40 | 23.9 | 32 | 19.1 | 67 | 40.1 |
| Reciprocity between theoretical and practical | 26 | 15.9 | 54 | 33.7 | 63 | 37.7 | 20 | 12.7 |
| Technological knowledge | 28 | 17.3 | 45 | 27.6 | 42 | 25.7 | 48 | 29.4 |
| Knowledge of Facilitators | 45 | 27.6 | 42 | 25.7 | 37 | 22.6 | 39 | 23.9 |

nursing systematization 140 (85.9%) (Table 1) very common in Brazil [11,17]. Recently, studies with critically ill patients hospitalized in intensive care [8] centers [12] undergo several invasive procedures [11], thus making it possible to have a greater risk [9] for adverse events [6,18] such as infections related to health care [9]. By observing these stratified [8] data in this study [11] and another study [8], a response can be obtained [9,11].

Gadelha, et al. [4] when conducting research in an intensive care [11] unit in the state of Acre [7] reported that among the main drugs that were related to adverse events [9], in this case, antimicrobials [6] were at the top in related errors in drug therapy [9], a study conducted by Bohomol [17] in the city of São Paulo [6,12] also showed the same statistical results [19], where antibiotics [7,8] were the drugs involved in greater errors [9]. Still, Ramos [9,12] strengthens the current study by affirming in a previous study carried out in the city of Recife [9], the highlighted drug errors [12], such as: Incorrect dilutions of drugs [9], for example, antibiotics 70 (26.7%) (Table 2), administration of drugs in the wrong patient 60 (23%) [9,11] error in the calculation of the dose to be administered, mainly vasodilators and antibiotic therapy totaling 43 (16.7%) [9] of health professionals [12] specifically nursing (10%) thus evidencing [8] the increase in hospital infections [11] due to iatrogenies performed [7] in the drug therapy [9] process [11]. In order to avoid errors in drug therapy [9] protocols should be developed aiming [7] at the necessity of drug therapy [4,9] for example for the medication to be administered correctly [7,8], one must observe the validity [8], time of the medication [9] emphasize the importance of the patient's name [7,9] correct dilution [8,12] and the need to administer this medication [8] according to the correct technique for the purpose [11] of a quality of care [8], and to reinforce the importance of identifying and recording errors [8] because in this way it is possible to perform actions that allow an update of the correct procedures [9,11,13].

It is noteworthy that [6] amidst the adversities presented when granting a patient care [15,19] scientific

knowledge [19] becomes very important [8] when it comes to preventing technical failure [1,9,12] and this error can be life-threatening [15] but it becomes very important the ethical conduct [7] that the professional will express [9] and learn from mistakes not neglecting [8] and/or under-reporting cases [9]. Similarly, Padilha [3] in one study obtained three concepts [7] to carry out this evaluation process of continuous improvement [12] in order to prevent a reduction in damages [9] which first confers the structure of available resources to establish quality assistance [12] the second refers to the managerial process [11] that is how the use of resources is being carried out and significantly the latter is aimed at emphasizing [8] the assistance in being carried out in an appropriate and correct way [9].

However, when analyzing our data [11], we observed some shortcomings in the quality process in relation to iatrogenic events [9] which are caused by the interventions of health professionals [8] be it nursing or physicians [12], physiotherapy and others [8] and are not explained by underlying diseases [9].

These events tend to aggravate [4,10] the patient and increase the length [13] of stay in intensive care [20,21] so the negative indicator [12] will be the hospital [6] stay and the increase in the cost of hospitalization [9].

The only reported data evidencing this profile [11] was carried out in 1992 [8] and published in 1998 [9] by McQuillan [12] in this case this study elaborated a management of oxygen therapy [9,12] airways [12] respiration and circulation [11] added to the monitoring before the patient's admission period in the intensive care unit [6,19] parallel to the opportunity of admission [7] and it was observed that care was lower in 54% of the patients [9,12]. Paralleling other studies in the USA and France [11] it has reported that in the last 20 years [13] between 1% and 20% of intensive care [11] admissions are associated with an iatrogenic event [9].

The construction of targets [11] and the standardization of indicators [7] are essential to verify if the measu-

Table 2: Assessment of risk factors that interfere in patient safety in intensive care (n = 163).

| Risk factors that interfere with patient safety in critical care | n | NOT % | N | YES % |
|--|----|-------|-----|-------|
| Inadequate infrastructure | 18 | 11.0 | 145 | 89.0 |
| Materials of poor quality | 42 | 25.7 | 121 | 74.3 |
| Old technological equipment and without periodic revision | 52 | 31.9 | 111 | 68.1 |
| Employee overload | 51 | 31.2 | 112 | 68.2 |
| Absence of employees by attestation or health leave | 35 | 21.4 | 128 | 78.6 |
| Communication errors | 45 | 27.6 | 118 | 72.4 |
| Drug therapy | 72 | 44.1 | 91 | 55.9 |
| Error in patient identification | 74 | 45.3 | 89 | 54.7 |
| Error in using barrier methods | 81 | 49.6 | 82 | 50.4 |
| Absence of nursing systematization | 23 | 14.1 | 140 | 85.9 |
| Intensive care hospital infection | 76 | 46.7 | 87 | 53.3 |

res adopted [12] will be effective for the prevention [4] of new drug incidents [9].

When it is essential to do the root cause analysis [7,10] for example where the problem will be carried out in the methodological [8] execution in the detection [11] of the primary causes [9] it is observed that the recurrences of iatrogenies/adverse events [9,12].

In this way, those responsible [12] for this process need to establish follow-up and results indicators [9] in the recommendations [8] in addition to reporting without underreporting [11] the data [8]. For example, the heads of intensive care [9] centers and the entire professional body must be involved in the process [7] as they are the executors [8] of most of the recommendations [9].

Table 2 reinforces the importance of safety [9], although it is not the guarantee of fully qualified care [12] nevertheless, it is one of the pillars that underlies health quality [7,8] since the risks associated with care in this sector [11] in the case in intensive care units [9]. Analyzing Table 2, it is possible to verify important [12] measures for good quality [13] in patient care [11].

Usually the procedures [10,17] are being performed following some protocols [15] focused on the safety [12,14] of the patient and health professional [9] and has been used in a preventive way [7] that is to minimize the damages to the patient the institution performs care [11] based in criteria of institutional protocols [9] through techniques with the objective [8] of providing quality care [9] thus avoiding interurrences or severity [8] of the patient in intensive care [9]. In order to minimize the occurrence of adverse events [11] we can positively highlight the prevention [8] of falls where it is performed [11] by the majority of the participants 107 (65.6%) (Table 2) through specific use of standardized protocols [7] aimed at reducing the indicators negative [11] in intensive care related to fall [19], it is observed that with these data [11] it is noticed that the identification of factors predisposing [8] to fall as incapacity of muscle control in the bed [12] age and drug treatments is important for the reduction [11] of negative indicators [7] in relation to quality care provided in intensive care [11].

The Ministry of Health [19], with the objective of reducing falls numbers [13] has launched the "protocol for fall prevention" [12] containing instructions to guide [8] the professionals in their care [11] and all have the necessary technical knowledge to its application [9] however, the use of other now structural measures [16] become important and of great help for an improvement in the quality [19] of this assistance [12] thus avoiding falls-related iatrogenies [9].

In addition to the use of protocols [7] it is necessary to maintain a constant reassessment of intensive care assistance [9] for example the need for use in new technologies in intensive care assistance [12] as from in-

vestments in the hospital [9] especially in intensive care centers [7] useful for the prevention of unfavorable fall-related indicators [9]. Another positive point that we can highlight [4] is the use of protocol in surgical procedures where 114 (69.9%) (Table 2) of the respondents answered [22] that they use as a way to guarantee a safe surgery [7]. Its use is promising and guarantees [12] the patient's follow-up during their hospitalization for surgery [9].

However, the use of all protocols for the prevention [15] of adverse events becomes important in an intensive care unit [21] simple measures such as hand washing were among the least used protocols [9] by participants where 126 (77.3%) (Table 2) reported reduce performing hand washing as established [12].

It is known [8] that the hand is a means of transport for several pathogens [9,14] and it is transmitted to other people through direct contact with the hand [11] or some material that has been contaminated by the hand [4,9]. The most effective method for the prevention [7] of cross-contamination is hand washing [8,14] which is the responsibility of the individuality of each professional [9].

Therefore, in order to perform hand washing adequately [9] structural factors [17] are important [9] such as the presence of lavatories [8] soaps and antiseptics [9].

In a previous study, Padilha [3] reports that the vast majority of professionals do not perform hand washing prior to the procedures to be performed [9] only after the procedure does the routine of washing and even to this low adherence [8] the author highlights the lack [12] of knowledge of the health professional regarding hand washing [9,11].

This negative index demonstrates as presented [11] in our study the lack of adherence to the method that best prevents cross infection [8]. However, Bohomoll [17] has a positive statement regarding [9] the education of health professionals [1] since educating [13] the health professional [1] is a form of stimulation for hand washing [9] and encourages the highest adhesion index [12].

This study also highlights [8] the performance deficit in relation to the protocol [12] used in diet care, which 91 (55.8%) health professionals do not perform intensive care [9] in the administration [4] of diet according to the protocols [20].

It is worth mentioning that dietary administration [3] can be performed in the intensive care of the following enteral routes [22]: Nasoentérica [11], oroentérica [12], jejunostomy [13], gastronomy [7] or venous [11] called parenteral route [15] the importance of care is reinforced and it becomes [8] important for caregivers to have the necessary knowledge [12] to administer the diet and to be able to observe the patient's capacity [9] regarding their clinical aspect and their limitations [12].

As discussed previously in [Table 1](#) and statistically reinforced by [Table 2](#), the reported difficulty in performing drug therapy is high [9], this study presented an index of 115 (70.5%) ([Table 2](#)) but at the same time that this difficulty is shown present [8] the lack of adherence to measures [6] due to the use of protocols in drug administration is of concern in our studies [12].

This low adherence of the participants [11] to follow the institution's protocol contributes to the occurrence of serious errors [9].

Ramos [9] makes it clear in both researches [8] that for prevention it is necessary to "prevent" [9] that is, it refers to looking forward [18], to the future [4], specifically [19] in technical-scientific knowledge [9] is made necessary for the purpose of being able to carry out interventions that could occur if the updating [12] or qualification of the team becomes important for the preparation, thus avoiding iatrogenic causes [9].

Updates and training [8] of the health team should be approached as a strategy to reduce [12] adverse events and be continuous [9]. However, public hospitals suffer [12] daily with high demand for financial resources and employee turnover [7].

As an alternative to in-hospital education [8] the use of an online teaching platform [9] a form of educational assistive technology [6] which professionals can obtain as an alternative to updating [9].

Conclusion

In this study the knowledge deficit of health professionals in relation to iatrogenies was identified and how to prevent, and it was highlighted the low adherence in the techniques of hand hygiene.

In contrast, positive indicators in nursing intensive care in patient safety were highlighted in relation to the use of care protocols, such as prevention of falls. It is worth emphasizing that research on patient safety in Brazil is on the rise, so this study proposes a reflection on the identification and dissemination of iatrogenies in a constructive way in the care and thus use tools to improve patient safety and encourage new studies in the intensive care in Brazil.

Institution to Carry Out the Research

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