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Original Article

Nursing and medical records of patients with sepsis or septic shock in hospital emergency *

Registros de enfermagem e médicos sobre pacientes com sepse ou choque séptico em emergência hospitalar

Historias médicas y de enfermería de pacientes con sepsis o shock séptico en emergencia hospitalaria

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Abstract

Objective: to analyze nursing and medical records in medical files of patients with a suspected or confirmed diagnosis of sepsis or septic shock in a hospital emergency. **Method:** quantitative, descriptive cross-sectional study. Sample composed of 127 patients, admitted from June to October 2019. Data were collected using a checklist-type instrument. For data analysis, descriptive statistics were used, with values expressed in simple frequencies and percentages. **Results:** regarding the measurement of vital signs, 39.4% of the medical records did not have complete records. There was administration of the microbial agent in the first hour of care, 21.4%, and at appointment times standardized by the institution, 80.4%. Medical prescriptions without date and time were found, respectively 21.3% and 38.6%. **Conclusion:** the analysis of the care records of patients with a suspected or confirmed diagnosis of sepsis or septic shock, indicate weaknesses in the work process of the nursing and medical teams.

Descriptors: Nursing Records; Emergency Medical Services; Medical Records; Sepsis; Shock, Septic

Resumo

Objetivo: analisar os registros de enfermagem e médicos em prontuários de pacientes com diagnóstico suspeito ou confirmado de sepse ou choque séptico em uma emergência hospitalar. **Método:** estudo quantitativo, transversal descritivo. Amostra composta por 127 pacientes, admitidos no período de junho a outubro de 2019. Os dados foram coletados em instrumento, tipo *checklist*. Para análise dos dados, utilizou-se estatística descritiva, com valores expressos em frequências simples e percentuais. **Resultados:** referente à mensuração dos sinais vitais, 39,4% dos prontuários não apresentavam registros completos. Verificou-se administração do microbiano na primeira hora de atendimento, 21,4%, e em horários de aprazamento padronizados pela instituição, 80,4%. Foram encontradas prescrições médicas sem registro de data e hora, respectivamente 21,3% e 38,6%. **Conclusão:** a análise dos registros da assistência de pacientes com diagnóstico suspeito ou confirmado de sepse ou choque séptico, indicam fragilidades no processo de trabalho das equipes de enfermagem e médica.
Descritores: Registro de Enfermagem; Serviços Médicos de Emergência; Registros Médicos; Sepse; Choque Séptico

Resumen

Objetivo: analizar los registros médicos y de enfermería en las historias clínicas de pacientes con sospecha o diagnóstico confirmado de sepsis o shock séptico en una emergencia hospitalaria. **Método:** estudio transversal cuantitativo, descriptivo. Muestra compuesta por 127 pacientes, ingresados de junio a octubre de 2019. Los datos fueron recolectados mediante un instrumento tipo lista de cotejo. Para el análisis de los datos se utilizó estadística descriptiva, con valores expresados en frecuencias simples y porcentajes. **Resultados:** en cuanto a la medición de signos vitales, el 39,4% de las historias clínicas no contaban con registros completos. Hubo administración del agente microbiano en la primera hora de atención, 21,4%, y en horarios de cita estandarizados por la institución, 80,4%. Se encontraron recetas médicas sin fecha y hora, respectivamente 21,3% y 38,6%. **Conclusión:** el análisis de los registros de atención de pacientes con sospecha o diagnóstico confirmado de sepsis o shock séptico, indican debilidades en el proceso de trabajo de los equipos médicos y de enfermería.
Descriptores: Registros de Enfermería; Servicios Médicos de Urgencia; Registros Médicos; Sepsis; Choque Séptico

Introduction

The medical record is a document consisting of a set of information produced by the care team. In it, the health history, chosen therapy, evolution and clinical outcome are described. Records are communication tools between professionals and should portray the patient's clinical situation, through detailed, accurate and consistent reports.[1]

Incomplete or omitted information makes interdisciplinary work difficult and compromises the continuity of care.[2] Thus, the medical record is an instrument of disciplinary defense, as it presents the ethical observance inherent to professional practice.[1] Records generate data that direct clinical decision-making of the teams, mainly related to critical patients.[3]

In this scenario, those with a confirmed or suspected diagnosis of sepsis and/or septic shock stand out, characterized by the presence of organ dysfunction in the face of a deregulated immune response to the infection.[3] Identifying signs and symptoms in a timely manner, characteristic of the septic condition, is considered by the International Guidelines of Surviving Sepsis Campaign (SSC) the central point for the initial interventions,[4] antibiotic therapy and control of hemodynamic instability, to occur even in the first hour of care.[5]

A study analyzed the contributions of nursing records for the identification and treatment of sepsis in surgical patients and pointed out the importance of their quality for risk stratification, early recognition and adequate management of surgical patients affected with the syndrome, aiming at greater efficiency in the management of health processes.[3]

Hospital information systems allow systematic screening for the identification and diagnosis of conditions such as sepsis, through predictive and prognostic models.[6] Thus, records of care processes and their potential impact on results indicate the need to reduce inaccurate data and overlaps, omissions, and gaps in information essential for safe and effective care, which is particularly relevant in sepsis.[7]

The syndrome is distinguished by being time-dependent, a factor that contributes to the high rates of morbidity and mortality.[8] Worldwide, sepsis affects about 30 million people, accounting for 20% of deaths recorded.[9] In Brazil, it is estimated that occurrence of 670,000 cases per year, of which around 270,000 are lethal.[10] Although it represents the main cause of death in Intensive Care Units (ICU), on average 93% of patients develop the syndrome outside this environment, with the hospital urgency and emergency services the main entry point for patients with sepsis.[11]

Thus, in view of the impact of the syndrome on public health and the high prevalence of septic patients in hospital urgency and emergency units, it is important to analyze the care records, carried out by the nursing and medical teams, in order to

identify weaknesses and review care practices, which may imply early diagnosis and prognosis of the patient.

Given the above, this study aimed to analyze the nursing and medical records of patients with a suspected or confirmed diagnosis of sepsis or septic shock in a hospital emergency unit.

Method

This is a descriptive cross-sectional study, with a quantitative approach, carried out in an adult emergency unit of a public hospital located in the southern region of Brazil, described according to the STROBE tool.[12]

This unit has Reception with Risk Classification carried out full time solely by nurses. It is noteworthy that the institutional protocol does not include the specific descriptor for detection and treatment of sepsis cases. Data collection took place from June to October 2019. This year, there were approximately 13,000 consultations at the study site, encompassing clinical and surgical demands,[13] with the assistance records being partly made manually and, after 24 hours of hospitalization, the medical prescription was carried out in an electronic system.

To determine the sample size, the SEstatNet® Web Statistics Teaching-Learning System was used.[14] Sampling was non-probabilistic. In order to estimate characteristics whose expected frequency in the population was 50%, with a confidence index of 95% and a margin of error of 10 percentage points, it would be necessary to obtain 97 medical records. Patients over 18 years of age, of both sexes, admitted to the adult emergency room of the institution with a suspected or confirmed diagnosis of sepsis/septic shock were included. Illegible medical records that did not allow the collection of information, patients in palliative care and in contact isolation were excluded.

The patients included in the study were identified through the daily checking of the records described in the 24 hours of assistance, by the nursing and medical staff, both in the physical record (attendance sheets, nursing and medical notes/evolutions, and records of vital signs), as well as electronic. In these sources, we searched for: complaints presented by patients, reason for care and other significant information recorded during the initial care by the nursing or medical team.

The suspected diagnosis of septic condition was defined according to the guidelines of the Instituto Latino Americano de Sepse and the SSC:[4] presence of suspected or confirmed infection, associated with two or more signs of systemic inflammatory response syndrome, characterized by the presence of: hyperthermia>37.8ºC or hypothermia<35ºC; leukocytosis>1,2000/mm³, leukopenia<4,000/mm3 or left shift>10% of young forms; tachycardia>90 bpm; tachypnea>20 bpm, and/or one or more organ dysfunctions: dyspnea or desaturation, lowered level of consciousness, oliguria, and hypotension.

Data were collected and organized using a checklist-type instrument, prepared by the researcher, based on the screening form for patients admitted with a suspected clinical condition of sepsis, recommended by the ILAS.[15] The selected medical records were analyzed for the presence or absence of the study variables. Thus, when registered, the variables were observed according to the presence of adequacies and inadequacies, according to Chart 1.

Chart 1 - Demographic variables and variables related to the records of the nursing and medical staff. Florianópolis, SC, Brazil, 2019

Demographic variables	
Name	Pacient ID
Age	In years
Variables related to nursing and medical team records	
Main complaint record	Description of reason(s) for seeking care
Medical diagnostic	Record of suspected or confirmed diagnosis
Medical prescription	Presence of date and time: ( ) Yes ( ) No
Medical evolution	Presence of evolution: ( ) Yes ( ) No
Previous comorbidities	Record of comorbidities: ( ) Yes ( ) No
Checking prescribed antibiotic	( ) Yes ( ) No
Record of vital signs	blood pressure, respiratory rate, heart rate, axillary temperature, and oxygen saturation.
Nursing evolution	Presence of evolution: ( ) Yes ( ) No
Antimicrobial administration	Period, described in hours, elapsed for the administration of the first dose of antibiotic after suspected septic condition.

Data were analyzed using descriptive statistics, with values expressed as simple frequencies and percentages. All requirements of Resolution 466/2012 of the National Health Council of the Ministry of Health, which deals with research involving human

beings, were respected. The study was approved by the Ethics and Research Committee of the Universidade Federal de Santa Catarina, opinion report no. 3.369.139/2019 and registration number CAAE: 06897819.4.0000.0121, on June 4, 2019.

Results

The study population concluded the 97 medical records determined in the sample calculation and reached a total of 142. Ten medical records of patients in palliative care were excluded as they did not have clinical indication to undergo the one-hour package for sepsis treatment, and five of those who needed contact isolation, due to the impossibility of the patient or legal guardian to sign the Free and Informed Consent Form (ICF).

Considering losses, the final sample included 127 patient records. In these, care records of the nursing and medical team were analyzed on adult patients admitted to the emergency room with a suspected or confirmed diagnosis of sepsis or septic shock.

In the reports of both teams, the identification, age, complaints, comorbidities, and diagnosis of the patients were fully detailed. Although mostly described information on the date and time of the prescription and the medical evolution of the patients were not present in some medical records, respectively (21.3%; 38.6%; 21.9%). In 31% of the records, there were no records related to nursing evolution, as shown in Table 1.

Table 1 – Distribution of variables referring to medical and nursing team records (n=127). Florianópolis, SC, Brasil, 2019

Variables	Yes n (%)	No n (%)
Medical team records		
Name/Age/Complaints/Comorbidities	127 (100)	- (-)
Medical diagnostic	127 (100)	- (-)
Prescription date	100 (78.7)	27 (21.3)
Prescription time	78 (61.4)	49 (38.6)
Evolution	98 (77.1)	29 (21.9)
Nursing team records		
Name/Age/Complaints/Comorbidities	127 (100)	- (-)
Medical diagnostic	127 (100)	- (-)
Verification of the medical prescription	124 (97.6)	3(2.4)
Nursing evolution	87 (69)	40(31)
Verification of all vital signs	77(60.6)	50(39.4)

Regarding the verification of vital signs, although the presence of clinical signs presented by the patients was reported in the medical records, such as hyperthermia, dyspnea and hypotension, the record of the axillary temperature verification, respiratory rate, oxygen saturation and blood pressure, were not fully described from the medical records, respectively (19.7%, 12.6%, 18.2% and 2.4%), as shown in Table 2.

Table 2 – Description of verification of vital signs (n=127). Florianópolis, SC, Brazil, 2019.

Variables	Yes n (%)	No n (%)
Axillary temperature	102 (80.3)	25 (19.7)
Respiratory rate	111 (87.4)	16 (12.6)
Oxygen saturation	104 (81.8)	23 (18.2)
Blood pressure	124 (97.6)	3 (2.4)

Antimicrobial prescriptions were documented in 93.7% of the medical records. Of these, in 21.4% the verification of the administration of the prescribed antibiotic was performed at a time corresponding to the first hour of care, as guided by the international guidelines of the SSC. Among the records analyzed in which the administration took place after the first hour, 80.4% were scheduled at times standardized by the researched institution, as shown in Figure 1.

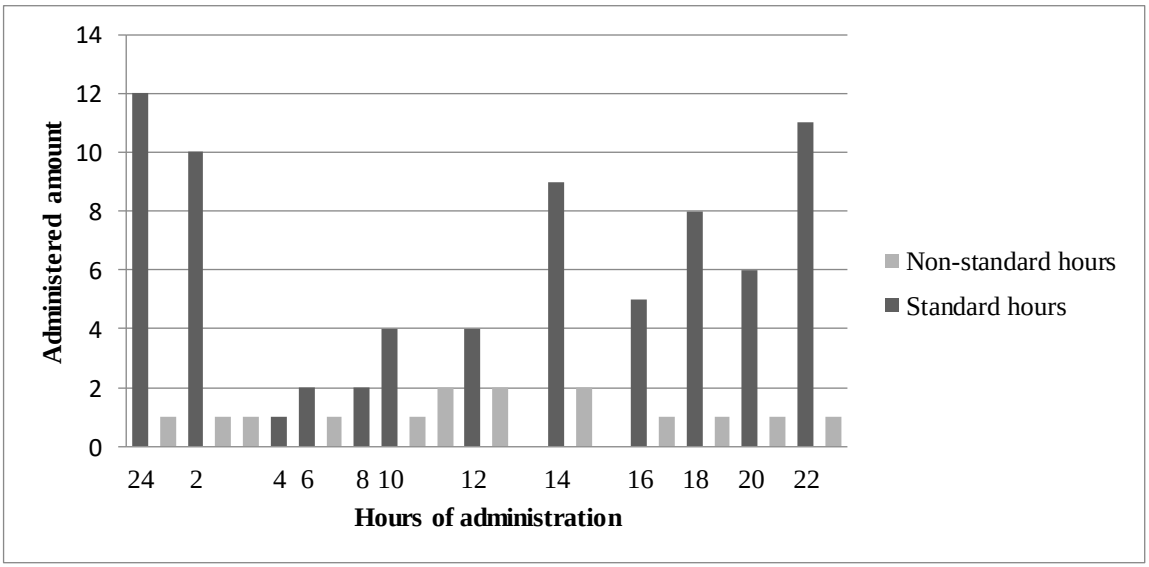

Figure 1 – Antibiotics administered according to the institution's standard hours versus non-standard hours. Santa Catarina, Brazil, 2019.

The highest proportion of antibiotics administered, at times standardized by the institution, occurred in the period from one to three hours after identification of the septic condition, followed by administration over a period of more than 6 hours, respectively (29.1%, 26.5%).

Discussion

The main results of this study, evidenced through the analysis of the records, indicate weaknesses of the nursing and medical team in the care of patients with suspected or confirmed sepsis or septic shock. The presence of incomplete or omitted information in the description of care activities may be related to the overload of the multidisciplinary team, resulting from the frequent overcrowding of emergency services, and the usual shortage of human resources.[16] Still, reflect the institutional practice of not reviewing processes,[16] in which healthcare teams make reports that do not contemplate the totality of the care provided.[17]

Research carried out with the objective of analyzing nursing records points out that among the main inconsistencies found are the absence of professional identification, checking the time of execution of actions and description of interventions performed, indicating that incomplete information, related to emergency situations, harms care and pose risks to patient safety.[18] Moreover, a study reports the difficulty of conducting research based on medical records, due to the presence of inconsistencies, lack of objectivity or lack of data.[3]

Another fact may be related to the professionals' lack of knowledge regarding what is recommended by the SSC in the management of septic patients. The guidelines, called the One-Hour Package, recommend that the administration of antibiotics, collection of blood cultures and blood gas analysis with serum lactate occur within the first hour of care as soon as the suspicion of sepsis is identified.[5]

The recognition of the patient with septic condition, in the hospital emergency unit, starts with the reception with risk classification, in which it is up to the nurse to carry out a quick assessment and determine the clinical urgency, in view of the signs and symptoms presented.[5] Early identification is fundamental for the treatment to take place

in a timely manner, in order to avoid the worsening of the clinical picture for septic shock, as this is associated with mortality rates of around 40%.[19] Healthcare professionals who are unprepared to manage potentially serious situations can impact on the quality of care provided and the patient's prognosis.[20]

The literature asserts the ability of vital signs to point out hemodynamically unstable patients to professionals, and reports the importance of constant monitoring in the clinical practice of nurses and physicians, as a priority activity before the occurrence of an adverse event.[21] Also, a review study corroborates the nursing team's responsibility to ensure that all vital signs are checked and recorded in the medical record, for safety and early identification of risk factors for clinical deterioration.[22]

Despite this, it is known that the appointment is a responsibility of the nurse.[23] As the leader of the nursing team, one must guide the care of other healthcare professionals and ensure that the necessary measures for the patient's treatment are carried out in a timely manner.[24] Delaying the recommended interventions, especially the administration of antibiotics in the first hour, is directly related to an unfavorable prognosis and an increased risk of death, estimated at 4% per hour of delay in treatment.[25]

As for verifying the medical prescription items, three medical records did not show the administration of prescribed antibiotics and crystalloids. Although it represents a small proportion, this fact may imply patient safety. Corroborating this finding, research carried out on the quality of nursing records reported that medical prescription items were found not administered, circulated or left blank, with no records in the evolutions and prescriptions to justify such a practice.[26]

Antibiotics are essential in the treatment of infectious conditions. The correct scheduling of the medication, considering its specificities, contributes to therapeutic success, in order to guarantee the maintenance of plasmatic levels and control of toxicity.[27] In septic patients, early antibiotic therapy, in order to control the infectious focus, is essential to restore hemodynamic parameters, therefore, in the face of a suspected case, it should be prescribed and started immediately.[19] In this study, the high number of antibiotics administered at times standardized by the institution. Practice that is not in line with SSC guidelines.

Studies that analyzed appointments made by nurses;[28-29] show the predominance of the activity performed according to pre-established schedules by the healthcare services. Most of these records did not match with the shift change or with the professionals' break period.[29] Although this practice is carried out with the aim of organizing the service, in view of the consequent reduction in the team, it does not consider the care particularities of the patients, which may compromise the effectiveness of the prescribed treatment.[29]

Care for patients affected by the syndrome requires immediate recognition and interventions from the nursing and medical team in order to provide a favorable prognosis.[30] Records are essential for a safe care practice, as they help professionals to resolve issues, identify changes and analyze the patient's hemodynamic response to the clinical approach adopted.[3]

In view of the above, the authors present limitations to the execution of the research in a single institution. Also, data collection from different types of medical records (physical and electronic) was a challenge, as it contained inaccurate or missing information. Hence, a thorough search of the records made in both medical records at the institution was necessary, in order to respond to the research objectives. It is suggested to carry out further studies with this theme, especially in hospital emergency sectors, as they represent the main entry point for septic patients, with the aim of analyzing the records made by the multidisciplinary team.

That said, it is important to highlight that the results of this study reflect the clinical practice of healthcare professionals, in view of the records of the actions they perform. Thus, it is essential for teams to be aware of the current SSC guidelines in the management of patients with suspected or confirmed sepsis, as well as the signs and symptoms suggestive of the syndrome.

In this meander, it is essential that the medical record contains reliable and complete information about the patient's health history, which provides a systematic and safe care practice that does not expose him to potential risks and injuries.

Conclusion

The analysis of the records of care provided to patients with a suspected or confirmed diagnosis of sepsis or septic shock, by the nursing and medical staff, demonstrates that the clinical practices of the professionals were not carried out as directed by the international guidelines for the treatment of the syndrome, recommended by the SSC.

The lack of notes on the clinical evolution, date and time on the prescriptions, vital signs, especially in patients with associated complaints, administration of the prescribed antibiotic in a longer time than recommended, as well as the prevalence of their scheduling at standardized times, indicate weaknesses in the work process of the nursing and medical teams that can impact the prognosis of patients.

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