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Care for the critical patient undergoing point-of-care testing: integrative review

Cuidados ao paciente crítico na realização do exame de imagem no leito: revisão integrativa

Cuidado del paciente crítico en la realización del examen de imagen en la cama: revisión integrativa

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ABSTRACT

Objective: to identify, based on the evidence, point-of-care testing in bedbound in critically ill patients. **Method:** integrative review, carried out through search in Pubmed, Virtual Health Library, Joanna Briggs Institute, The British Institute of Radiology, Brazilian Radiology, and Google Scholar databases. We used the PICO research strategy and selected articles published from 2013 onwards, which presented information about point-of-care testing. **Results:** the different interventions found in the analysis of the 23 selected articles allowed the thematic grouping of care related to safety in communication, patient identification, care with devices, and the prevention and control of infection, which can be used in point-of-care testing. **Final considerations:** The care described in the evidence provided support for validating a safe care protocol for critically ill patients undergoing imaging studies in bed.

Descriptors: Critical Care; Nursing Care; Patient Care Team; Point-of-Care Testing; Patient Safety.

RESUMO

Objetivo: identificar nas evidências os cuidados a serem aplicados na realização de exames de imagem no leito em pacientes críticos. **Método:** revisão integrativa. Realizada consulta às bases de dados: Pubmed, Biblioteca Virtual em Saúde, *Joanna Briggs Institute*, *The British Institute of Radiology*, Radiologia Brasileira e Google acadêmico. Utilizada a estratégia PICO de pesquisa, selecionados artigos publicados a partir de 2013, que apresentaram informações sobre cuidados na realização de exames de imagem no leito. **Resultados:** as diferentes intervenções resultantes da análise dos 23 artigos selecionados permitiram o agrupamento temático dos cuidados relacionados à segurança na comunicação, identificação do paciente, cuidados com dispositivos e prevenção e controle de infecção, os quais podem ser utilizados na realização de exames de imagem no leito. **Considerações finais:** os cuidados descritos nas evidências forneceram subsídios para a validação de um protocolo de cuidado seguro ao paciente crítico submetido a exames de imagem no leito.

Descritores: Cuidados Críticos; Cuidados de Enfermagem; Equipe de Assistência ao Paciente; Diagnóstico à Beira do Leito; Segurança do Paciente.

RESUMEN

Objetivo: identificar em la evidencia la atención que se debe aplicar al realizar pruebas de imágen esen cama en pacientes críticos. **Método:** revisión integradora. Se consultaron las bases de datos: Pubmed, Biblioteca Virtual em Salud, Joanna Briggs Institute, The British Institute of Radiology, Radiología Brasileña y académico de Google. Utilizando la estrategia de investigación PICO, se seleccionaron artículos publicados a partir de 2013, que presentaban información sobre laatención al realizar pruebas de imagenen cama. **Resultados:** las diferentes intervenciones resultantes del análisis de los 23 artículos seleccionados permitieron la agrupación temática de la atención relacionada com la seguridade en la comunicación, la identificación del paciente, la atención con dispositivos y la prevención y el control de infecciones, que pueden utilizarse para realizar pruebas de imagen em la cama. **Consideraciones finales:** la atención descrita em la evidencia proporciono apoyo para lavalidación de un protocolo de atención segura para pacientes críticos sometidos a imágenes de cama.

Descriptores: Cuidados Críticos; Atención de Enfermería; Grupo de Atención al Paciente; Pruebas em el Punto de Atención; Seguridad del Paciente.

INTRODUCTION

The World Health Organization (WHO) defines patient safety as reducing the risk of unnecessary harm associated with health care to an acceptable minimum. Risk is the possibility of an incident, which is an event or circumstance that can result in unnecessary damage. Damage is the impairment of the body's structure or function that causes physical, social, or psychological disability or dysfunction[1].

Patient safety in health services must be guided by safety evidence[2]. The main challenge for professionals working in critical care units is to ensure patient safety, given their exposure to risks with possible damage resulting from the various procedures of point-of-care testing. A critical patient is one who requires intensive care from a multidisciplinary team in specialized units[3].

To minimize these risks and promote safe care, WHO encourages the adoption of various guidelines related to proper care practices, among them the six International Goals for Patient Safety (IPSG). These goals aim to reduce risks and incidents regarding patient safety in health services, to correctly identify the patient, to improve effective communication, to improve the safety of high-alert medications, to ensure safe surgery, site procedure, and correct patient, to reduce the risk of health care-associated infections through frequent hand hygiene, to reduce the risk of patient harm resulting from falls and pressure injuries in hospital environments, to ensure quality in care environments[4-5].

The specialized units have different equipment for carrying out diagnoses and treatments, including hemodynamic monitoring, which is one of the most critical procedures for patient care in a critical unit, as it allows for accurate data that assist in rapid intervention, avoiding complications to the patient and failures in assistance[6].

Although monitoring is a non-invasive procedure, most procedures performed on critically ill inpatients are invasive, such as orotracheal intubation, tracheostomy, nasogastric or orogastric catheter, bladder, central or peripheral access. Hospitalization abruptly interferes with the subject's way of life, who is unable to exercise their autonomy, nor their attitudes, such as personal hygiene, food, eliminations, and others[7].

In this sense, it is possible that, in addition to invasive procedures, patients are subjected to point-of-care testing. The number of diagnostic tests has increased significantly in recent years, including computed tomography, magnetic resonance, hemodynamics, interventional procedures, and X-rays[2], being the X-rays and ultrasonography (US) frequently used at point-of-care testing for their portability and accessibility[8].

Critical patients are subjected daily to various point-of-care testing, which has an inherent risk to the procedure. These risks, as well as the complexity of the patients, demand specific attention and care from the professionals.

Given the technology used in critically ill patients, a trained, agile team capable of predicting risk situations is necessary, avoiding injuries to the patient[9]. The nurse who works in critical units must ensure safe and humanized care with the team, being in charge of evaluating the patient and the situations to which he/she is exposed and systematizing the assistance, choosing the most appropriate resource or care[6]. A prepared professional is required, able to attend to physiological changes, complications, and the patient's needs during treatment[10].

The investigation of the theme emerged from the identification of the knowledge gap regarding the necessary care for point-of-care testing in critically ill patients.

OBJECTIVE

To Identify the scientific evidence on safety care for critically ill patients undergoing point-of-care testing.

METHODS

Study design

We opted for an integrative literature review, which is a method that groups and synthesizes results, as it elaborates a comprehensive explanation of a specific phenomenon. Consequently, the conclusions are established through a critical evaluation of different methodological approaches[11].

Methodological procedure

The stages were: identification of the theme and selection of the research question; establishment of inclusion and exclusion criteria; identification of pre-selected and selected studies; categorization of studies; analysis and interpretation of results; and, finally, the presentation of the knowledge review/synthesis[12]. The guiding question is: What are the necessary precautions forsafety point-of-care testingin a critical patient?

Data collection and organization

From October 2017 to January 2018, we checked the following databases: Virtual Health Library (BVS), Joanna Briggs Institute (JBI); The British InstituteofRadiology (BRI); Brazilian Radiology(CRB) and Google Scholar. Articles in English, Spanish, and Portuguese, available in full, published from 2013 onwards, withabstracts and information on safety point-of-care testing for critical patients, were included. Duplicate studies in different databases, and that did not meet the inclusion criteria were excluded.

PICO strategy was adopted. In its acronym, the letter P stands for patients or population, in this case, are the patients (adult, pediatric and neonatal), submitted to point-of-care testing for diagnosis, which include Radiology exams (X-ray), Ultrasound, Echocardiography, Endoscopy, Fibrobronchoscopy, Electroencephalogram and Colonoscopy; I stands for intervention or indicator, defined by the safe care for the patient submitted to imaging exams/diagnoses (safe care is to perform the imaging diagnosis without incidents with or without damage); C stands for comparison or control, which does not apply to this research; and O stands for outcome, which means clinical outcome, result, safe care in making the image diagnosis without exposing the patient to falls, loss of devices (monitoring electrodes, catheters, probes, drains and/or dressings), extubation, bronchoaspiration, bleeding, cross-infection and pain during the imaging exam[13].

Medical Subject Headings (MeSH) descriptors and Health Sciences descriptors (DECS) were defined and then articulated with Boolean operators: OR and AND (Diagnostic imaging OR

Patient Safety OR Critical Care OR Nursing Care OR Point-of-Care Testing OR Diagnostic Techniques and Procedures OR Neurologic Examination OR Diagnostic Techniques; Neurological OR Diagnostic Techniques, Cardiovascular OR Diagnostic Techniques digestive System OR Endoscopy OR Digestive System OR Radiology OR Radiology Interventional OR Diagnostic Techniques); (Care protocol AND Diagnostic imaging OR Cross Infection OR Airway Extubation OR Pneumonia OR Aspiration OR Respiratory Aspiration of Gastric Contents OR Accidental Falls OR Monitoring OR Device Removal OR Pain).

Work stages

The initial search found 5,175 articles. After reading all titles, abstracts, 101 articles were selected for full reading, resulting in 23 articles suitable for analysis.

Two researchers stated the relevance of the selected evidence concerning the research objective. For data extraction, an instrument containing: article title, authors, periodical (volume, number, page and year), objective, method, main results and conclusion, showing the care to be applied to critical patients submitted to bed image was created, and these were recorded in a Microsoft Office Excel® spreadsheet.

Figure 1 illustrates the selection process for the articles in this integrative review.

RESULTS

The 23 selected articles were published in the following years: nine, in 2018; five, in 2017; four, in 2016; four, in 2015; and one publication in 2013.

Chart 1 show the main results of the 23 selected publications, highlight the characterization of the evidence, the methodological aspects, and the results.

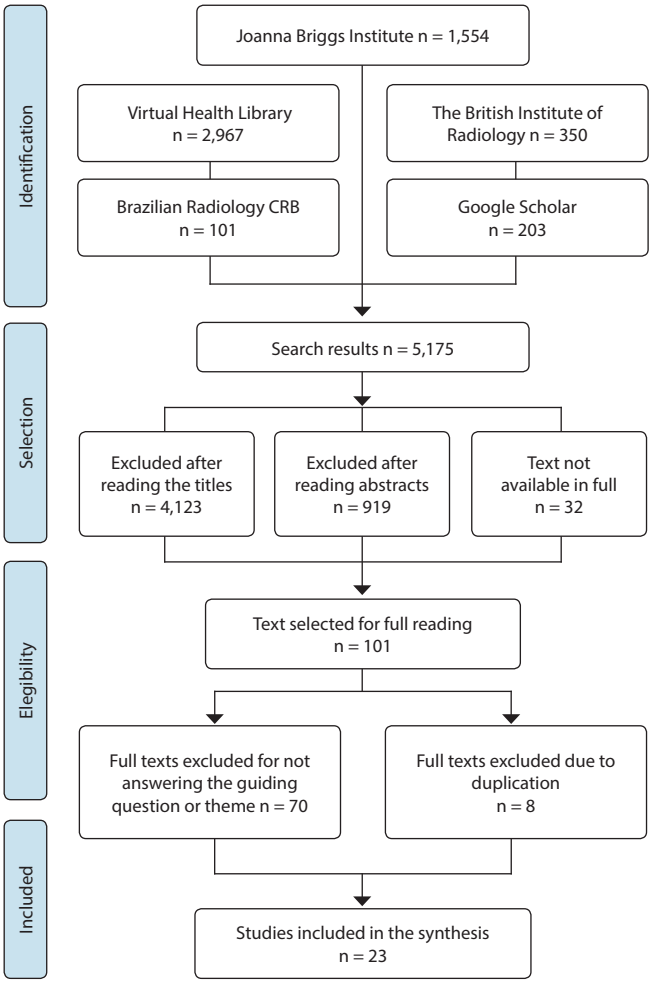

Figure 1 –Diagram of identification, selection and inclusion of integrative review studies

Chart 1 - Characterization and main results of publications included in the integrative review in selection order

Article / journal/year	Tipyofstudy / sample	Objective	Mainresults
A1[14] Arq Bras Cardiol: Imagem Cardiovasc. 2016.	Observation and evaluation of image quality in regarding to the decubitus position. Total of 67 patients.	To assess whether changing the patient's position during the exam could have an influence on the technical quality of the images and whether additional factors could limit collecting adequate images in the bed.	Patient's positioning on the bed is extremely important for obtaining good quality images. About 90% of the images were considered good/excellent when the patients were placed in the Left Lateral Decubitus.
A2[15] Revista Brasileira de Enfermagem. 2017	Descriptive study, with a quantitative approach of methodological validation of an instrument.	To develop and validate a nursing care protocol for patients with Ventricular Assist Device (VAD).	Protocol composed of 10 actions: the appropriate nutritional support, the assessment of the patient's pain, the correct analgesia and the prevention of infectious processes are highlighted.
A3[16] Acta Scientiarum. Health Sciences. 2016.	Prospective observational study. Adult patients undergoing thoracic drainage with a water seal.	To evaluate the management of closed chest drainage systems through the analysis of adult patients, as well as standardize the care protocol for chest drainage and minimize its complications.	Protocol composed of 12 actions. Therapeutic success is evidenced and it is directly related to the qualification and continuous training of the patient's caregivers undergoing chest drainage.
A4[17] Essentia. 2017	Integrative Review. A total of 12 articles were selected.	To identify the scientific evidence about the nursing care provided to patients undergoing mechanical ventilation in the ICU.	Nursing care for artificially ventilated patients requires nurses to have prior knowledge and skills so that patients' care needs are met.
A5[18] Revista Gaúcha de Enfermagem. 2015	Cross-sectional, analytical study with a quantitative approach. A total of 793 observations were made.	To identify the adherence of health professionals in an Intensive Care Unit regarding the five moments of hand-washing (HW) recommended by WHO.	In 446 (56.2%) observations, there was no HW. HW with soap and water was more frequent (32%) compared to rubbing with alcohol (11.8%). The HW adherence rate was 43.7%.

To be continued

Chart 1

Article / journal/year	Tipyofstudy / sample	Objective	Mainresults
A6[19] Revista Brasileira de Enfermagem. 2015.	Methodological study. Participation of five specialists.	Check the positioning recommendations of newborns (NB) and build a standard operating procedure protocol (SOP) for positioning NBs in the Neonatal Intensive Care Unit (NICU).	Correct positioning of the premature baby: head of the bed raised to 30°. Positions: a) flat or supine position: maximum flexion and support of the scapular zone; b) Lateral decubitus: Slight flexion of the trunk and head in the midline and flexion of the arms; c) prone position or pronation: flexion of the spine, slight pelvic elevation, correct feet angle and nesting.
A7[20] International Journal of Evidence-Based Healthcare.2015	A convenience sample, selected 33 nurses.	To identify the best available evidence and develop an evidence-based clinical audit project to use as a guide to assess current nursing, practice and implement a change strategy to increase compliance with best practice standards for nursing in patients with chest tubes.	A total of 94% of participants agreed that the use of the checklist improved patient care and 90% agreed that it was useful for performing physical examinations on patients. Regarding workload: 35% of nurses did not notice an increase in workload.
A8[21] Radiologia Brasileira. 2015.	Literature review, without description of the method used.	To review the main concepts related to the topic addressed in order to better understand them, thus making it possible to establish strategies for safe practice without compromising the quality of the exam and the operator's productivity.	The use of gloves is recommended during all tests and should be used to remove the used preservative and to wash the transducer. Hand asepsis is essential for starting a new exam. Cleaning/ disinfecting the probes should be systematic and routinely.
A9[3] Revista Online de Pesquisa: Cuidado é Fundamental. 2018.	Descriptive, retrospective, documentary research with a quantitative approach. A total of 360 printouts were analyzed.	To analyze the unplanned removal of invasive devices in an intensive care unit.	The enteric catheter for food stood out among those devices removed in an unplanned manner (42%). The reasons for which the removal was done were: removed by the patient (33%), obstruction (30%) and accidental loss (21%).
A10 [22] JBI Database of Systematic Reviews and Implementation Reports. 2018	Systematic review. It included patients who underwent a CT scan with contrast.	To identify risk factors and interventions that prevent or reduce the extravasation of the contrast medium in patients undergoing computerized tomography examination.	The amount of extravasated fluid, the venous access and the catheter's permanence time and the patient's characteristics can be a risk factor for extravasation, recent hospitalization.
A11[23] Journal of Specialized Nursing Care. 2018	Descriptive research carried out through systematic bibliographic review. A total of 10 articles were selected.	To review the evidence-based guidelines that will assist the intensive care nurse in the identification and prevention of Surgical Site Infections (SSI) in the postoperative period of cardiac surgery, in the Intensive Care Unit.	Proper assessment of the surgical site is important. The nurse has a central role in the maintenance of the surgical dressing and in the evaluation of the surgical wound, in order to detect early complications of infection.
A12[24] Journal of Specialized Nursing Care. 2018	Integrative bibliographic research. A total of 12 articles were selected.	To analyze the scientific evidence available for the prevention of infection associated with bladder catheterization, with emphasis on the Intensive Care Unit, through nursing interventions.	Nurse qualification guarantees the quality of the care provided to the patient, and it must follow protocols and guidelines as a way to avoid damage to the health of the patient who is already hospitalized in ICUs.
A13[25] Journal of Specialized Nursing Care. 2018	Integrative literature review. A total of 10 articles were selected.	To review evidence-based guidelines that will assist the intensive care nurse in identifying and treating nursing care conduct related to infection control related to the Central Venous Access device.	Through good practices in the insertion, handling and removal of the central venous catheter, nurses can develop mechanisms to prevent infections related to the use ofCVC.
A14[26] Revista de Administração em Saúde. 2018	Clinical audit study, control and system review. With a total of 15 participants.	To evaluate CVC-related nursing care in adult and pediatric Intensive Care Units to compare the conduct to the standardized protocol in the institution and analyze the results, based on the ANVISA guide entitled "Health Care-Related Infection Prevention Measures" 2017.	Regarding the use of PPE (gloves, mask, glasses and cap) while performing CVC dressings, it was noticed that 1 (6.7%) nurse did not use sterile gloves during the procedure, 4 (26.7%) did not wear a mask, 14 (93.4%) did not wear glasses, 3 did not wear a cap (20.0%).
A15[27] Revista Brasileira de Enfermagem. 2018	Descriptive and cross-sectional study, with 50 nurses.	To describe determining factors in the management of the hand hygiene procedure performed by a group of nurses in Internal Medicine services and to identify possible challenges for public health.	A total of 90% consider respecting the existing hand hygiene recommendations at the stipulated times. However, none of the moments of hand hygiene with water and soap were identified by all respondents.
A16[28] Revista Uningá. 2016	Integrative literature review, with a qualitative approach, totaling 22 selected articles.	To characterize the scientific production on biosafety and precaution in the ICU and to describe the factors that contribute to the healthy environment in the ICU and the habits of professionals, from 2003 to 2012.	Professionals neglect biosafety in their daily work routine, exposing themselves to occupational risks, a result strongly influenced by organizational issues of the health institution itself.
A17[29] DisciplinarumScientia. Ciências da Saúde. 2017	Integrative literature review. A total of 8 publications were selected.	To identify scientific productions at national and international level on patient identification through the use of wristbands and their implications for safe care in the hospital context.	It was evident, the multiplicity of factors involved in such a process and the great challenge of health institutions in reaching acceptable levels of conformities regarding the identification process.

To be continued

Chart 1 (concluded)

Article / journal/year	Tipyofstudy / sample	Objective	Mainresults
A18[30] Escola Anna Nery. 2018	Integrative, exploratory review study, which resulted in 15 articles.	To look for scientific evidence on the practice of handoff in the ICU regarding the safety of team members' communication about the hospitalized patient.	Missing, incomplete, or wrong information in the handoff is highlighted, due to the lack of standardization and preparation of this activity, causing a delay in procedures or that are wrong or not performed. The use of instruments reduces the amount of information neglected, casual conversations, and errors, improving team satisfaction.
A19[31] Revista Eletrônica Acervo Saúde. 2018	Integrative literature review. A total of 6 articles were selected.	To analyze nursing care for bedridden patients in the ICU through a literature review.	Most studies evaluated the nurses' actions and the need for a trained and experienced intensivist to guarantee the quality of life of patients who need their care.
A20[32] Revista de Saúde Pública do Paraná. 2017	Exploratory-descriptive study, based on documents and quantitative approach. Direct observation of 61 beds.	To assess the adherence of health professionals in the five moments of hand hygiene in the ICUs of a pediatric hospital.	It is observed that, just before contact with the patient, there is a more significant concern for HM. The training of the multidisciplinary team must be carried out continuously to raise awareness of risks and prevent hospital infection to which patients are exposed.
A21[33] Revista de Enfermagem do Centro-Oeste Mineiro. 2017	Laboratory analysis of 14 swabs was performed.	To analyze contamination of equipment in an intensive care unit before and after cleaning and disinfection and propose a protocol for decontamination.	In the pre-disinfection, the bedside table, the computer keyboard, and the telephone presented negative growth of staphylococcus coagulase. The phone remained contaminated after cleaning and disinfection. The medication preparation bench, the glucometer, the nursing scale, and the monitor did not show contamination before or aftercleaning/disinfection.
A22[34] Rev Latino-Americana de Enfermagem. 2016	Systematic literature review. A total of 13 articles were selected.	To describe the strategies that health professionals use in the implementation of the guidelines issued by the Centers for DiseaseControlandPrevention in the prevention of urinary tract infection associated with bladder catheterization.	It was identified: reminder systems to decrease the number of people submitted to urinary catheterization; audits on the practice of nursing professionals, application of bundles and removing the catheter when unnecessary, which allows reducing the rate of catheter-related urinary tract infections.
A23[35] Revista Eletrônica de Enfermagem do Vale do Paraíba. 2013	Descriptive exploratory cross-sectional study, with statistical data. A total of 130 patients were admitted, reaching 1107 patients/day.	To identify the number of nosocomial infections associated with the use of the central venous catheter and propose the use of the infection prevention bundles method, contributing to the quality of care provided to the client.	Among the 1107 patients/day with CVC, the majority of infections were caused by Staphylococcus aureus, which is removed with a simple hand washing to avoid, bundles appear, which are simple and effective measures.

DISCUSSION

The different interventions resulting from the search were grouped according to the care used to perform imaging tests at the bedside, which contribute to safe care in terms of communication, patient identification, device care, prevention, and infection control.

In this sense, several actions when carried out properly transform care and prevent damage. Identifying patients correctly[29] and improving the effectiveness of communication[30] between healthcare professionals are the first two international goals for patient safety[36].

Among the main failures in the care of critically ill patients is the transfer of information related to the care provided, which affects the quality of care, resulting in delayed, duplicated, or wrongly performed interventions[30]. It is frequent to cancel exams for not having the necessary fasting time or to keep the patient's fasting even after the cancellation of these procedures[37]. Thus, having effective communication techniques, such as the use of clear and structured language, guarantees these curity of information and the continuity of assistance[38].

Likewise, patient identification is necessary to avoid misunderstandings due to lack of documents, namesake names, names of another nationality, changes, or difference in the date of birth and failures to include data in the system. Such situations hinder the correct identification of patients and favor the exchange of exams, procedures, and exchange of information passed on during the shift change[38]. It is crucial to ensure that an individual undergoing treatment is the one who is hospitalized in a particular unit or subjected to a specific examination or procedure, thus preventing failures, errors, or mistakes[39].

Several factors are involved in the identification process that makes it a great challenge for health institutions. To develop strategies that promote continuous improvement of the process, proposing and implementing the promotion of the institutional safety culture, such as the involvement of managers, assistance teams, if necessary[29].

This review allowed the identification of care with devices, whether invasive or not[3,15-17,20,22-26,34-35] and care performed with positioning in the bed[14,19]. Among the devices used as resources for the treatment of critically ill patients are orotracheal tubes, tracheostomy tubes, central venous catheter, peripheral venous catheter, arterial catheter, nasogastric tube, or nasoenteric tube, catheter-delay bladder and drains[3]. And the inappropriate handling of these devices place the clientele at risk[25].

The actions listed in studies that discuss the protocol of care with drains[16] and bypasses[15] propose actions and suggest the

appropriate management with the devices, the use of specific materials and equipment, which reduce the damage and decrease the associated morbidity to the method used[15-16]. Making a checklist that works as a care guide is proposed as a strategy that allows nurses to detect earlyproblems with the procedure, preventing the occurrence of adverse events[20].

The removal of the ventilatory device in an unplanned way, called accidental extubation, can cause complications to the treatment and damage the patient's health, mainly if it occurs in patients with a decreased respiratory stimulus, sedated patient, or with neurological injuries[40].

For this, a study[41] demonstrates that careful positioning is essential, with the patient's decubitus change or mobilization being the main situations considered critical associated with accidental extubation, and that must be continuously observed.

In one of the studies[19], a positioning protocol for the newborn was created which is essential for these patients, as it assists in the neuromuscular development of the patient and reduces changes and complications. Positioning is also crucial during the X-ray for confirmation of the chest drain, a technique that requires mobilization of the patient immediately after the insertion of the drain and whenever traction is suspected[16]. In addition to the risk of traction and accidental removal, it can still cause pain during the imaging exam[19].

Another important aspect analyzed was the performance of echocardiography exams in bed, which despite this modality eliminates the risk of transporting the patient to the exam sector, the result may be impaired due to inadequate images, as positioning is crucial to obtain good exam images. Thus, the left lateral decubitus position is recommended for bed echocardiography exams[14].

Another device that is widely used and requires specific care is the nasogastric or nasoenterictubes. A study[3] showed that these devices removed in an unplanned manner, being removed by the patient, due to obstruction, accidental loss or damaged device.

The use of venous catheters in critical units is common and avoiding infections is extremely important, therefore, it is necessary to clean hands, perform insertion maintenance, carry out daily monitoring, observe phlogistic signs, perform dressing, handle the catheter carefully follow-up infusions such as the use of contrast for exams[25-26,35]. A study[22] suggests that, to avoid contrast leakage, the professional should use strategies for patient safety, including reducing the injected volume and quickly detecting the leakage.

The nurse plays a central role in maintaining the surgical dressing, in the evaluation of the surgical wound[23] and in the evaluation of signs of urinary tract infection, as well as the need for urinary catheterization and when to remove the catheter[24]. Care with the fixation and traction of these devices are essential to avoid infection and complications for the patient.

In this perspective, the analysis shows that hand hygiene[18,27,32], the use of personal protective equipment (PPE)[28] and the cleaning of equipment and surfaces[21,33] are relevant regarding to the safety of the care provided, although often ignored by professionals.

Data from a survey[27] showed that in 56.2% of the procedures observed, hand hygiene was not performed, and professional nurses, nursing technicians and doctors had less than 50% adherence in the observed behaviors. Another study[18] revealed that out of the 793 observations, 56.2% of them did not have hand hygiene, resulting in an adherence rate of 43.7%. In a third study[35] of 1107 patients/day with Central Venous Catheter (CVC), 14 were infected with *S. aureus*, which are removed with simple measures such as hand hygiene.

Professionals are often careless and exposed to occupational risks, either due to non-adherence to the use of Personal Protective Equipment (PPE) or due to poor hand hygiene[25].

Hands are the primary source of contamination and the spread of infection. Despite being a simple measure and inserted in the daily routine of health professionals, most professionals do not perform hand hygiene at the moment after contact with areas close to patients[32].

The decontamination of surfaces, materials, and equipment is part of the provision of care, as they are always in contact with patients and the professionals involved in the assistance. The presence of dirt or organic matter on surfaces, equipment, and materials contributes to the transmission of microorganisms. Therefore, in addition to hand hygiene and the use of PPE, cleaning, and disinfecting surfaces is of paramount importance to prevent health-related infection[33].

Adherence to the five moments of hand hygiene is recommended by the World Health Organization (WHO) which must be carried out: before contact with the patient; before performing the procedure; after risk of exposure to biological fluids; after contact with the patient; and after contact with areas close to the patient, even if he has not touched the patient, caring directly or indirectly for the patient[42-43].

Care for critically ill patients undergoing point-of-care testing must be based on scientific evidence, finding strategies that promote the efficient and safe management of the procedure is necessary to significantly decrease the practice and behaviors not recommended by the guidelines[27]. The entire multidisciplinary team must promote an appropriate intervention to guarantee the quality of care delivery to bedridden patients[31].

Study limitations

This research was characterized by intense research and search for evidence for the construction of the protocol. The most considerable limitations of this study are the scarcity of specific literature on the care of critically ill patients when carrying out the image examination in bed and the lack of full articles.

Contributions to the Area

It is expected that this research contributes to the practice of the multi-professional team, and stimulate other production linked to safety in the care provided to critical patients, during the performance of imaging tests.

FINAL CONSIDERATIONS

Safe care is a challenge for institutions and health professionals, and it is relevant to carry out procedures that prevent adverse events in point-of-care testing.

It is necessary to train professionals concerning the safety of actions related to bedridden care, the involvement of the patient

throughout their hospitalization, and the strengthening of strategies based on the evidence and permanent education of the team.

The prevention and management of risk incidents in health institutions and the encouragement of reporting them, aim to improve the quality and safety of care processes.

Although the care described in the selected evidence has provided subsidies for the validation of a safe care protocol for critical patients undergoing bed imaging, specific studies are needed on the patient's safety undergoing point-of-care testing and on the competence of professionals from the multidisciplinary team involving care.

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