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Specialized Nurse Care for the Patient With an Internal Tracheotomy Cannula in the Intensive Care Public Hospital of Peru

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ABSTRACT

In the intensive care unit (ICU), specialized critical care is provided to patients with multi-organ problems resulting from multiple diseases, requiring invasive and intensive care, therapy and monitoring with the support of high-tech equipment (Moreno et al., 2021). The general objective was to collect evidence to generate specialized nursing care guides for patients with internal tracheostomy cannula in intensive care units (ICU) in public hospitals of the Minsa of Peru. A type of secondary research was developed with an Evidence-Based Nursing methodology, formulating the PICOT clinical question: What are the nursing care that must be performed to avoid complications in the intensive care unit patient with internal cannula? For the collection of information, the following techniques and instruments were used, systematic review, for the bibliographic search, Google Scholar, Pubmed search engines were used, as well as databases: Science Direct and SciELO, finding a total of 7 investigations that They were evaluated through the Gálvez Toro validation guide, then the Boverieth Astete checklist, finally the level of evidence is given through the list of the USPreventive Services Task Force (USPSTF) the review had a level of evidence III (Referring to the opinion of experts based on clinical experience) had a grade of recommendation B, based on the GRADE classification system. The results obtained show 12 relevant care such as: Secretion aspiration, stoma cure, tracheal cannula changes, decannulation, expulsion of the mucous plug, hydration of the patient, treatment with mucolytics, humidification of the environment with mucolytics, respiratory physiotherapy, avoiding bleeding, prevent infection of the stoma, cleaning the cannula. It is concluded that the use of electronic equipment allows the nursing professional to provide specialized care to the patient with tracheotomy, evidence that at the same time allows the addition of guidelines in which care is unified in the Intensive Care Unit (ICU).

Keywords: Intensive care unit (ICU), Care, Tracheotomy, Inner cannula, Critical patient

INTRODUCTION

The intensive care unit; Also known as UCI or ICU (Intensive care unit), it is an area where specialized critical care is provided to people with multi-organ failure, resulting from various diseases or complex traumatisms; that requires invasive and intensive care, therapy and monitoring, with the support of high-tech equipment (Moreno & Gonzalez, 2011). The critically ill patient in the Intensive Care Unit frequently requires assisted mechanical ventilation, the intensive care physician provides it through endotracheal intubation or tracheotomy. These two have an artificial airway, in case of need for mechanical ventilation.

There is evidence that the number of patients needing tracheostomy in intensive care units has Cox et al. reported that the incidence of tracheostomy for prolonged mechanical ventilation increased by 200 percent between 1993 and 2002 (Oropesa & Pozo, 2009). With the recent appearance of the new techniques of percutaneous tracheotomy, we see how it enters into a new element of discussion, which in turn can be of capital importance in resolving the eternal controversies on the subject. This access may be that intermediate point, whose absence has been impossible for more than two centuries, a consensus regarding the maintenance of the airway in patients undergoing mechanical ventilation.

This technique seems to constitute a novel evolution with respect to the classic surgical technique, providing all the advantages of this access, while trying to improve and even solve its most negative aspects.

It is designed to be implemented in the patient's own bed, dispensing with the operating room, providing simplicity of performance, being easy and fast techniques, requiring less equipment and healthcare personnel, reducing the cost of their implementation, and they are safe and reliable techniques (Marco et al., 2011).

A very important point, in addition to the surgical technique performed, is nursing management, since its efficiency will depend on the result of the tracheostomy, avoiding many of its possible complications (Poza et al., 2008).

The manipulation of the cannula, be it intubation, cleaning of the cannula or changing it, must be carried out with all the rules of asepsis using sterile gloves. In the same way, tracheobronchial aspiration, culture taking of the secretions and healing of the surgical wound (Lopez et al., 2002). It is essential to humidify the inspired air with continuous instillations of physiological serum or use of humid gases around the tracheostoma.

Despite its advantages and benefits, percutaneous tracheostomy is not free from intraoperative (within 24 hours), early (between the first and seventh day) and late (after the seventh day) complications (Hernández et al., 2007).

Probably, 5% of patients who undergo percutaneous tracheotomy present bleeding within 24 hours of performing this intervention, as well as laryngeal, tracheal and paratracheal injury, wound infection, subcutaneous emphysema, pneumothorax secondary to barotrauma produced by excessive positive pressure that causes alveolar rupture, obstruction of the cannula by secretions, displacement of the cannula towards soft tissues or against the tracheal wall, possibly injuring them, secondary bleeding due to the small incision made,

subsequent complications can present as infection of the incision or of the respiratory tract, they may present swallowing problems, tracheal stenosis due to balloon inflation or forced angulation of the cannula, tracheoesophageal fistula secondary to hyperinflation of the pneumotamponade balloon (Romero et al., 2009; Ramos et al., 2010).

From the way that the nursing work handles the care of the tracheostomy patient, the success and well-being of the patient arose (Ministry of Health, Social Services and Equality [MSSSI], 2010).

In a public hospital in the city of Chiclayo in Peru, in the ICU area, nurses are responsible for providing care to patients with tracheostomy, it was evidenced that in daily practice the importance of nursing care in this type of patients and that must be carried out by a nurse who is prepared and specialized for the care of the patient undergoing tracheostomy. Since we know the purpose of nursing care in patients with tracheostomy is to keep this path permeable and to avoid complications that could arise during the postoperative period, it was discovered that in the care provided by the nurse in the ICU there are not unified criteria for care. of the tracheostomy cannulas that they provide in this type of patients.

Only from the common study, adding experiences and knowledge, can the study of this complex topic be considered, making a summative effort on the part of the ICU-NICU services to provide the best nursing care in patients undergoing tracheostomy in order to to provide greater patient safety and avoid possible complications. It is for this reason that the authors intend to study in detail that nursing care in patients with tracheostomy be of a higher quality and with a specialized professional, pointing out the importance of care after the procedure itself, since nursing management is directly related to its success.

Given this daily situation in the ICU service, the question arises to develop this research: What are the nursing care that must be carried out to avoid complications in the intensive care unit patient with internal tracheostomy cannula?

The main objective of this research will be: To know through the secondary review the care that will allow us to avoid possible complications in the patient with tracheostomy and then to publicize the results and implement the care.

METHODOLOGICAL FRAMEWORK

Type of Investigation

The present work is a secondary investigation, which is defined as a commentary or analysis of a primary source, are those that are subject to a peer review, which must be well documented and are normally supported through institutions where the accuracy methodology is important for the prestige of the author (Ministry of Health and Social Welfare, 2012).

The validity of this type of sources lies in the fact that they are obtained by trustworthy sources, public institutions and some specialists in the subject, before concretizing as secondary sources; It is true that they were primary sources, however, when accepted by society, they are obviously true

and accepted sources of information, and even be considered as part of our history (Palacios et al., 2016).

This type of research has advantages such as: It can solve the problem without the need to obtain information from primary sources, it presents low search costs, in relation to primary sources, even if they do not solve the problem, they can help to formulate a hypothesis about the solution (Pedrolo, 2007).

Methodology

The evidence-based methodology was obtained, which implies research to introduce changes in practice, using the research findings to support the management of nursing care. Evidence-based nursing involves the use of quantitative and qualitative research that allows for quality evidence to be sought beyond research design. It implies recognizing what degree of evidence I have, how certain the research on which I base nursing care is (Serrano, 2003).

But how to practice nursing and provide severe nursing care in the evidence? For this, five articulated steps have been determined to apply it:

Converting the information needs into questions that can be answered, the needs directly related to the subjects of attention and our particular needs for knowledge are a source for the formulation of questions, therefore, to the extent that we seek answers for them, we will be reinforcing our curiosity, our reasoning, and our feelings of satisfaction with what we do.

Locating and retrieving the best evidence as efficiently as possible, through a systematic and structured procedure to search for scientific information, it is about locating the best recommendations based on research to answer the clinical question. Because the research question is addressed to the intensive care area, the research work carried out in said area was analyzed.

Critically evaluate the evidence found, it is a process in which the design and methodology of a study, the quality of the data are evaluated, and the results are analyzed and interpreted. We have instruments, such as critical reading guides, that make this task easier. In addition, the critical reading allowed an analysis of the context in which the evidence located in the previous phase is intended to be implemented. The data obtained were evaluated according to methodology and design, considering who carried out the investigations, because in this area there are few published investigations by nursing staff that focus on patient care.

Apply the evidence to clinical practice.

Evaluate the effectiveness and efficiency of our interventions.

It should be noted that in this research the first three stages of Evidence-Based Nursing will be developed and will conclude with a proposal for the dissemination of the results.

Hsi as a Supportive Framework for Design and Modeling

Question: What are the nursing care that must be carried out to avoid complications in the intensive care unit patient with internal tracheostomy cannula?

Table 1. Formulation of the question and feasibility.

Formulation of the Question and Feasibility		
P	Patient or Problem	Patients hospitalized in the ICU of the H.N.A.A.A with tracheostomy tube
I	Intervention	There are no unified criteria for care in the critically ill patient with a tracheostomy cannula.
C	Comparison or Control	Carry out nursing care to the patient in the ICU with a tracheostomy cannula under a guide or a protocol that protects nursing actions.
O	Outcomes or Results	Safe care, Support for nursing, Patient well-being, Avoid complications, Cannula patency
T	Research Design Type	Descriptive, narrative Oxford-Centre of Evidence Based Medicine.

Note. Oxford-Centre of Evidence Based Medicine.

Feasibility and Relevance of the Question

Knowing what nursing care is provided to patients with tracheostomy cannula from other scenarios unrelated to ours, will be beneficial for the critically ill patient, which would entail keeping the airway permeable to facilitate therapeutic gas exchange in patients with tracheostomy. and will allow to avoid possible complications.

This question also made it possible to generate knowledge for nursing action, as well as to implement said care for the benefit of the critically ill patient and with evidence-based support.

It is a viable and interesting question to answer through existing research related to the topic addressed.

Synthesis of the Evidence Found through the Gálvez Toro Apparent Validity and Usefulness Guide: Product of the Apparent Validity, Usefulness and Applicability Guide.

Checklists

Determine the articles to which the expanded checklist was applied depending on the research methodology.

CONCLUSION

It is concluded that the use of electronic equipment allows the nursing professional to provide specialized care to the patient with tracheostomy, evidence that at the same time allows adding guidelines in which care is unified in the Intensive Care Unit (ICU). 12 relevant cares for the tracheotomized patient are disclosed.

Aspiration of secretions: The aspiration of secretions must be carried out with a suction tube (n0 12/14 in women and 14/16 in men), the pressure exerted must be between 80/120mmHg, it must be aspirated with rotary

Table 2. Formulation the results of the use of the apparent validity, usefulness and applicability guide should be recorded in this table.

Evidence Synthesis			
Article title	**Type of Research -Methodological**	**Result**	**Decision**
1.- Tracheostomy inner cannula care: A randomized crossover study of two decontamination procedures.	Randomized single-blind comparative crossover study	Only answer 3 out of 5	Cannot be used
2.- Information that nursing professionals have about the care of patients with tracheotomy. Intensive Care Unit of the Hospital DR. Ricardo Baquero González. Second semester Year 2005.	Descriptive and transversal	Only answer 3 out of 5	Cannot be used
3.- Nursing care for people with tracheostomy: A study from the perspective of the family caregiver.	Qualitative	Only answer 4 out of 5	Cannot be used
4.- Care plan in patients with percutaneous tracheostomy	Descriptive Narrative	Only answer 4 out of 5	Cannot be used
5.- Description of the clinical outcomes after the implementation of a tracheotomy protocol.	Observational	Only answer 3 out of 5	Cannot be used
6.- Description of the most frequent care for the adult tracheostomized patient.	Narrative descriptive	Answer all questions	Pass the list
7.- Preparation of a guide for the management of patients with a tracheostomy in hospitalization floors.	Observational	Answer all questions	Pass the list

Note. Evidence Synthesis

Table 3. Checklist according to article and its level of evidence.

Checklist according to article and its level of evidence			
Article title	**Type of Research - Methodology**	**List to use**	**Nevel of evidence**
6.- Description of the most frequent care for the adult tracheostomized patient.	Descriptive Narrative	Critical reading of original articles on health Bobenrieth Astete	III B
7.- Preparation of a guide for the management of patients with a tracheostomy in hospitalization floors.	Clinical Practice Guide	SPANISH -AGREE	I A/B

Note. Check list

movements and with a duration of less than 10 seconds, the appearance of the secretions is finally observed.

Cure of the stoma: The cure must be carried out around the stoma every 12 hours in order to avoid infections, it must be carried out with physiological saline and with a sterile technique, monitoring the symptoms of infection. The

patient should be in the semi-fowler position with the head slightly extended. Finally, to avoid pressure ulcers and protect the stoma from secretions, a tracheal bib will be placed.

Tracheal tube changes: The change of the cannula must be carried out using an aseptic technique, explaining the procedure to the patient and it must be carried out every 8 hours. First of all, the patient should be hyperoxygenated and aspirate and aspirate the trachea if necessary, the cannula is withdrawn in an anti-clockwise direction, holding the wings of the mother cannula, to avoid its mobilization.

Decannulation: Decannulation covers the period from when the patient with tracheostomy no longer requires MV until the definitive removal of the cannula, returning to breathing independently through the natural airway.

Expulsion of the mucus plug: If the patient reports dyspnea and the impossibility of expelling the plug with his own cough, we will instill a few drops of fluimil through the tracheotomy, if the plug cannot be expelled after his own cough, the nursing staff will aspirate it.

Hydration of the patient: The patient with a tracheostomy should have an intake of 2 to 3 liters of fluids per day, either orally, intravenously or by nasogastric tube, and thus it will be possible to avoid drying out of the larynx and trachea and producing mucous plugs.

Treatment with mucolytics: Treatment with mucolytics is carried out according to a medical prescription, it is a commonly used care, mucolytics improve ciliary activity and regulate mucus secretion.

Humidification of the environment: It is beneficial to use oxygen therapy in the patient with warm humidification at 370 along with the use of 1-liter pack water. The oxygen flow would be 6 -8 L/min.

Respiratory physiotherapy: Mobilization of tracheobronchial mucus should be performed through postural drainage, vibrations or percussion, breathing exercises or expectorant maneuvers (coughing), changing postural position in bed every 2 hours, depending on the patient's level of mobility, it may be advised that walk for 5 minutes every hour.

Avoid bleeding: In the event of a tracheostoma hemorrhage, the care is: compression of the bleeding area, assess type of bleeding, aspiration and we will place a cannula with a balloon. The patient must be reassured and in intense bleeding the head must be stretched in a lower position than the rest of the body to prevent blood from entering the lung cavity.

Prevent stoma infection: To avoid stoma infections, it is important to perform cures aseptically, the equipment used to cure the stoma must be sterile, rigorous hand washing by nursing staff, the patient must not touch the cannula, you can take a sample for culture due to the change in appearance of the secretions from the stoma.

Cannula cleaning: The cleaning of the cannulas must be done with clean hands, with tap water and remove the dirt with soap, it is observed if there are no traces of dirt. The two cannulas (mother and internal) must be boiled in a saucepan with distilled water for a few minutes. To store the cannulas, it is important to leave them in sterile gauze.

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