Care for the prevention of complications...



INTEGRATIVE LITERATURE REVIEW

CARE FOR THE PREVENTION OF COMPLICATIONS IN TRACHEOSTOMIZED PATIENTS

CUIDADOS PARA A PREVENÇÃO DE COMPLICAÇÕES EM PACIENTES TRAQUEOSTOMIZADOS CUIDADOS PARA LA PREVENCIÓN DE COMPLICACIONES EN PACIENTES TRAQUEOSTOMIZADOS

Elaine Carininy Lopes da Costa¹, Cliciane Furtado Rodrigues², Jucileide Gomes Matias³, Sandra Marina Gonçalves Bezerra⁴, Daniel de Macêdo Rocha⁵, Raylane da Silva Machado⁶, Márcia Teles de Oliveira Gouveia⁷, Ítalo Arão Pereira Ribeiro⁸

ABSTRACT

Objective: to analyze the evidences of care for the prevention of complications in tracheostomized patients. **Method:** this is a bibliographical study, type integrative review, with analysis of articles published between 2000 and 2017, carried out in the databases MEDLINE, LILACS, CINAHL and BDENF. The sample was composed by 22 primary studies in English, Portuguese and Spanish. A critical evaluation of the studies was carried out through the level of evidence and classification in relation to the topics addressed. **Results:** it was verified the predominance of international productions published in English language and level of evidence VII. The care that involved tracheostomy aspiration, saline humidification, dressing replacement, skin and tube cleaning, and education of the health team, the patient, and the caregiver were identified. **Conclusion:** it was evidenced that factors related to endotracheal aspiration, tube and skin cleansing and health education represented the main strategies that minimize the risk of complications. It is hoped to contribute to the consolidation of evidence-based practice and to the management of care with safety, quality and effectiveness. **Descriptors:** Surgical Stomas; Tracheostomy; Postoperative Complications; Disease Prevention; Atención de Enfermería; Nursing Care; Nursing.

RESUMO

Objetivo: analisar as evidências de cuidados para a prevenção de complicações em pacientes traqueostomizados. *Método:* trata-se de um estudo bibliográfico, tipo revisão integrativa, com análise de artigos publicados entre 2000 a 2017, realizada nas bases de dados MEDLINE, LILACS, CINAHL e BDENF. Compôs-se a amostra por 22 estudos primários nos idiomas inglês, português e espanhol. Realizou-se a avaliação crítica dos estudos por meio do nível de evidência e classificação em relação às temáticas abordadas. *Resultados:* verificou-se o predomínio de produções internacionais publicadas em idioma inglês e com nível de evidência VII. Identificaram-se os cuidados que envolveram a aspiração da traqueostomia, a umidificação com solução salina, a troca do curativo, a limpeza da pele e do tubo e a educação da equipe de saúde, do paciente e do cuidador. *Conclusão:* evidenciou-se que fatores relacionados à aspiração endotraqueal, à limpeza do tubo e da pele e à educação em saúde representaram as principais estratégias que minimizam o risco de complicações. Espera-se contribuir para a consolidação da prática baseada em evidências e para o gerenciamento do cuidado com segurança, qualidade e efetividade. *Descritores:* Estomas Cirúrgicos; Traqueostomia; Complicações Pós-Operatórias; Prevenção de Doenças; Cuidados de Enfermagem; Enfermagem.

RESUMEN

Objetivo: analizar las evidencias de cuidados para la prevención de complicaciones en pacientes traqueostomizados. *Método:* se trata de un estudio bibliográfico, tipo revisión integrativa, con análisis de artículos publicados entre 2000 a 2017, realizada en las bases de datos MEDLINE, LILACS, CINAHL y BDENF. La muestra se compone de 22 estudios primarios en Inglés, portugués y español. Se realizó la evaluación crítica de los estudios por medio del nivel de evidencia y clasificación en relación a las temáticas abordadas. *Resultados:* se verificó el predominio de producciones internacionales publicadas en idioma inglés y con nivel de evidencia VII. Se identificaron los cuidados que involucraron la aspiración de la traqueostomía, la humidificación con solución salina, el cambio del vendaje, la limpieza de la piel y del tubo y la educación del equipo de salud, del paciente y del cuidador. *Conclusión:* Se evidenció que factores relacionados a la aspiración endotraqueal, a la limpieza del tubo y de la piel y a la educación en salud representaron las principales estrategias que minimizan el riesgo de complicaciones. Se espera contribuir a la consolidación de la práctica basada en evidencias y para la gestión del cuidado con seguridad, calidad y efectividad. *Descriptores:* Estomas Quirúrgicos; Traqueostomía; Complicaciones Posoperatorias; Prevención de Enfermedades; Enfermería.

¹Master, Federal Institute of Piauí / IFPI. Oeiras (PI), Brazil. E-mail: ninyenfbio@ifpi.edu.br ORCID iD: https://orcid.org/0000-0002-5387-978X; ²Specialist, Teresina Hospital Foundation / FHT. Teresina (PI), Brazil. E-mail: clicianejs@hotmail.com ORCID iD: https://orcid.org/0000-0003-3736-6180; ³Specialist, Municipal Secretary of Coivaras / SMC. Teresina (PI), Brazil. E-mail: juhenzo@hotmail.com ORCID iD: https://orcid.org/0000-0002-6324-1499; ⁴PhD, State University of Piauí / UESPI. Teresina (PI), Brazil. E-mail: sandramarina20@hotmail.com ORCID iD: https://orcid.org/0000-0003-3890-5887; ⁵s³Master students, Federal University of Piauí / UFPI. Teresina (PI), Brazil. E-mail: daniel_m.rocha@outlook.com.br ORCID iD: https://orcid.org/0000-0003-1709-2143; italoaarao@hotmail.com ORCID iD: https://orcid.org/0000-0003-0778-1447; ⁴Master, Federal Institute of Pernambuco / IFPE. Salgueiro (PE), Brazil. E-mail: raylane.s.machado@gmail.com ORCID iD: https://orcid.org/0000-0002-8682-6481; ¬PhD, Federal University of Piauí / UFPI. Teresina (PI), Brazil. E-mail: marcia06@gmail.com ORCID iD: https://orcid.org/0000-0002-2401-4947

INTRODUCTION

It is known that the tracheostomy is a respiratory stoma that allows the communication of the trachea with the external environment through the installation of a prosthesis or fixation to the skin, thus facilitating the breathing process. ¹⁻³ It was initially restricted to its indication to individuals on the verge of death due to obstructive respiratory insufficiency.

Currently, the main indication tracheostomy is prolonged intubation followed by intubation for tracheobronchial cleaning, upper airway obstruction, as a consequence of congenital malformations, trauma, malignant neoplasms and glottal edema. of postoperative period of the mouth, larynx and pharynx, as well as hypoventilation associated neurological problems, especially cerebral palsy. 1,3-5

It is a simple procedure, but the presence of the tracheostomy is not without risk. The main complications of the tracheostomy include bleeding, pneumothorax, accidental decannulation, tracheal laceration, tracheoesophageal fistula, cervical abscess, granulation tissue at the edge of the stoma, tracheal stenosis, tracheomalacia and fusion of the vocal cords.⁴

It is important, considering the risks of complications in which the patient is subject, that the Nursing team assumes its role in the care of the patient, guaranteeing patient safety, aiming to reduce unnecessary damages related to tracheostomy and its manipulation. Therefore, such complications should be minimized or avoided by the actions of the Nursing team.

OBJECTIVE

• To analyze the evidence of care for the prevention of complications in tracheostomized patients.

METHOD

It is an integrative review of the literature conducted by six stages: identification of the theme and selection of the hypothesis or the research question; establishment of inclusion and exclusion criteria; definition of the information to be extracted from the selected studies; evaluation of included studies; interpretation of results and synthesis of knowledge.

The domains of the acronym PICo were defined to define the patients with tracheostomies as a population, prevention of complications as a phenomenon of interest and Nursing care as context. This study was

Care for the prevention of complications...

therefore based on the following question: What evidence of care can be adopted for the prevention of complications in patients with tracheostomies?

The search was carried out between March and April of 2018 through the electronic consultation in the Medical Literature Analysis Retrieval System Online databases (MEDLINE via PUBMED®), Cumulative Index of Nursing and Technical Health Literature (CINAHL), Literature Latin American Caribbean Health Sciences (LILACS) Nursing Database (BDENF). The following descriptors were selected, using the Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH) platforms, combining them with the Boolean operators OR and AND: tracheostomy; tracheostomies; postoperative complications; complication, postoperative; complications, postoperative; nursing; care nursing; nursing care.

The inclusion criteria were adopted: a primary study, published between 2000 and 2017, presenting, in the title or abstract, the care related to the prevention of tracheostomy complications. Theses, dissertations, editorials, literature reviews and duplications were excluded.

Titles and abstracts were read to verify the adequacy of the research question and, in cases of doubts regarding inclusion, the article was read in full in which those who did not approach the preventive care with the tracheostomy were excluded.

The recommendations that classify the studies at seven levels were considered for the Level of Evidence (LE) analysis: Level I systematic review or meta-analysis of all randomized controlled trials; Level II - at least controlled randomized, and delineated clinical trial; Level III - a welland controlled study without designed randomization; Level IV - a study with casecontrol or cohort design; Level V - systematic review of qualitative and descriptive studies; Level VI - a single descriptive or qualitative study; Level VII - opinion of authorities and / or expert / expert committee reports.8

The data was extracted through an own form that included information about the identification of the production (authors, periodical, country and year of publication) and main results, outcomes and conclusions and LE. The analysis was carried out in a descriptive way, with the construction of figures according to the variables identified. The material was also classified and classified in terms of semantic similarity and the construction of thematic categories.

RESULTS

135 articles were retrieved, among which 22 met the inclusion criteria and composed the sample. 19 were published in English, two in Portuguese and one in Spanish. Most of the studies were conducted in the United Kingdom and only two were developed in Brazil, which shows the scarcity of publications on the subject in the country. The level of evidence

Care for the prevention of complications...

was predominant, level VII productions and only one presented level of evidence II.

Figure 2 shows the synthesis of the knowledge regarding the necessary care for the prevention of complications in tracheostomized patients. The results were described according to the main author, the year, the language and the country of publication, the main results and conclusions and LE.

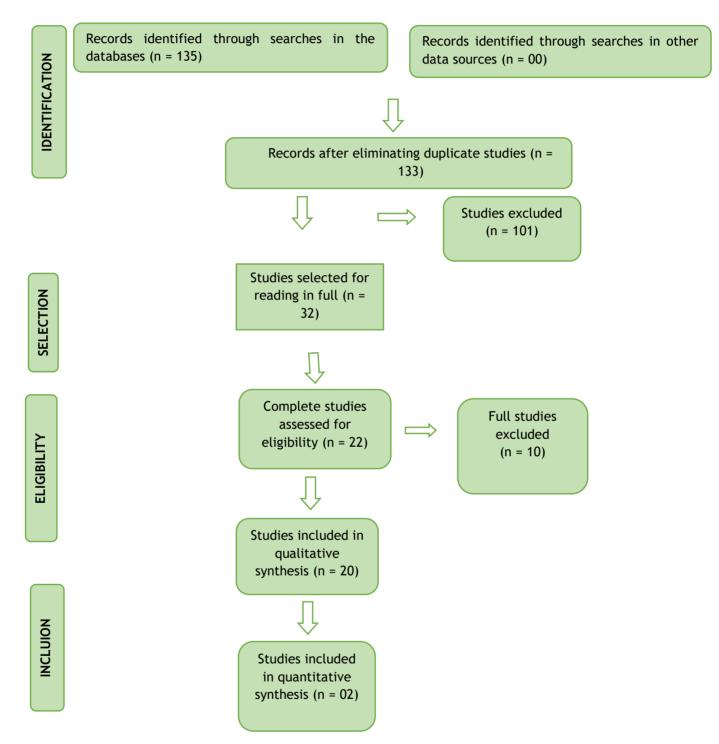


Figure 1. Flowchart of study selection according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyzes (PRISMA 2009). Oeiras (PI), Brazil, 2018.

Care for the prevention of complications...

Primary author, Year, Language and Country	Main results and conclusions	LE
Pinto DM, ⁹ 2015, Portuguese, Brazil.	Carrying out the bandage, changing the lace at least once per shift, tracheostomy protection with gauze and aspiration using probes and	VI
Wilson M, ¹⁰ 2005, English, England	fluidification of secretions. Cleaning of the cannula, suction with pressure between 100 to 120 mmHg, humidification by means of nebulization with saline solution, cleaning the stoma and changing the tube. Instillation of	VII
Feber T, ¹¹ 2006, English, United Kingdom	saline during aspiration was not recommended. Aspiration against signs of respiratory distress, change and cleaning of the tube, cleaning the skin around the stoma and guidelines on communication with the tracheostomy.	VII
Schreiber ML, ¹² 2015, English, United States	Assessment of respiratory pattern, maintenance of clean and dry skin, adequate tube size and humidification of tracheostomy.	VI
Freeman S, ¹³ 2011, English, United Kingdom	Humidification, suctioning, peristaltic skin care, cuff manipulation and proper communication among nursing, patient and family professionals.	VII
Keogh S, ¹⁴ 2008, English, Australia	Use of aseptic technique for skin and stoma care, suctioning and humidification of the tracheostomy. It has been found that saline instillation is still widely used for the removal of secretions, although the practice is contraindicated.	٧
Tamburri LM, ¹⁵ 2000, English, United States	Educational intervention with nurses on tracheostomy care, tube and stoma cleaning, aspiration, adequate cuff pressure, hydration and communication strategies.	VII
Barnett M, ¹⁶ 2005, English, United Kingdom	Aspiration of the tracheostomy as needed by the patient, cleaning the tube and taking care of the skin and stoma.	VII
Higginson R, ¹⁷ 2010, English, United Kingdom	Evaluation of cuff pressure and suctioning when oxygen saturation decreases as well as nebulization before aspiration.	VII
Barnett M, ¹⁸ 2012, English, United Kingdom	Checking the cuff pressure, proper cleaning of the stoma with saline solution, humidification of the tracheostomy, tracheal aspiration and tube replacement.	VII
Barnett M, ¹⁹ 2008, English, United Kingdom	Application of care management elements to increase skills, skills and knowledge about tracheostomy care.	VII
Morris LL, ²⁰ 2013, English, United States	Cleaning of the internal cannula and peristaltic skin, replacement of tracheostomy loops, mobilization of secretions, maintenance of adequate cuff pressure, and education of the patient and caregiver.	VII
Farce MA, ²¹ 2010, English, Lebanon	Humidification of tracheostomy, protection of the skin with gases or hydrocolloid plaque and suction of the tracheostomy in case of obstruction.	VII
Russel C, ²² 2005, English, United Kingdom	Recognition of tube types, tracheostomy humidification, aspiration and cleaning of the tube.	VII
Fernandez-Garcia C, ²³ 2016, Spanish, Spain	Treatment with polyhexanide showed no efficacy for the control and prevention of tracheostomy infection.	II
Bowers B, ²⁴ 2007, English, England	Appropriate communication between the Nursing team, patient and caregiver.	VII
Schreiber D, ²⁵ 2001, English, United States	Sterile technique during the exchange of the tracheostomy tube.	VII
Gaudreau PA, ²⁶ 2016, English, United States	Use of protocol with care to direct the care provided by health professionals and the education of the family member.	IV
Hettige R, ²⁷ 2008, English, England Sonobe HM, ²⁸ 2001,	Introduction of a care plan with tracheostomy and continuing education for the health team.	VI
Sonobe HM, ²⁸ 2001, Portuguese, Brazil	Pre-operative teaching activities resulted in a better understanding by the patient of their pathology, as well as the care to be performed with the tracheostomy.	VI
Choate K, ²⁹ 2003, English, Australia	Implantation of guidelines and policies for tracheostomy care and continuing education with the health team.	VI
Lewis T, ³⁰ 2005, English, United Kingdom	Guidelines for care with tracheostomy, continuing education of the Nursing team, awareness of family and patient care guidelines.	VI

Figure 2. Synthesis of articles included on care for the prevention of tracheostomy complications (N = 22). Oeiras (PI), Brazil, 2018. Source: Research data, 2018.

A critical analysis of the evidence was performed in the following categories of care: Tracheostomy aspiration; Humidification with saline solution; Exchanging the dressing and peristaltic skin care; Cleaning the tube; and Education of the health team, tracheostomy and caregiver.

DISCUSSION

♦ Tracheostomy aspiration

The tracheostomy should be aspirated carefully and this was one of the care that emphasized the importance of the procedure to be performed only in cases of high secretion and with caution in the introduction of the probe so as not to injure the mucosa during the procedure. This recommendation

is corroborated, suctioning of the tracheostomy, which should not be a routine procedure and should be adapted individually for each patient, being indicated in cases in which the patient is unable to expectorate alone the secretions. It was also commented by the authors on the need for correct use of aspiration pressure, which can not be above 120 mmHg, as it causes lesions on the mucosa and also can not be very low (below 100 because it does not mmHg), secretions. 10-2

It is recommended that the suction catheter type has multiple orifices as it produces less damage, since the lateral orifices suck secretions, whereas the single orifice catheter both aspirates secretions and pulls the mucosa, increasing the risk of injuries. It is further recommended to avoid bending and releasing the catheter into the mucosa, since such a procedure results in the application of very strong vacuum and may cause further damage. 11,13

Also note the diameter of the catheter, because if it is small, it will not aspirate the secretions and, if it is large, may cause hypoxia. It was reported by the authors, regarding suction time, that the maximum suction time should be 15 seconds and at most with three repetitions.¹³

It was noticed that the instillation of saline solution for aspiration was a found practice¹⁴, where most of the hospitals surveyed performed this practice and the main reason cited for using the saline solution was to release the secretions, although it is still common practice. It is noteworthy that some authors do not recommend this practice due to the risk of a decrease in oxygen saturation. ^{12,15}

It is advised that aspiration care refers to the need to oxygenate the patient well before the procedure, the need to clean the catheter, placing his tip in sterile saline solution, the suction application of the solution and the depth for insertion of the catheter, which should not exceed the length of the tracheostomy tube. 12,16

Suction of the tracheostomy is performed only if the patient has any signs of low oxygen saturation, cyanosis, pulmonary auscultation with bubbling sounds or visible secretions around the local tracheostomy. In this case, procedure should be carried out immediately, in addition, the authors consider it important to nebulize and pre-oxygenate the patient prior to the procedure, as well as use rigorous measures to control any risk of cross-infection. 17-18 In this sense, it is also recommended the that aspiration be Care for the prevention of complications...

performed by a clean technique and, therefore, the professional should wear aprons, gloves, masks and glasses during the procedure.¹⁹

Three main factors were emphasized to facilitate the mobilization of secretions: adequate hydration (which is necessary to maintain fine and mobile secretions), physical mobility (which can be accomplished by combining range of motion exercises, especially upper limbs, as well as keeping the patient in position closer to the sitting position and training the diaphragm effectively) and removal of secretions through aspiration, which should be an integral part of assessment of patients tracheostomy.20

It should be emphasized that aspiration should consider the respiratory status and the patient's ability to eliminate secretions alone, and the patient should be encouraged to cough and aspiration be performed when the patient is unable to perform the procedure alone. In addition, it is important, after aspiration, that the patient be re-evaluated by the team.¹⁶

♦ Tracheostomy humidification

It should be noted that anatomical and physiological changes occur in the patient tracheostomy. Natural warming, humidification and filtration that occur in the air inhalation process in the upper airways are lost. It is therefore explained that, if the inspired gases are not moistened, the patient may experience the retention of tenacious secretions, impaired mucociliary clearance, reduced cough reflex and reduced lung function. Thus, some strategies to ensure air humidification and tracheostomy nebulization with 0.9% saline humidify the air and help reduce the risk of tube obstruction by minimizing the risk of thick secretions. 10,19,21

It was found that a little more than half of the units surveyed performed humidification of the tracheostomy, considering the viscosity and volume of the secretions, the presence of (or not) infection, the need for oxygen or the support ventilation. In terms of saline use, it was found that most of the units studied occasionally used saline to aid in hydration and secretion removal.¹⁴

It is emphasized that, although the instillation of saline solution directly into the tracheostomy is still a common practice, ^{12,14} such a procedure can lead to a reduction in oxygen saturation and should therefore be avoided. Therefore, patient hydration should be monitored and, in the case of patients

undergoing oxygen therapy, it is always important to provide humidified oxygen. 12,15,18

Humidification in the form of heat and moisture exchangers (HME) is used, or a heating circuit heated humidification system such as a Fisher Paykel system may be used for persons who do not require oxygen therapy. These types of humidification should be used constantly. It is added that saline nebulizers are useful for people with acute problems, although good hygiene is essential, since the moisture left in the nebulizer chamber can cause infection.

It is advisable to use a humidification system with hot gas as it contains more moisture. Other methods include cold water systems (humidification of the environment), in addition to nebulization, heat and moisture exchangers, and stoma protectors.²²

♦ Replacement of dressing and peristaltic skin care

The incidence of infection tracheostomies was compared according to the antiseptic used and, therefore, the effects of dressing with polyhexamide solution versus the use of saline solution of iodopovidone were compared. The results showed that there was no significant difference in the reduction of infection rates in the groups that were submitted to the experiment in relation to the control group and, therefore, it was concluded that Nursing professionals are essential for the control of infections as the basic measures, such as performing the dressing in the tracheostomy region, become important in the control of infections.²³

It was verified that the Nursing team's care for the promotion and prevention of cutaneous and mucosal lesions associated with the presence of invasive devices in the lower airways were: the dressing with physiological saline and aqueous chlorhexidine, in addition to the exchange of the lace once per shift and whenever necessary, in addition to the use of neck protectors such as gauzes around the tracheostomy and oil for protection of the skin.⁹

It is recommended that the tracheostomy be cleaned at least once a day with 0.9% SF and the replacement of the lace should also be done daily to ensure the integrity of the peristomal skin. 10,13,18,22 Reminds it is important that the lace is always clean and dry²¹ and the cleaning frequency of the stoma site will depend on the individual and the amount of secretions. 16,19

It is advised that the fixation of the tracheostomy occurs with the use of velcro tapes to fix the tracheostomy, because it is Care for the prevention of complications...

more comfortable to the patient, in addition, it is recommended that a two-finger gap be left in order not to suffocate. 13,16,22

Tracheostomy care was described in hospitalized children in Australia and New Zealand, which showed the predominance of stomatal cleaning with saline solution, but in some hospital units cleaning was performed with gauze and tap water and even water and soap. The granulation tissue around the tracheostomy was used by the majority of the interviewees, silver nitrate and, in some situations, the patient was referred to the surgical center for the removal of granulation tissue.¹⁴

The use of gauze in the space between the skin and the tracheostomy is recommended, however, gauze cutting should be avoided because of the risk of the patient inhaling the gauze wires. In this way, the use of whole gauzes or plaques of hydrocolloids is recommended for the prevention of redness and irritation of the skin around the tracheostomy.²¹

The skin around the stoma should be kept clean and dry to avoid maceration and infection. ^{11,12,20,22}. It is also important to evaluate the presence of redness, tenderness, firmness and integrity of the skin around the tracheostomy, and dressing changes should be scheduled once per shift or as needed. ^{12,19}

Cleaning and tube replacement

It is always necessary to consider the size and type of tube to be optimal for each patient, and thus the recommendation is that the tube be approximately three-quarters of the patient's tracheal diameter.¹²

It is recommended to check the cuff pressure according to the individual, and the exchange and cleaning of the tube should be routine in order to avoid blockage of the tube by mucus or secretion. 9-10,12 In this sense, that the frequency of tube changes will depend on the individual's condition, clinical needs and the type of tube used in the tracheostomy and should only be performed by trained professionals. 10,12,23

It should be emphasized that the exchange of the tracheostomy tube should be a sterile procedure and, preferably, performed by professionals trained in this in relation to the exchange time. 11,20,22,25 It is also recommended that the exchange take place between seven and ten days to ensure that the tube is working optimally and thus minimizing the risk of infection. 22

It is recommended that the cannula of the tracheostomy and the connection joints be cleaned in metal tubes in warm water with

neutral detergent to soften the secretions and then a tracheal brush will be used.²⁰ It is important, as for silicone tubes, that silicone tends to absorb cleaning products and, therefore, the recommendation is that only saline be used.

It should be emphasized that pipe replacement should be planned and all equipment used should be prepared and checked prior to the procedure. In this sense, it is recommended to include resuscitation equipment and that the change be performed by two trained nurses, in addition to advising the suspension of any feeding for at least three to four hours before changing the tube to avoid the risk of vomiting and aspiration. ¹⁸

• Health team education, tracheostomy and caregiver

In this category, the articles that recommend, as the main care, the education of both the Nursing team, the tracheostomized person, the caregiver and his / her family.

The charts of patients who underwent tracheostomy were compared before and after the implantation of the protocol for the caregiver's education. In the present study, it was observed that the readmission rate of the tracheotomies remained practically equal, that is, the protocol did not significantly reduce the readmissions related to the tracheostomy, but resulted in a reduction in the complications of the tracheostomy wounds, which shows the importance to train the family and the caregiver in relation to tracheostomy care.²⁶

The tracheostomy care plan, which was to be implemented in all tracheostomized patients in the hospital, the recognition of emergencies and complications was discussed through continuing education about the tracheostomy with the nursing professionals in monthly sessions. , the annotation in the medical records about the care performed, as well as the notification of the occurrence of complications. It was noticed after the audit that there was an increase in reports of complications, however, the demonstrated that there was a significant reduction in the severity of complications, which highlights the importance of team education in the prevention of tracheostomy complications.²⁷

An educational activity on surgery, tracheostomy, as well as the demonstration of the tracheostomy cannula and the care with it were performed during pre-operative teaching activities. It was possible with the work, the patient, to ask questions about the surgical

Care for the prevention of complications...

procedure and also about the care with the cannula of the tracheostomy. It is inferred that the action was important, since it stimulated and encouraged the patients on the realization of the self-care to the traqueostomizado.²⁸

important to is emphasize the importance of the Nursing team in identifying a caregiver who will be responsible for performing the care with the tracheostomy. It is necessary, in this sense, a training that the caregiver enables to perform tracheostomy care, as well as to know how to deal with complications and emergency situations. 24

Parents were trained on child care with tracheostomy at home, which resulted in a combination of teaching techniques ranging from note keeping, as well as demonstration of how to carry them out and video exposure to parents. It is pointed out that some of the institutions surveyed, besides providing training to the parents, also trained the professionals of the schools for the care with the traqueostomy, since it prevailed the school children.¹⁴

It was found after a survey carried out in a hospital in Australia that there was a deficit in the knowledge of the Nursing professionals regarding the care with tracheostomy, type of tubes, cannula care, among other issues related to tracheostomy and, if this difficulty was found, an educational program was developed in the hospital through short courses on respiratory management and tracheostomy care aimed at professionals in order to improve the management and care of these patients.²⁹

The need for investment in education and training of the Nursing team for tracheostomy care was verified and, in this way, the guidelines for tracheostomy care were elaborated and this information was disseminated in the educational activity, which included the participation of the majority of Nursing professionals.³⁰

It is important that the patient's education be performed in the preoperative period, explaining the surgical procedure and how the tracheostomy will impede the individual's speech. Thus, it is emphasized that the patient's education about the tracheostomy tube and the stoma is of extreme importance in preventing many complications and therefore it is recommended that the education of the patient and the family should begin before the tracheostomy is performed and well before discharge. Definition of the patient and the family should begin before discharge.

It is recommended that patients and caregivers should be evaluated to assess their competence in attending to tracheostomy care and only then be informed about the type, size and length of the tracheostomy tube; how and when to use the suction; how to clean the stoma and the tube itself; how to change the bonds; indications of respiratory distress; signs and symptoms of infection and rupture of the skin, as well as guidelines on emergency care that should also be discussed before discharge, ideally allowing patients and their families to discuss and demonstrate essential skills such as aspiration, manual resuscitation and reinsertion tracheostomy tube.20

CONCLUSION

The main care that must be performed in the tracheostomy in order to prevent the risk complications was addressed, through this Factors related to endotracheal aspiration, environmental humidification, skin peristaltic cleansing, and health education of professionals, patients caregivers were described as the main interventions to minimize possible complications. Ιt is worth noting that the instillation of saline solution in tracheostomy was identified as a common practice, although it is not recommended because it favors the risk of respiratory discomfort and infections.

It is hoped, in this sense, to contribute to the consolidation of evidence-based practice, as well as to the direction of clinical guidelines aimed at improving the quality of care and life, since it will enable professionals to reflect on the care provided both at the hospital and at home.

The study's low level of evidence and the scarcity of national productions related to the subject were considered as limitations of the study. It is suggested to carry out new researches, with more robust methodological designs, aiming to increase the knowledge, as well as to develop the skills and abilities of the Nursing professionals for the management of tracheostomized patient care with safety, quality and effectiveness.

REFERENCES

- 1. Dal'Astraa APL, Quirino AV, Caixêtab JA, Avelino MA. Tracheostomy in childhood: review of the literature on complications and mortality over the last three decades. Braz J Otorhinolaryngol. 2017 Mar/Apr; 83(2):207-14. Doi: 10.1016/j.bjorl.2016.04.005
- 2. Urrestarazua P, Varóna J, Rodrígueza A, Tona V, Vilab F, Ciprianib S. et al. Consenso

Care for the prevention of complications...

- sobre el cuidado del niño con traqueostomía. Arch Argent Pediatr [Internet]. 2016 [cited 2018 Aug 18]; 114(1):89-95 Available from: https://www.sap.org.ar/docs/publicaciones/archivosarg/2016/v114n1a22.pdf
- 3. Puig V, Cisneros C, Magaña C, Ramírez M. Historia de la traqueostomía. An Orl Mex. [Internet]. 2016 Mar [cited 2018 Aug 18]; 61(2):163-8. Available from: http://www.medigraphic.com/pdfs/anaotome x/aom-2016/aom162k.pdf
- 4. Martínez-Barrio ME, Vega ABS, Romero-Pellejero J, Fernández-Ratero JA, Valle-Ortiz M, Armesto-Formoso D. Patients with tracheostomy indication in an intensive care cohort. Rev Colomb Anestesiol [Internet]. 2016 Oct/Dec [cited 2018 Oct 04]; 44(4):278-81. Available from: http://www.scielo.org.co/pdf/rca/v44n4/v44 n4a04.pdf
- 5. Sousa A, Nunes T, Farinha RR, Bandeira T. Traqueostomia: Indicações e complicações em doentes pediátricos. Rev Port Pneumol [Internet]. 2009 [cited 2018 June 03]; 15(2):227-39. Available from: http://www.scielo.mec.pt/pdf/pne/v15n2/v15n2a07.pdf
- 6. Butnaru CS, Colreavy MP, Ayari S, Froehlich P. Tracheotomy in children: evolution in indications. Int J Pediatr Otorhinolaryngol. 2006 Jan; 70(1):115-9. Doi: https://doi.org/10.1016/j.ijporl.2005.05.028
- 7. Mendes KDS, Silveira RCCP, Galvão CM. Integrative literature review: a research method to incorporate evidence in health care and nursing. Texto context-enferm. 2008 Oct/Dec; 17(4):758-64. Doi: http://dx.doi.org/10.1590/S0104-07072008000400018
- 8. Stillwell SB, Fineout-Overholt E, Melnyk BM, Williamson KM. Searching for the Evidence: Strategies to help you conduct a successful search. AJN [Internet]. 2010 [cited 2018 June 12]; 110(1):41-7. Available from: http://download.lww.com/wolterskluwer_vit_alstream_com/permalink/ncnj/a/ncnj_546_15 6_2010_08_23_sadfjo_165_sdc216.pdf
- 9. Pinto DM, Schons ES, Busanello CVZ. Patient safety and the prevention of skin and mucosal lesions associated with airway invasive devices. Rev Esc Enferm USP. 2015; 49(5):775-82. Doi: 10.1590/S0080-623420150000500010
- 10. Wilson M. Tracheostomy management. Paediatr Nurs. 2005 Apr; 17(3):38-44. Doi: 10.7748/paed2005.04.17.3.38.c979
- 11. Feber T. Tracheostomy care for community nurses: basic principles. Br J

Community Nurs. 2006 May; 11(5):186,188-90,192-3. Doi: 10.12968/bjcn.2006.11.5.21021
12. Schreiber ML. Tracheostomy: Site Care, Suctioning, and Readiness. Medsurg Nurs. 2015 Mar/Apr; 24(2), 121-5.

- 13. Freeman S. Care of adult patients with a temporary tracheostomy. Nurs Stand. 2011 Sept; 26(2):49-56. Doi: 10.7748/ns2011.09.26.2.49.c8706
- 14. Keogh S, Chitakis M, Watson K. Caring for children with a tracheostomy: a national survey of Australian and New Zealand nurses. Neonatal, Paediatr Child Health Nurs. 2008; 11(1):10-7.
- 15. Tamburri LM. Care of the patient with tracheostomy. Orthop Nurs. 2000 Mar/Apr; 19(2):43-60. PMID: 11062636
- 16. Barnett M. Tracheostomy management and care. JCN. 2005; 19(1):4-8.
- 17. Higginson R, Jones B, Davies K. Airway management for nurses: emergency assessment and care. Br J Nurs. 2010 Sept; 19(16):1006-14. Doi: 10.12968/bjon.2010.19.16.78185
- 18. Barnett M. Back to basics: caring for people with a tracheostomy. Nurs Resid Care. 2013 Aug; 14(8), 390-4. Doi: https://doi.org/10.12968/nrec.2012.14.8.390
- 19. Barnett, M. A practical guide to the management of a tracheostomy. JCN. 2008; 22(12):25-6.
- 20. Morris LL, Whitmer A, Mcintosh E. Tracheostomy Care and Complications in the Intensive Care Unit. Crit Care Nurse. 2013 Oct; 33(5):18-31. Doi: 10.4037/ccn2013518
- 21. Farce MA. Tracheostomy Care on The Medical-Surgical Unit. Med Surg Nurs. 2010 Jan/Feb; 19(1):58-61. PMID: 20336989
- 22. Russell C. Providing the nurse with a guide to tracheostomy care and management. Br J Nurs. 2005 Apr/May; 14(8):428-33. Available from:

10.12968/bjon.2005.14.8.17934

- 23. Fernández-García C, Alonso-Rodríguez A, Wensell-Fernández A, Martínez-Camblor P, Suárez-Mier MB, Fernández JA, et al. Ensayo clínico aleatorizado para la comparación de dos métodos de cura de traqueotomía en una Unidad de Cuidados Intensivos. Enferm Intensiva. 2016 Jan/Mar; 27(1):4-12. Doi: 10.1016/j.enfi.2015.10.003
- 24. Bowers B, Scase C. Tracheostomy: facilitating successful discharge from hospital to home. British Journal of Nursing. 2007 Apr/May;16(8):476-9. Doi: 10.12968/bjon.2007.16.8.23418
- 25. Schreiber D. Trach care at home. Rnweb. 2001; 64(7):43-6.

Care for the prevention of complications...

- 26. Gaudreau PA, Greenlick H, Dong T, Levy M, Hackett A, Preciado D, Reilly BK. Preventing complications of pediatric tracheostomy through standardized wound care and parent education. JAMA Otolaryngol Head Neck Surg. 2016 Oct; 142(10):966-71. 10.1001/jamaoto.2016.1803
- 27. Hettige R, Arora A, Ifeacho S, Narula A. Improving tracheostomy management through design, implementation and prospective audit of a care bundle: how we do it. Clin Otolaryngol. 2008 Oct; 33(5):488-91. Doi: 10.1111/j.1749-4486.2008.01725.x
- 28. Sonobe HM, Hayashida M, Mendes IAC, Zago MMF. The arch method in the preoperative education of laryngostomized patients. Rev Bras Cancerol [Internet]. 2001 Oct/Dec [cited 2018 Mar 20]; 47(4):425-33. Available from: http://www.inca.gov.br/rbc/n_47/v04/pdf/artigo7.pdf
- 29. Choate K, Babetti J, Sandford M. Tracheostomy: clinical practice and the formation of policy and guidelines. Aust Nurs J. 2003 Mar; 10(8):17-9. PMID: 18564587
- 30. Lewis T, Oliver G. Improving tracheostomy care for ward patients. Nurs Stand. 2005 Jan; 19(19), 33-7. Doi: 10.7748/ns2005.01.19.19.33.c3787

ISSN: 1981-8963

Costa ECL da, Rodrigues CF, Matias JG et al.

Submission: 2018/10/18 Accepted: 2018/10/30 Publishing: 2019/01/01

Corresponding Address

Elaine Carininy Lopes da Costa Instituto Federal do Piauí

CEP: 64500-000 - Oeiras (PI), Brazil

Care for the prevention of complications...