128 - PROTOCOL ADJUSTING THE CUFF PRESSURE IN PATIENTS ADMITTED TO THE INTENSIVE CARE UNIT

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doi:10.16887/86.a1.128

Introduction:

The cuff pressure corresponds to the flow of air within the cuff of endotracheal tubes and tracheostomy tube. The volume inflated within the cuff generates a pressure that is transmitted directly to the tracheal wall around the cuffs. The sufficient cuff inflation should ensure that there are no leaks, preserving blood flow to the tracheal mucosa. This study is primarily aimed to analyze the cuff pressure in hospitalized patients from the ICU. And, the specific objective is to adjust the cuff pressure in those patients, and write a protocol to be introduced to the professionals of this unit on monitoring cuff pressure in the Alto Sertão of Paraiba, in order to generate information and support that can guide problem resolution, and also aid the professional's practice involved in that unit.

In the Intensive Care Units (ICU), is common to find patients that require ventilatory support through endotracheal intubation or tracheostomy, situation that draw our interest in observe conducts aimed to overcome imminent risks of a respiratory insufficiency in patients, without give attention to the risks inherent of decrease or increase of the cuff pressure against the sides of the tracheal mucosa.

The function of a cuff is to protect the airway, ensuring adequate ventilation to prevent air leaks, aspiration of oropharyngeal and gastroesophageal contents into the lungs (CAMARGO et al., 2011).

The most recommended cannula for the procedure is the high-residual volume, low- pressure cuff. It causes fewer complications, since its diameter is adjusted according to the trachea. The cannula´s cuff accommodates a large amount of air blown before increasing its pressure. It must remain between 20 and 25 mmHg, this pressure is lower than the tracheal capillary that is 25 to 30 mmHg in order to prevent a myriad of complications (BARBOSA; SANTOS, 2013).

Knobel (2010) reports values different from 20 to 25 mmHg of the cuff pressure can be required depending of the trachea of patient. Yet, the indication to the amount of air to be blown on the cuff can be determined by pulmonary auscultation. The reference values are between 20 and 30 cmH2O (JULIANO et al., 2007). Also, it can be measured through an adapted device (pressure gauge).



Figure 1: Pressure gauge adapted to the end of an infusion set to verify the cuff pressure.

Method:

The study adopts an exploratory field approach with quantitative and qualitative nature. According to Gil (2002, p. 12), the exploratory research “aims to provide greater familiarity with the problem in order to make it more explicit or construct hypotheses, and has as primarily objective the improvement of ideas or the discovery of intuition.”

According to Triviñus (1994, p. 16), quantitative study involve all research based on the statistics intended to get objective results, establishing or not statistically significant among the phenomena and providing greater experience regarding some problems, to obtain the desired results when in contact with a given population.

This study was carried out in a UCI of the Hospital from the Alto Sertão of Paraíba. This place was chose due the high number of patients with invasive ventilation, tracheal intubation and tracheostomy which can cause complications to the trachea related to the lack of pressure control of Cuff, in the tubes. In this way is required more care by professional.

The population selected for the study was composed of patients male and female, regardless age and pathology. The instrument used for data collection was the medical records of patients, where the socio-demographic data were obtained, characterizing the population, and variables such as length of stay, medical diagnosis. The cuff pressure of hospitalized patients was analyzed in accordance to the instrument used. The data collected was analyzed and presented in graphs and tables. The results were compared with relevant literature. To data collect and during the development of this research, was adopted an ethical analysis of information in accordance with resolution 466/12.

Analysis and Discussion of Results

Subsequently the data collection, an analysis with quantitative method was approached which is characterized by personal members and socio – demographics data of participants and an analysis through qualitative method in characterization of the participants data. It was used figures from the Microsoft Excel program for development of quantitative data analysis, and in what concerns the analysis of qualitative data follows according to the literature.

Table 1 – Socio-demographics variables of the participants

Variables	*f*	%
Gender		
Male	04	50
Female	04	50
Total	08	100
Age		
50 - 60	02	25
61 - 70	00	00

71 - 80	03	37,5
81 - 90	03	37,5
Total	08	100
Pathology		
DPOC	03	37,5
AVE	02	25
ICC	02	25
EAP	01	12,5

During the study was observed that the average pressure of cuffs, analyzed in the ICU during the April through May 2014 ranged from 16 mmHg to 60 mmHg, showed that there were irregularities both above and below the safety parameters suggested by literature, but all patterns were adjusted to between 20 and 25 mmHg, these are acceptable values.

Table 1: Average of Cuff pressures

Average of pressures	*f*	%
10 - 20 mmHg	19	60
21 – 30 mmHg	10	31
31 – 40 mmHg	01	03
41 -50 mmHg	01	03
51 – 60 mmHg	01	03
Total	32	100

X□ ± DP General	22,56 ± 8,40 mmHg
X□ ± DP Morning	26,75 ± 12,32 mmHg
X□ ± DP Evening	20,54 ± 3,90 mmHg
X□ ± DP Night	19,22 ± 1,39 mmHg

According to the second Brazilian Consensus on Mechanic Ventilator, the importance of maintaining and monitoring the cuff are nurses responsibility, this should be done at least every 12 hours. A recommending necessary to prevent air leakage and tracheal complications, with pressures is below to 25 mmHg.

Tabel 3: List of Nursing Diagnoses

Diagnoses	Intervention
Risk of aspiration, related to the presence of tracheostomy or endotracheal tube.	✓ **Chek the cuff pressure** ✓ **Draw every two hours and when necessary the tube**
Impaired verbal communication, related to the inability to speak due physical barrier (tracheostomy or endotracheal intubation).	✓ **Use an alternative method such as pad, signals hands, flashing eyes, use gestures.**
Risk of infection related to excessive deposition of secretion.	✓ **Make correct cleaning of the endotracheal tube and traqueostônia.** ✓ **? Reduce the risk of infection**
Anxiety, related to the invasive procedure, evidenced by restlessness, agitation.	✓ **To investigate the level of anxiety;** ✓ **Provide tranquility.**

Source: North American Nursing Association (NANDA)

Conclusions

This study shows that there is no a consensus about values maximum and minimum pressure on the tracheal tube cuff to overcome aspiration and complications caused. The critical value of cuff pressure has been identified as 20 to 25 mmHg. It is close to the capillary perfusion pressure of the trachea.

It was observed that there is no routine measurement of air pressure cuff; do not know if it is unaware of the need for verification or if it is by carelessness of professionals in question. The study revealed something very interesting by a nursing auxiliary, she performs the procedure for measuring the cuff pressure during their work time, not under a higher order, and also they like to perform the technique and to know about it and its complications.

The results suggest the establishment of a nursing protocol, establishing a routine of measuring morning, afternoon and evening air pressure cuff for greater control and patient care. Where were observed pressure variations in the three periods showing the need for measuring and monitoring in all periods, for a more effective control and secure the client.

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PROTOCOL ADJUSTING THE CUFF PRESSURE IN PATIENTS ADMITTED TO THE INTENSIVE CARE UNIT.

ABSTRACT

The cuff is a part of endotracheal and tracheostomy tube that has the primary seal the trachea to facilitate ventilation and prevent aspiration of gastric contents into the lungs. There is no pre-established routine for controlling the cuff pressure in ventilated patients hospitalized in the intensive care unit. This pressure transmitted directly to the tracheal wall should allow a capillary blood flow adequate and preventing air leaks or aspiration, and injuries related. The objective of this study was to analyze the pressure cuff in patients hospitalized in the Intensive Care Unit (ICU) of the Hospital in the Alto Sertão of Paraiba and adjust them to acceptable limits in accordance with the literature. The purpose is implementing a proposed protocol to nursing monitor these pressures. This is a field exploratory study, with quantitative-qualitative approach, developed with patients in the ICU of the Regional Hospital in the period from April to May 2014. We evaluated 32 measures pressure cuff in eight (8) patients of male and female, through a gauge adapted to the end of an infusion set in the morning, afternoon and night. Measurements analyzed pressure cuffs (cuffs) of patients intubated and observed that the measures were variable and irregular on average 56.25% of the cases, showing the importance of redoubling the care of these patients. In this light we suggest the implementation of a nursing protocol for monitoring these pressures, in the morning, afternoon and evening, to establish a routine monitoring and measurement accurate to better quality of care, preventing complications.

KEYWORDS: Pressure. Intubation. Tracheostomy. Patient Monitoring. Intensive Care Unit

PROTOCOLE PORTANT ADAPTATION DE LA MANCHETTE DE PRESSION CHEZ LES PATIENTS ADMIS AUX SOINS INTENSIFS.

RÉSUMÉ

Le cuff est un ballonnet placé à l'entour des tubes orotrachéaux et des sondes de trachéostomie ayant pour but principal de bloquer la trachée, facilitant la ventilation et empêchant l'aspiration de sécrétions gastriques par les poumons. Il n'y a pas de routine préfixée pour la surveillance de la pression des ballonnets chez les patients sous ventilation admis à l'Unité de Soins Intensifs. Cette pression, transmise directement à la paroi trachéale, doit permettre le flux sanguin approprié à travers le lit capillaire et prévenir les fuites d'air ou broncho-aspiration, outre les lésions résultantes de son augmentation. L'objectif de cette étude fut analyser les pressions de cuff chez des patients admis à l'Unité de Soins Intensifs (UTI) d'un Hôpital situé au sertão (région sémi-aride) de la Paraíba et les ajuster à des valeurs convenables, d'après la littérature scientifique, afin de mettre en oeuvre un projet de protocole des Soins Infirmiers pour la surveillance de ces pressions. Il s'agit d'une étude exploratoire et empirique, avec un approche quantitatif et qualitatif, développée avec des patients admis à l'UTI de l'Hopital Régional, dans la période d'avril à mai 2014. Nous évaluâmes 32 mesures de pression du cuff chez huit (8) patients des sexes masculin et féminin, à travers un manomètre placé à l'extrémité d'un engin pour= solution saline, dans les périodes de la matinée, de l'après-midi et de la soirée. Nous analysâmes les mesures de pression des ballonnets (cuffs) des patients intubés et nous observâmes que les mesures furent variables et irrégulières chez environ 56,25% des cas, montrant ainsi l'importance de redoubler les soins envers ces patients. Conformément à tout ce qui fut exposé, on suggéra la mise en oeuvre du protocole des soins infirmiers pour la surveillance de ces pressions, le matin, l'après-midi et le soir, visant à établir une routine de contrôle et mesure précise pour une meilleure qualité des soins, prévenant les complications possibles.

MOTS-CLÉS: Pression. Intubation. Trachéotomie. Patient Monitoring. Unité de soins intensifs

PROTOCOLO DE AJUSTE EL MANGUITO DE PRESIÓN EN PACIENTES INGRESADOS EN LA UNIDAD DE CUIDADOS INTENSIVOS.

RESUMEN

El cuff es un manguito existente en tubo endotraqueal y t trasqueostomia que tiene el sello principal de la tráquea para facilitar la ventilación y prevenir la aspiración del contenido gástrico hacia los pulmones. No hay pre-establecido de rutina para el control de la presión del manguito en pacientes ventilados hospitalizados en la unidad de cuidados intensivos, esta presión se transmite directamente a la pared traqueal debe permitir el flujo adecuado de sangre capilar y la prevención de fugas de aire o la aspiración, y las lesiones derivadas de aumenta. El objetivo de este estudio fue analizar el manguito de presión en pacientes ingresados en la Unidad de Cuidados Intensivos (UCI) del Hospital en el interior de Paraíba, y ajustarlos a los límites aceptables de acuerdo con la literatura, con el fin de implementar un proyecto de protocolo de enfermería para controlar estas presiones. Este es un estudio exploratorio del campo, con enfoque cuantitativo-cualitativo, desarrollado con los pacientes en la UCI del Hospital Regional en el período de abril a mayo de 2014. Se evaluaron 32 mide la presión del manguito en ocho (8) de los pacientes masculinos y femeninos, a través de un medidor adaptado a la final de una extremidad de un equipo de suero en la mañana, tarde y noche. Fueran analizadas medidas de presión (cuffs) de los pacientes intubados y observó que las medidas eran muy variables e irregulares, en promedio 56,25% de los casos, mostrando la importancia de redoblar la atención de estos pacientes. En este sentido se sugiere la aplicación de un protocolo de enfermería para el seguimiento de estas presiones, en la mañana, tarde y noche, para establecer un control de rutina y una medición precisa de una mejor calidad de la atención, prevención de complicaciones.

PALABRAS CLAVE: Presión. Intubación. Traqueotomía. Monitorización de pacientes. Unidad de Cuidados Intensivos

PROTOCOLO QUE ADAPTA O MANGUITO DE PRESSÃO EM PACIENTES INTERNADOS PARA A UNIDADE DE CUIDADOS INTENSIVOS.

RESUMO

O cuff é um balonete existente em tubos orotraqueais e cânulas de trasqueostomia que tem como função principal vedar a traquéia, facilitando a ventilação, prevenindo a aspiração de conteúdo gástrico para os pulmões. Não existe uma rotina pré-estabelecida para monitorização da pressão dos balonetes nos pacientes sob ventilação internados na Unidade de Terapia Intensiva, essa pressão transmitida diretamente à parede da traquéia deve permitir fluxo capilar adequado e prevenir escape de ar ou broncoaspiração, além de lesões decorrentes de seu aumento. O objetivo deste estudo foi analisar as pressões de cuff em pacientes internados na Unidade de Terapia Intensiva (UTI) do Hospital no alto sertão paraibano e ajustá-las aos valores aceitáveis de acordo com a literatura, com o propósito de implementar uma proposta de protocolo de enfermagem para monitorização dessas pressões. Trata-se de um estudo exploratório, de campo, com abordagem quantiqualitativa, desenvolvido com pacientes internados na UTI do Hospital Regional, no período de Abril a Maio de 2014. Foram avaliadas 32 medidas de pressão do cuff em oito (8) pacientes dos sexos masculino e feminino, através de um manômetro adaptado a extremidade de um equipo de soro nos períodos matutino, vespertino e noturno. Foram analisadas as medidas pressóricas dos balonetes (cuffs) dos pacientes intubados e observou-se que as medidas foram variáveis e irregulares em média em 56,25% dos casos, mostrando a importância de se redobrar os cuidados a estes pacientes. Diante do exposto sugere-se a implementação do protocolo de enfermagem para a monitorização dessas pressões, nos períodos matutino, vespertino e noturno, visando estabelecer uma rotina de acompanhamento e mensuração fidedigna para uma melhor qualidade na assistência, prevenindo possíveis complicações.

PALAVRAS-CHAVE: Pressão. Intubação endotraqueal. Traqueostomia. Monitorização do Paciente. Unidade de Terapia Intensiva