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INTENSIVE TREATMENT UNIT (ICU): mechanical ventilation

UNIDAD DE TRATAMIENTO INTENSIVO (UCI): ventilación mecánica

UNIDADE DE TRATAMENTO INTENSIVO (UTI): ventilação mecânica

ABSTRACT
This study aimed to analyze the production of knowledge about the Intensive Care Unit, with a focus on mechanical ventilation. A brief survey was carried out regarding publications in the form of articles, manuals, national and international journals, the internet, books, and magazines. A time limit between the years 2010 to 2019 was considered.
DESCRIPTORS: Nursing; UTI; Mechanical Ventilation.

RESUMEN
Este estudio tuvo como objetivo analizar la producción de conocimiento sobre la Unidad de Cuidados Intensivos, con un enfoque en la ventilación mecánica. Se realizó una breve encuesta sobre publicaciones en forma de artículos, manuales, revistas nacionales e internacionales, Internet, libros y revistas. Se consideró un límite de tiempo entre los años 2010 a 2019.
DESCRIPTORES: Enfermería; UTI; Ventilación Mecánica.

RESUMO
Esse estudo objetivou analisar a produção do conhecimento acerca da Unidade de Tratamento Intensivo, com enfoque para ventilação mecânica. Uma breve pesquisa foi realizada a respeito das publicações na forma de artigos, manuais, periódicos nacionais e internacionais, internet, livros e revistas. Foi considerado um limite temporal entre os anos de 2010 a 2019.
DESCRITORES: Enfermagem; UTI; Ventilação Mecânica.

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Maria Lucia Costa de Moura
PhD in Environmental Pathology. Paulista University. SP / Brazil. https://orcid.org;0000-0002-0700-9564.

Carmen Lúcia Lupi Monteiro Garcia
PhD in Public Policy and Human Training. Federal University of the State of Rio de Janeiro. RJ / Brazil. https://orcid.org;0000-0002-1870-4829.

Suely Lopes de Azevedo
PhD in Nursing. Adjunct Professor at Universidade Federal Fluminense. RJ / Brazil. https://orcid.org/0000-0003-1107-3427.

INTRODUCTION

Mechanical ventilation is undoubtedly a set of techniques and procedures that allow to assist or temporarily replace the respiratory system, ensuring gas exchange. This is an important issue to be analyzed in the Intensive Care Unit (ICU), as it covers some aspects that need interdisciplinary involvement due to its high technology.

It is extremely important that the nurse is inserted in the team and that he/she is really trained, with enough skills to provide safe assistance free from malpractice, preventing greater damage to the critical patient.

In this sense, nursing brings very specific and technical skills, not least because they become necessary to work with this reality. On one hand, science, technique and engineering are added; and on the other hand, love, sensitivity, emotion and these feelings need to be constantly worked on, never to be neglected, as the emotional impact is overwhelming, due to the routine experienced in this environment.

METHODOLOGY

Trata-se de uma breve revisão acerca da produção do conhecimento sobre a ventilação mecânica em UTI. Uma breve pesquisa foi realizada a respeito das publicações na forma de artigos, manuais periódicos nacionais e internacionais, Internet, livros e revistas. Foi considerado um limite temporal entre os anos de 2010 a 2019. A busca foi realizada nos meses de abril e maio, sendo selecionados os estudos pertinentes à pesquisa.

In this situation, Minayo classifies the research as:

> *"Basic activity of the sciences in their investigation and discovery of reality. It is an attitude and a constant search for theoretical practice that defines an inherently unfinished and permanent process. It is an activity of successive approximations to reality that never ends, making a particular combination of theory and data[1]".*

The review becomes easy access to research, selecting relevant studies. It can also ensure that other researchers do not duplicate the work that has already been done, highlighting the main findings, identifying inconsistencies, gaps and contradictions in the literature, not least because it highlights what matters and what may interest other readers.

RESULTS AND DISCUSSION

A total of 11 studies were used in this research. Being 01 book, 07 articles, 01 book outside the time limit just to support the work and it will not be computed in the Table below, 02 government websites that will be computed in the Table, totaling 10 studies.

Most of the articles address the Intensive Care Unit, nursing work and the treatment of patients. They also mention the stressors that are always present in the relationships between the family of patients in the ICU.

In 2010 were found 02 studies, and 2012 also found 02 studies. In 2013, 02 studies were also found. In 2014, also 02 studies. In 2017 and 2020, only 01 study each. As previously discussed, the 2004 study, outside the time limit, served to support the methodology and was not numbered in the text.

We highlight in the Chart below: Title, Author (s) and Year of Publication.

Continuing, the nurse, as a professional who works in the ICU, is related to the suffering of patients and their relatives; in addition, it must intervene in situations of crisis and pressure on health, overwork, shortage of personnel and materials; these situations can go beyond the coping levels of the nursing team, causing an imbalance in physical, mental and spiritual well-being[2].

It is worth remembering that the implementation of ICUs in the country began in the 1970s, being a very important structure and soon became essential for the care of patients with health in critical situations in Brazil[3].

In this context, authors affirm that ICU is understood as an immediate environment that can influence the critical patient in mechanical ventilation, seeking, as far as possible, to expand the field of nursing/health approach, envisioning how this environment can also have significant repercussions in the global environment[4].

The nurse acts fundamentally in ICUs since these units proposed to assist critically ill patients; however, it is also observed that nurses, currently, in certain institutions, are becoming increasingly distant from ventilatory support, perhaps due to the innumerable attributions that are devoid of them, or because there is another professional category doing this type of assistance, as well as due to the deficiency of your knowledge[5].

Chart 1. Articles collected through the Internet and books. Rio de Janeiro, RJ, Brazil, 2020

NOME DO ARTIGO	AUTOR (ES)	ANO DE PUBLICAÇÃO
A Unidade de Terapia Intensiva	Abrahão, ALCL	2010
Fatores estressantes para familiares de pacientes criticamente enfermos de uma unidade de terapia intensiva	Jaquilene Barreto da Costa et al	2010
Bienestar espiritual de enfermeras y enfermeros en unidades de cuidado intensivo	Luis Sierra Leguía, Amparo Montalvo Prieto	2012
Ventilação mecânica: evidências para cuidado de enfermagem.	Yarla Cristine Santos Jales Rodrigueset al.	2012
Recomendações brasileiras de ventilação mecânica 2013.	Carmen Sílvia Valente Barbas et al.	2013
Conforto de familiares de pessoas em Unidade de Terapia Intensiva frente ao acolhimento	Gibaut MAM, Hori RML, Freitas SK, Mussi CF	2013
Ambiente e Ventilação Mecânica: Uma reflexão possível.	Camila Rose Guadalupe Barcelos Schwonke	2014
Perfil do enfermeiro de terapia intensiva em diferentes regiões do Brasil	Renata Andrea Pietro Pereira Viana et al,	2014
NVISA Resolução da diretoria colegiada RDC- nº 137	Brasil/MS	2017
Intensive care units (ICUs)Governo Australiano		2020

In this sense, MV completely or partially replaces spontaneous ventilation and is indicated for acute or chronic respiratory failure (ARF). MV improves gas exchange and decreases respiratory work, and can be used non-invasively through an external interface, usually a face mask, and invasively through an endotracheal tube or tracheostomy cannula[6].

To accompany noninvasive ventilation (NIV), inspiratory pressure is used to ventilate the patient through a nasofacial interface [positive inspiratory pressure (IPAP) and or support pressure (PSV)] and positive expiratory pressure to maintain the pathways airways and open alveoli to improve oxygenation, positive expiratory pressure (EPAP) or positive end-expiratory pressure (PEEP). In the continuous positive airway pressure (CPAP) mode, only a continuous final expiratory pressure in the airways is administered to the patient via the nasofacial interface, and the patient is ventilated completely spontaneously[6].

In view of these considerations, in patients with advanced age, with prolonged use in controlled ways, malnourished patients, patients on corticosteroids, neuromuscular blockers and hypothyroidism, paying special attention to the assessment of respiratory muscle function[6].

It is necessary to show when monitoring the gas exchange in mechanical ventilation, attention to arterial blood gas analysis, as it portrays only a certain moment of the patient. For continuous monitoring, pulse oximetry and capnography (technology that allows a graphic image and an objective measurement of a patient's ventilatory status) are the best methods[6].

Therefore, the professional must maintain double attention when muscle relaxation that can be used for intubation, in the initial phase of MV, if necessary. Prolonged use should be avoided because of myopathy and neuropathy - increased risk due to concomitant use of corticosteroids[6].

Who is assisted in the ICU?

Patients may have a planned admission after surgery, an unexpected admission after an accident, or be admitted due to a serious health problem. The ICU teams are multidisciplinary, composed of highly qualified intensive care nurses, doctors and specialists trained to provide critical care to patients with a variety of medical, surgical and trauma conditions. Some hospital ICUs specialize in providing care for certain health conditions or injuries, including[7]: severe trauma, severe burns, cardiorespiratory arrest, organ transplantation, complex spinal surgery and cardiothoracic surgery.

What to expect in the ICU?

It is necessary to show that the ICU is one of the most critical operating environments in a hospital. Each ICU has a different environment that reflects the specialized medical and surgical procedures it performs. Most ICUs are reasonably large sterile areas, with a high concentration of specialized, technical and monitoring equipment needed to care for critically ill patients. The ICU environment can assist some patients and visitors who find the activity, sounds, machines, tubes and monitors intimidating[7].

On the other hand, when you visit someone you care about in the ICU, it can be an uncomfortable experience - you can feel helpless, overwhelmed, frustrated and sad. Your feelings and apprehension are understood by the team that supports people you care about. Typically, the ICU also has a higher proportion of doctors and nurses for patients[7].

ICU equipment

Seen from this perspective, it can be a frightening and uncertain moment for you, your family and friends to see the people you care about being monitored and supported by machines. In the ICU, you will see many patients connected to a cardiac monitor, others will be supported with respiratory assistance from artificial ventilators, will be on dialysis machines and will receive a variety of intravenous infusions through tubes and drips. Be prepared to see many lines, tubes, wires and monitoring equipment. Almost all ICU equipment uses alarms to inform the team about a change in the patient's condition. Not all equipment alarms signal an emergency situation[7].

Visitors

It is worth remembering that every ICU has a visitor policy to ensure the well-being of its patients. You will need to ask the local staff about their specific visiting hours and requirements, which are usually restricted to people the patient considers immediate family members. If you feel unwell or have an existing health condition, reconsider the visit to the patient or discuss your circumstances with the unit staff before planning your visit[7].

Cell phones

Cell phones must be turned off as they can interfere with vital electrical equipment that supports patients and can also be annoying.

Thus, entering the ICU environment to visit the seriously ill relative and encounter wires, screens, monitors, noise and people moving at all times impresses and generates fear, doubts and anxieties, reasons why the relative needs to be comforted[8].

Thus, when admitted to the ICU, both the patient and family members face one of the biggest crises due to discomfort caused by deprivation of living with the sick family, the possibility of losing it, the change in the routine of family life, the lack of information about the relative's health status and the need to adapt to the routines imposed by the institution where the care is processed[8].

Regarding the admission of a family member to the ICU, it usually occurs in a stressful way for both the patient and the family, where the time to adjust does

not exist, being characterized as a tense, physiological and/or psychological situation, which can affect people in all their dimensions[9].

Regarding the nurse, he also participates in the care of the inpatient's family. The qualification of the nurse includes attention, and awareness, and it is clear that stressors are present, but calm, respect and guidance contribute a lot in creating a bond between the nurse and the family.

On the other hand, with the increasing technological advances incorporated in patient care, it is essential to appropriate the knowledge articulated to the insertion of health technologies. Thus, professional qualification takes place through permanent education, with the objective of mastering the technological language and assisting in an integral way, in such a way as to benefit the patient and the professional himself, in a safe manner[10].

In this context, the Collegiate Directorate of the National Health Surveillance Agency (ANVISA), using the attribution as decided in a meeting held on January 31, 2017, RDC No. 137, of February 8, 2017, which provides for the minimum requirements for the operation of the Intensive Care Units and other measures, becomes effective with the following wording:

> *"§ 1st The medical technician responsible, the nursing and physiotherapy coordinators must have a specialist title, as established by the respective class councils and associations recognized by them for this purpose[10].*

It is worth pointing out that psychic balance also depends on being rested and motivated, because tiredness and demotivation are not allies. A closer look is needed for these workers and their physical and psychological needs. The number of workers should be sufficient for good nursing work planning.

CONCLUSION

The work in the Intensive Care Unit is extremely complex, stressful, and requires effective management.

Nursing always manages to circumvent the problems that usually arise, but even so, the setbacks appear in the middle of work. Living with the patient's family also creates stress, since nursing also suffers always looking for safe and comfortable care for both the patient and his family. ■

REFERENCES

1. Minayo SCM. Pesquisa Social, teoria, método e criatividade. Rio de Janeiro: Vozes; 2004.

2. Leguía LS, Prieto AM. Bienestar espiritual de enfermeras y enfermeros en unidades de cuidado intensivo. Avances en Enfermeria [Internet]. 2012 Ene/Abr [acesso em 22 mai 2020]; 30(1). Disponível em: http://www.scielo.org.co/pdf/aven/v30n1/v30n1a07.pdf.

3. Abrahão, ALCL. A Unidade de Terapia Intensiva. In: Cheregatti, AL, Amorim, CP Enfermagem em Unidade de Terapia Intensiva. São Paulo: Martinari; 2010.

4. Schwonke RGB, Lunardi Filho WD, Silva JRS. Ambiente e Ventilação Mecânica: Uma reflexão possível. Rev. Enf Global [Internet]. 2014 [acesso em 22 mai 2020]; 13(35):1-9. Disponível em: http://scielo.isciii.es/pdf/eg/v13n35/pt_reflexion2.pdf.

5. Rodrigues YCSJ, Studart RMS, Andrade IRC, Citó MCO, Melo EM, Barbosa IV. Ventilação mecânica: evidências para cuidado de enfermagem. Esc Anna Nery (impr.) [Internet]. 2012 out-dez [acesso em 22mai 2020]; 16(4):789-795. Disponível em: http://www.scielo.br/scielo.php?pid=S1414-81452012000400021&script=sci_abstract&tlng=pt.

6. Barbas CSV, et al. Recomendações brasileiras de ventilação mecânica 2013. Parte I. Comitê de Ventilação Mecânica da Associação de Medicina Intensiva Brasileira (AMIB) e da Comissão de Terapia Intensiva da Sociedade Brasileira de Pneumologia e Tisiologia (SBPT) [Internet]. 2013 [acesso em 22 abr 2020]; 26(2). Disponível em: http://www.scielo.br/pdf/rbti/v26n2/0103-507X-rbti-26-02-0089.pdf.

7. Departamento de Saúde do Governo Australiano. Intensive care units (ICUs) [Internet]. Austrália, 2020 [acesso em 22 abr 2020]. Disponível em: https://healthywa.wa.gov.au/Articles/F_I/Intensive-care-units-ICUs.

8. Gibaut MAM, Hori RML, Freitas SK, Mussi CF. Conforto de familiares de pessoas em Unidade de Terapia Intensiva frente ao acolhimento. Rev Esc Enferm USP [Internet]. 2013 [acesso em 22 mai 2020]; 47(5):1117-24. Disponível em: http://www.scielo.br/pdf/reeusp/v47n5/pt_0080-6234-reeusp-47-05-1114.pdf.

9. Costa JB, et al. Fatores estressantes para familiares de pacientes criticamente enfermos de uma unidade de terapia intensiva. J Bras Psiquiatr [Internet]. 2010 [acesso em 22 mai 2020]; 59(3):182-189. Disponível em: https://www.scielo.br/pdf/jbpsiq/v59n3/a03v59n3.pdf.

10. Viana RAPP, Vargas MAO, Carmagnani MIS, Tanaka LH, Luz KR, Schmitt PH. Perfil do enfermeiro de terapia intensiva em diferentes regiões do Brasil.Texto Contexto Enferm [Internet]. 2014 jan-mar [acesso em 22 mai 2020]; 23(1):151-9. Disponível em: https://www.scielo.br/pdf/tce/v23n1/pt_0104-0707-tce-23-01-00151.pdf.

11. Ministério da Saúde, Agência Nacional de Vigilância Sanitária (BR). Resolução da diretoria colegiada RDC n.º 137, de 08 de fevereiro de 2017 [Internet]. Brasília (DF): MS/ANVISA, 2017 [acesso em 22 mai 2020]. Disponível em: http://portal.anvisa.gov.br/documents/10181/3219514/RDC_137_2017_.pdf/f1b5c939-4c63-4958-9220-08dbcabbc4cf.