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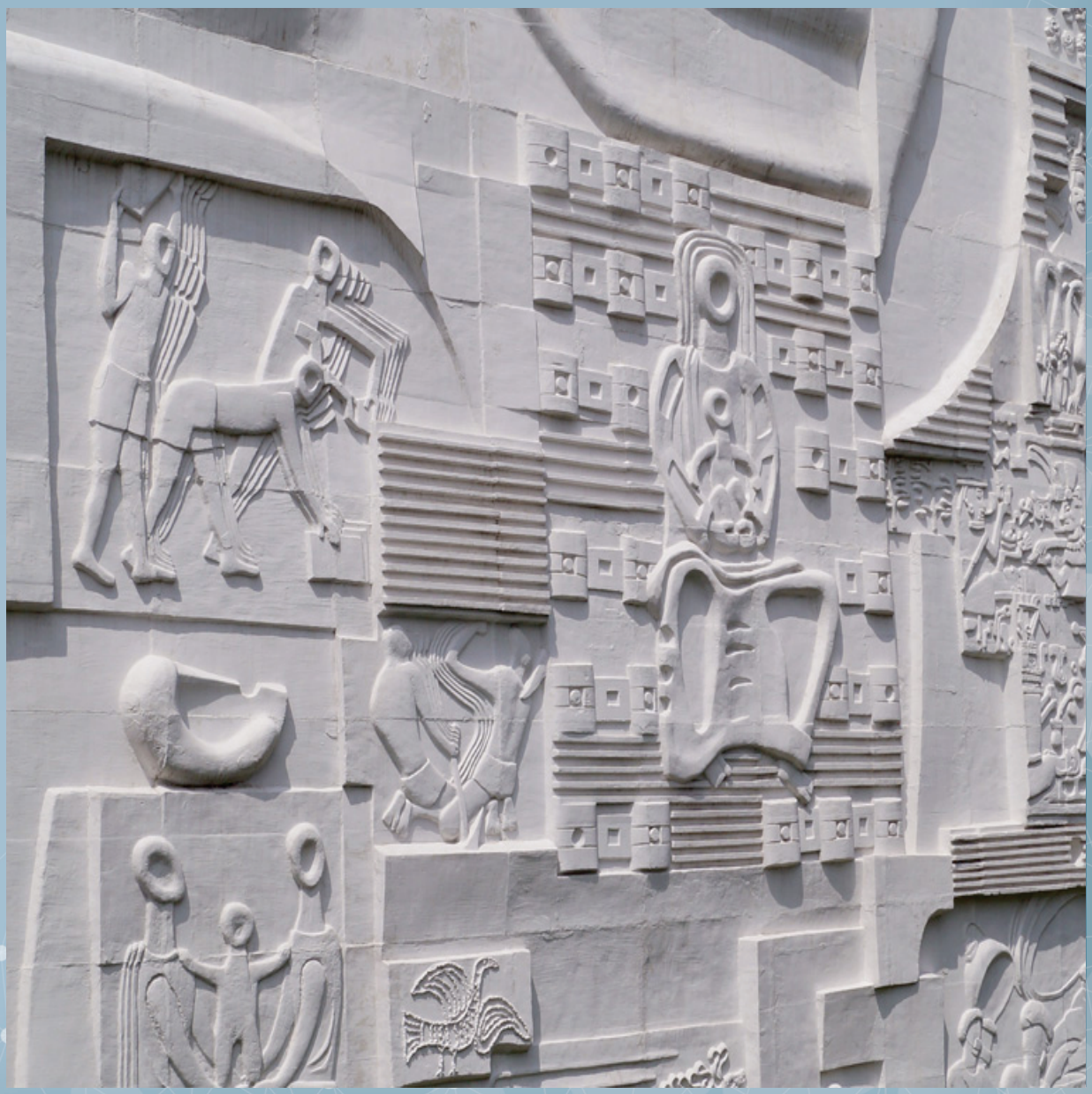

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Contenido Contents

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Instituto Nacional de Neurología y Neurocirugía Manuel Velasco Suárez | Revista de Enfermería Neurológica

Editorial

The value of leadership

El valor del liderazgo

Today's health circumstances and needs represent a challenge that forces nursing professionals to assume new responsibilities in a short period, to perform high-quality actions to develop roles and competencies, as well as to improve existing strategies and protocols in the management of health processes. At the same time, leadership skills must be acquired to help professionals succeed in their functions.

Leadership skills in nursing are related to the ability to assume responsibilities and competencies in a multidisciplinary team to meet the objectives of an institution. It also implies having aptitude in decision making and in organizing and managing health services efficiently, to contribute with actions that allow a greater participation in health policies. In addition, nursing leadership directly affects the quality of patient care, which is one of the main objectives of a health institution.

Therefore, nursing professionals should exercise in their professional and academic practice a leadership that has an impact, that is, that assumes responsibility for the achievement of changes in health care. In this sense, it is important to be clear about what is expected of professionals who choose leadership positions, or who are in this role without choosing it, especially when they have to manage a group of colleagues within a service or a department to achieve certain objectives.

In short, the nursing professional must develop leadership qualities that help to strengthen his or her critical, analytical, and reflective sense; competencies inherent to his or her professional activity. While the nurse manager must possess these skills to lead teams toward their respective objectives, the professionals who provide direct care are also leaders of the care they provide. In their work, they promote technical, scientific, and human quality.

Our healthcare systems need nurse leaders in care, therefore it is our responsibility to understand our leadership skills.

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El valor del liderazgo

The value of leadership

Las circunstancias y las necesidades en salud que se viven hoy en día representan un reto que obliga a los profesionales de la enfermería a asumir nuevas responsabilidades en poco tiempo, realizar acciones de alta calidad para desarrollar roles y competencias, así como mejorar estrategias y protocolos existentes en el manejo de los procesos de la salud. Al mismo tiempo, se deben adquirir habilidades de liderazgo que ayuden a los profesionales a tener éxito en sus funciones.

Las habilidades de liderazgo en enfermería se relacionan con la capacidad de asumir en un equipo multidisciplinar responsabilidades y competencias que permitan cumplir con los objetivos planteados de una institución. Asimismo, implica tener aptitud en la toma de decisiones y en la organización y administración de los servicios de salud de forma eficiente, esto para contribuir con acciones que permitan una mayor participación en políticas de salud. Aunado a ello, el liderazgo enfermero afecta directamente la calidad de la atención que recibe el paciente, lo que constituye uno de los objetivos principales de una institución de salud.

Por lo anterior, los profesionales de enfermería deben ejercer en su práctica profesional y académica un liderazgo que tenga impacto, es decir, que asuma responsabilidad en el logro de cambios para el cuidado de la salud. En este sentido, es importante tener claro qué se espera de los profesionales que deciden elegir puestos de liderazgo, o que sin elegirlo están en dicha función, primordialmente cuando deben gestionar a un grupo de colegas dentro de un servicio o una dirección con el fin de lograr ciertos objetivos planteados.

En suma, el profesional de enfermería debe desarrollar cualidades de liderazgo que ayuden a potenciar su sentido crítico, analítico y reflexivo; competencias inherentes a su actividad profesional. Si bien la enfermera gestora debe poseer dichas capacidades para conducir equipos hacia sus respectivos objetivos, los profesionales que atienden de forma directa son igualmente líderes de los cuidados que otorgan y en su labor fomentan la calidad técnica, científica y humana.

Nuestros sistemas de salud necesitan enfermeras y enfermeros líderes en el cuidado, es por ello una responsabilidad comprender nuestras habilidades de liderazgo.

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Instituto Nacional de Neurología y Neurocirugía Manuel Velasco Suárez | Revista de Enfermería Neurológica

Original article

Incidencia de Lesiones por Presión en pacientes adultos mayores hospitalizados, durante el periodo 2018-2021

Incidence of pressure injuries in hospitalized older adult patients, during the 2018-2021 period

Ma. Rosy Fabián Victoriano David Adrián Escamilla Juárez Alejandra Morales Rubio

Resumen

Introducción: en los pacientes adultos mayores (PAM) de 65 años, el riesgo de desarrollo de lesiones por presión (LPP) aumenta 6% por cada año de edad. Este grupo presenta además condiciones como malnutrición, inmovilidad, pérdida de la independencia, hipoalbuminemia, anemia y linfopenia, asociados a LPP graves, que interfieren significativamente en la calidad de vida y son un factor de riesgo añadido en la mortalidad.

Objetivo: describir la incidencia de LPP en pacientes adultos mayores hospitalizados.

Metodología: estudio observacional, descriptivo, longitudinal y retrolectivo; población conformada por 3600 registros clínicos de PAM hospitalizados durante el periodo 2018-2021, muestreo secuencial.

Resultados: la media de edad fue de 74.91 años (DE 9.11); 19.9% de los pacientes desarrollaron LPP, la incidencia fue de 16.43/1000 días de hospitalización; 59.1% desarrollaron 1 LPP y 28.9% 2 LPP; el estadio más frecuente fue el II (43.4%), seguido del estadio no identificable (25.5%); el promedio de días para el desarrollo de LPP fue de 6.08 (DE 5.31). La región más afectada fue el sacro (19.22%), seguida del talón (17.13%). El servicio en el que más LPP se presentaron fue urgencias (44%). La media de puntuación Braden fue de 7.87.

Conclusiones: si bien la incidencia de LPP es alta, se observó que la media de edad del paciente y el promedio de días para su desarrollo es mayor a lo reportado previamente. Los resultados servirán para implementar estrategias de prevención dirigidas a la población adulta mayor, ya que presentan factores de riesgo que los hacen propensos al desarrollo de LPP.

Palabras clave: lesión por presión, adulto mayor, incidencia.

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Abstract

Introduction: In older adult patients (OAP) aged 65 years, the risk of developing pressure injuries (PI) increases by 6% for each year of age. This group also presents conditions such as malnutrition, immobility, loss of independence, hypoalbuminemia, anemia, and lymphopenia, associated with severe PI, which significantly interfere with quality of life and are an added risk factor for mortality.

Objective: to describe the incidence of PI in hospitalized older adult patients.

Methodology: observational, descriptive, longitudinal, and retrolective study; population conformed by 3600 clinical records of hospitalized OAP during 2018-2021, sequential sampling.

Results: mean age was 74.91 years (SD 9.11); 19.9% of patients developed PI, the incidence was 16.43/1000 days of hospitalization; 59.1% developed 1 PI and 28.9% 2 PI; the most frequent stage was stage II (43.4%), followed by unidentifiable stage (25.5%); mean number of days for PI development was 6.08 (SD 5.31). The most affected region was the sacrum (19.22%), followed by the heel (17.13%). The department with the most PI was the emergency department (44%). The mean Braden score was 7.87.

Conclusions: Although the incidence of PI is high, it was observed that the mean patient age and the average number of days for its development are higher than previously reported. The results will help to implement prevention strategies aimed at the elderly population since they present risk factors that make them prone to the development of LPP.

Keywords: pressure injury, older adult, incidence.

Introduction

Pressure injuries (PI) are a serious problem in the hospital environment; they occur mainly in services where patients remain hospitalized for more than 3 days and, depending on the stage of PI that develops, can prolong their hospital stay for up to 14 days.[1,2]

Patients with PI may see their quality of life deteriorate due to various factors, for example, pain, treatment procedures, depression, and infections, such as osteomyelitis. It is estimated that 17 to 32% of patients with PI develop complications that can put their physical integrity and even their lives at risk since mortality in these cases can increase up to three times. The development of PI in the hospital is associated with an increased risk of death; it is estimated that up to 59.5% of patients die within the first year after hospital discharge.[3-6]

In addition, PI have a considerable financial impact on patients, as they generate increased medical treatment costs for their families and healthcare organizations. The treatment costs of PI include the costs of care, materials, procedures, and the personnel needed to manage them. In the United States, it is estimated that the

annual cost of PI management could exceed 26.8 billion dollars, while in Mexico the monthly cost of such management is 715 million pesos. In this regard, it should be noted that the cost of treatment also depends on the degree of commitment of the structures involved.[5,2,7]

The World Health Organization (WHO) considers the incidence of PI as an indicator of quality in health care services and points out that worldwide they have an average frequency of 8.91% in the hospital setting, mainly affecting critically ill patients. Other studies report a prevalence ranging between 5 and 12%. In Latin America and Mexico, prevalence is estimated at 12.92%. In the USA, it is estimated that 1 to 3 million people develop PI each year and 60,000 die from the complications of these ulcers.[8,1,3,6]

On the other hand, PI are considered an adverse event related to nursing care, since they constitute *"harm caused by health care and not by the underlying pathology"*. In this sense, the adverse event results from interventions performed or not performed on patients, and is related to the quality and safety of inpatient care. However, although hospitalized patients can develop PI, it is estimated that 44% of cases have some PI developed before admission.[9,5]

In 2016, the National Pressure Ulcer Advisory Panel (NPUAP) conducted a consensus to update the concept of *"pressure ulcer"*, modifying it to *"pressure injury"*. Thus, PI was defined as localized damage to the skin and underlying soft tissue, usually over a bony prominence, related to a medical or other device. The lesion may present as intact skin or an open ulcer and may be painful. It occurs due to intense and/or prolonged pressure or a combination of pressure with shear. It should be considered that soft tissue tolerance for pressure and shear may be affected by microclimate, nutrition, perfusion, comorbid conditions, and soft tissue status.[10]

The NPUAP classifies PI into different stages: stage I: erythema that does not blanch on digit pressure; stage II: partial-thickness ulcer; stage III: total loss of skin thickness; stage IV: total loss of tissue thickness, which may involve bony structures, ligaments and/or joints; unclassifiable because covered with necrotic tissue and/or slough (unknown depth); suspected deep tissue injury; and medical device-related PI.[11]

The risk factors for the development of PI are: decreased mobility, malnutrition, low body mass index, decreased physical health -which includes factors such as oxygenation and perfusion-, advanced age, body temperature, friction, skin moisture, pain, drugs used, use of certain types of medical devices, impaired cognition, sensory perception, and comorbidities. To these are added the care risk factors, such as staffing deficiencies, the care team's knowledge of ulcer assessment and prevention, the quality of interventions, and clinical practice guidelines.[4,8]

Individuals of any age and with any health condition can be affected by a PI, but it is more common among the elderly and seriously ill people with various comorbidities. In this regard, a previous study that analyzed a total sample of 3904 patients with PI, of which 66% were adults over 65 years of age, is relevant.[12,13]

The elderly are considered the most vulnerable group due to certain factors, including the characteristics of the skin,

which undergoes various changes due to the aging process and environmental factors that affect hydration, sebaceous secretion, sweat gland function, and permeability; frailty associated with comorbidities, such as neurological and mental status changes; nutritional status; mobility; activity; and urinary and anal incontinence. Furthermore, there are also specific risk factors that relate to the patient's age, general condition, and number of comorbidities, e.g., impaired function in multiple systems, immune senescence, persistent exposure to pressure and skin shear, and subcutaneous fat atrophy.[14]

It is worth noting that the presence of severe PI is associated with this age group since adults over 60 years of age have a 3.13 times higher risk of presenting a PI. In turn, hypoalbuminemia increases approximately 6 times the possibility of having a severe PI, the presence of anemia increases the risk 4 times, and lymphopenia (OR: 3.68; 95%CI: 1.5-9) increases the probability of the presence of severe PI by 3.68 times.[15]

There are several scales to determine a patient's risk of developing PI. One of the most widely used for its sensitivity and specificity is the Braden-Bergstrom scale, composed of 6 subscales, which are: sensory perception, humidity, activity, mobility, nutrition, friction, and shear. This scale is a useful tool in decision-making related to preventive measures to be adopted according to the risk for each patient, which is classified as low, medium, and high risk.[16,15,17]

The most frequent locations of PI are in the lower extremities of the body. Several studies agree that they are mainly located in the sacral region and heels, as well as in the trochanteric area. Vela Anaya states in his study that the most frequent stages were I and II, which represented 73% of the PI examined. The units or services with the highest incidence are the Intensive Care Unit (ICU), Internal Medicine, and Trauma/Orthopedics.[18,14,7,9]

PI are a persistent problem in hospital units and a concern for the nursing area involved in the care of patients who present them since this care demands up to 50% more than the time commonly used.[19,20] Therefore, the objective of this research was to describe the incidence of pressure injuries in older adult patients hospitalized at Dr. Manuel Gea González General Hospital from 2018 to 2021.

Material and methods

Observational, descriptive, longitudinal, and retrolective study. As the universe, all clinical records from the database of patients hospitalized and captured by the Skin Care and Pressure Injury Prevention Clinic in the period from January 2018 to December 2021 were considered. Subsequently, the population was integrated according to the clinical records of older adult patients hospitalized and captured by the said clinic in the aforementioned period. No sample calculation was performed since we worked with the total number of records found, which was 3720 records of older adults; the type of sampling was sequential. Clinical records of adult patients aged 60 years or older who remained hospitalized for more than 24 hours were included, and records with incomplete data were excluded, leaving a total of 3600 records. The variables included were: development of PI during hospitalization,

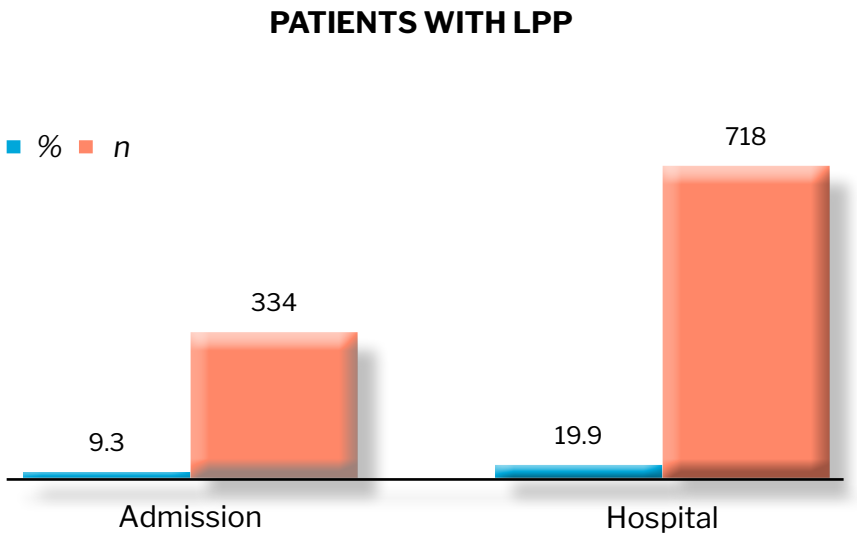
day of lesion development, Braden score on admission and at the time of lesion detection, location, stage, number of PI, days of hospital stay, admission department, and department where the PI was detected, the reason for discharge and use of alternating pressure cushion; the presence of PI on hospital admission, number of lesions, location and stage of the lesions were also considered. The occurrence of the first PI documented in the database, as well as its location, was considered an incident case. Descriptive statistics and the SPSS statistical program were used for data analysis. The protocol was submitted to the Research Committee and the Research Ethics Committee of the institution, who approved the protocol and issued the report with registration number 42-28-2022. The protocol complied with the stipulations of the Regulations of the General Health Law on Health Research.

Results

The mean age of the patients was 74.91 years (SD 9.11), with a predominance of the female sex (52.7%). At the time of hospital admission, 9.3% of the patients had one or more PI, while 19.9% of the patients developed them during their hospital stay (*Graph* 1). The total of patient observation time was 43,675 days. The incidence rate of PI in older adults was 16.43 per 1000 days of hospitalization.

Concerning the stage of the PI patients had at the time of hospital admission, stage II was the most frequent (41.1%), followed by *"deep tissue damage"* (19.4%) and, finally, stage VI or unidentifiable (18.1%). The main services in which the clinic captured older adults at moderate and/or high risk for the development of PI were Emergency, Shock, and Internal Medicine.

Graph 1. Number and percentages of patients with PI according to their development before admission or during hospitalization.



Source: Own elaboration based on clinical records of hospitalized patients.

The average number of days of hospitalization of patients was 21.34. The total number of PI developed by the patients was 1144; of this total, 59.1% of the cases developed a PI. The most frequent stage was stage II (43.4%), followed by stage VI or unidentifiable (25.5%). The average number of days for the development of PI in patients was 6.08. During the study period, the departments with the highest rate of PI were the Emergency Department, Internal Medicine and the Covid ICU. PI were present in different body regions, the most frequent area being the sacrum (19.22%). Likewise, PI were found in rare regions such as the face (cheekbones, nasal bridge, chin), abdomen, knees, and toes, the latter developed during the COVID-19 pandemic. Of the total number of patients in follow-up, 16.2% had an alternating pressure mattress placed during their hospital stay, of which 60.9% developed PI. According to the data of the total study population, the most frequent diagnoses were related to the following systems: respiratory (21.6%), hemodynamic (13.9%), neurological (9%) and metabolic (7.9%). The most frequent reason for discharge was discharge to home (*Table 1*).

Concerning the risk presented by the patients at the time of hospital admission, the mean Braden score was 10.86, which decreased considerably when PI was detected, with a mean of 7.87 (*Table 2*).

Table 1. Characteristics of patients with PI

Characteristics	*n*	%
Age		
60-70	1236	34.3
71-80	1464	40.7
81-90	714	19.8
91-100	177	4.9
101	9	0.2
Sex		
Woman	1898	52.7
Man	1700	47.3
Admission Service		
Plastic surgery	23	.6
Shock	1064	29.6
General Surgery	213	5.9
Hospitalization 4th floor	108	3.0
Internal Medicine	264	7.3
AICS	95	2.6
AICS Covid	106	3.0
Emergency observation	1727	48.0

Origin of PI		
Home	334	9.3
Hospital	718	19.9
Number of PI at admission		
1	81	24.3
2	212	63.47
3	19	5.7
4	22	5.6
PI detection service		
General Surgery	52	7.2
Hospitalization 4th floor	27	3.7
Internal Medicine	164	22.8
AICS	70	9.7
AICS COVID	89	12.3
Emergency observation	316	44
Patients with alternating pressure cushion		
Yes	582	16.2
No	3018	83.8
Reason for hospital discharge		
Discharge to home	2599	72.2
Death	940	26.1
Transfer to another hospital unit or nursing home	46	1.3
Voluntary discharge	15	.4

Source: Own elaboration based on clinical records of hospitalized patients.

Table 2. Additional data on patients with PI

	Media	*IC 95%*
Days of hospital stay	21.34	2.84-45.52
PI Development Days	6.08	5.68-6.48
Braden score at entry	10.86	10.86-11.27
Braden score during detection	7.87	7.63-8.10

Source: Own elaboration based on clinical records of hospitalized patients.

Discussion

PI are considered an adverse event related to nursing care since they represent *"harm caused by health care and not by the underlying pathology"*. In this sense, the adverse event is a result of interventions performed or not performed on patients and is related to the quality and safety of inpatient care.[5] Zhang describes in his study that in the case of adults over 65 years of age, the risk of developing a PI increases by 6% for each year of age.[12]

In this study, the female sex predominated (52.7%), a percentage that coincides with those reported by other authors, such as Machain *et al.*,[18] Tosta de Souza *et al.*[22] and Palese *et al.*,[21] who reported 56, 62.8 and 89.5%, respectively. Regarding age, the group with the highest incidence was 71-80 years, results consistent with Machain *et al.*[18] (75-85) and Palese *et al.*[21] (76.3-88). Approximately 10% of the patients were admitted to the hospital unit with one or more PI, a figure significantly lower than the results published by Morales Ojeda *et al.* (46.8)[16] and Tosta de Souza *et al.* (28.7%).[22] Almost half of the patients enrolled in this study were admitted to the hospital unit through the emergency department (48.0%), a percentage that contrasts with that reported by Palese *et al.*[21] in their study (94.7%).

The most interesting finding that can be extracted from this work was that the incidence rate of PI in hospitalized older adults during the study period (16.43 /1000 days of hospitalization) is lower than that reported by Tosta de Souza et al. (39.4%)[22] in people of the same age group. In contrast, Palese *et al.*[21] report a lower incidence (8.5/100 days of hospitalization) in adult patients older than 65 years. The discrepancies between these findings may be due to the smaller sample size (1464 patients), as well as differences in the study period and patient follow-up.

It is encouraging to compare the results regarding the average number of days in which patients acquired a PI and the risk score obtained through the Braden scale. In this study, PI in patients developed, on average, after 6.08 days from hospital admission (95% CI 5.68-6.48). For their part, Palese *et al.*[21] reported an average of 3.3 days after admission (95% CI 2.2-4.4), a situation that reflects that patients were injured in half the time as in our study. Regarding the risk for the development of PI, high risk, 7.87 (95% CI7.63 - 8.10), predominated at the time of PI detection, while in the study by Palese *et al.*[21], the risk for the development of PI was in the high and moderate limits, 12.1 (95% CI 10.1 - 14.0). However, in the older adult patients captured by the PI Skin Care and Prevention Clinic, the mean score at admission positioned them at high risk, 10.86 (95% CI10.86 - 11.27), which increased as PI screening was performed.

Although it is true that in the study more than half (59.1%) of the patients developed a single PI and 40.9% presented 2 or more lesions, these figures contrast with those reported by Morales Ojeda *et al.*,[16] because in their population approximately three quarters (76.1%) presented a single PI and about a quarter (21.1%) presented two or more lesions. Regarding the stage and location of the PI, the most common was stage II (43.3%), and the most frequent locations were found in the lower and posterior body segment (50.67%; sacrum, heel, and buttocks), findings that are similar

to those of most authors reporting incidence of PI in older adults (Morales *et al.*,[16] Palese *et al.*,[21] Tosta de Souza *et al.*,[22] Machain *et al.*[18]). It is worth mentioning that during the COVID-19 pandemic, in our population we documented the appearance of PI in the upper and anterior body segment, specifically on the face, cheekbones, nasal bridge, and abdomen - frequent locations in patients placed in the prone position as part of treatment in support of mechanical ventilation; however, it was not documented whether these lesions were related to the medical devices or were solely a consequence of the position.

The predominant reason for discharge was discharge to home (72.2%), as in the study by Morales et al (88.7%).16 However, there is a discrepancy in the number of patients who died, since in our population the percentage was higher.

Conclusions

Although the incidence of PI in older adults is indeed high, it is noteworthy that the average number of days for its development is higher than that reported by other authors. It should also be noted that almost half of the patients were admitted to the hospital unit through the emergency department, with the largest number of patients being injured in the emergency department. It is also relevant to note that a quarter of the patients died during the hospitalization period.

Some of the limitations of the study are that it was not determined whether age, gender, comorbidities, the use of medical devices, and the presence of PI at the time of hospital admission were factors associated with the development of PI. Nor was it possible to establish whether there was an association between the diagnosis of COVID-19, and the development, stage, and amount of PI, with patient death.

The results obtained will serve to implement prevention strategies especially aimed at the elderly population, considering that, as described in the literature, they present specific risk factors that make them more vulnerable to the development of PI.

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Declaration of conflict of interest

The authors of this article declare that they have no conflicts of interest.

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Original article

Evaluación continua del dolor en la unidad de terapia intensiva del Centro Médico Naval: un acercamiento a métodos de valoración y escalas

Continuous assessment of pain in the intensive care unit of the Naval Medical Center: an approach to assessment methods and scales

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Resumen

Introducción: el dolor es *"una experiencia sensitiva y emocional desagradable que se asocia a una lesión tisular real o potencial"*.[1] La Organización Mundial de la Salud establece una clasificación del dolor de acuerdo a sus múltiples características. Asimismo, existen distintas escalas validadas a nivel internacional para establecer niveles de dolor.

Objetivo: evaluar mediante tres escalas el nivel de dolor de pacientes en estado crítico con ventilación mecánica y protocolo de sedoanalgesia durante la realización de cuatro procedimientos, con el fin de conocer si las medidas analgésicas empleadas son eficientes para mitigarlo o suprimirlo.

Material y métodos: se evaluó el nivel de dolor en procedimientos como aspiración de secreciones, movilización, instalación de sondas y catéteres, y curación de heridas. La valoración incluyó la analgesia farmacológica de base y la administrada en bolos, además, se midieron las variables fisiológicas 5 minutos antes, durante y 10 minutos después de la realización de los procedimientos. Las puntuaciones obtenidas se clasificaron conforme tres escalas indicadoras de dolor (BPS, CPOT y ESCID).

Resultados: Antes del procedimiento la mayoría de los pacientes tenían una expresión facial relajada (48.4%, n=14), durante, predominó una expresión facial parcialmente contraída (48.3%, n=14), y además se presentaron seis casos en que se observaron muecas de dolor (20.7%). Después del procedimiento la expresión facial de los pacientes volvió a estar en su mayoría relajada (75.9%, n=22). Se observó que los picos de dolor se presentan principalmente durante los procedimientos

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pese a la administración de medidas farmacológicas; se encontró un comportamiento similar según las escalas ESCID y CPOT.

Conclusión: Los procedimientos que con más frecuencia causan dolor son la movilización y aspiración de secreciones; el que produce menos dolor es la instalación de sondas. Las escalas CPOT y ESCID suelen ser más precisas, pues cuentan con una mayor cantidad de categorías de clasificación. La escala BPS contabilizó al total de la muestra como sin dolor, mientras que la CPOT sólo colocó en esta categoría a 18 personas.

Palabras clave: dolor, Unidad de Cuidados Intensivos, escalas de valoración del dolor, BPS, ESCID, CPOT, analgesia.

Abstract

Introduction: Pain is *"an unpleasant sensory and emotional experience that is associated with actual or potential tissue injury"*.[1] The World Health Organization establishes a pain classification according to its multiple characteristics. Likewise, there are different internationally validated scales to establish pain levels.

Objective: to evaluate the pain level of critically ill patients with mechanical ventilation and sedoanalgesia protocol during four procedures using three scales, to determine whether the analgesic measures used efficiently mitigate or suppress pain.

Material and methods: The pain level in procedures such as secretion aspiration, mobilization, catheter and catheter installation, and wound healing was evaluated. The assessment included basic pharmacological analgesia and bolus analgesia, and physiological variables were measured 5 minutes before, during, and 10 minutes after the procedures were performed. The scores obtained were classified according to three pain indicator scales (BPS, CPOT, and ESCID).

Results: Before the procedure, most patients had a relaxed facial expression (48.4%, n=14). During the procedure, a partially contracted facial expression predominated (48.3%, n=14), and there were also six cases in which pain grimaces were observed (20.7%). After the procedure, the facial expression of the patients was mostly relaxed again (75.9%, n=22). It was observed that pain peaks occurred mainly during the procedures despite the administration of pharmacological measures; similar behavior was found according to the ESCID and CPOT scales.

Conclusion: The procedures that most frequently cause pain are mobilization and aspiration of secretions; the procedure that causes the least pain is the installation of probes. The CPOT and ESCID scales tend to be more accurate, as they have more classification categories. The BPS scale counted the entire sample as pain-free, while the CPOT only placed 18 people in this category.

Keywords: pain, Intensive Care Unit, pain rating scales, BPS, ESCID, CPOT, analgesia.

Introduction

One of the most widely accepted definitions of pain is provided by the International Association for the Study of Pain: *"an unpleasant sensory and emotional experience that is associated with actual or potential tissue injury"*.[1] These sensations are intimately related to the pain receptors of the nervous system, known as nociceptors. The presence of pain constitutes both an afferent and efferent pathway, and certain stimuli, including physical, chemical, or even psychological, can precipitate the onset or prolongation of pain.[2]

Shahnaz Ayasrah points out that critically ill patients hospitalized in intensive care units (ICU) have uncontrolled pain rates of 50% even at rest. Likewise, the performance of multiple, continuous, and frequent processes, such as mobilization, transfer to other areas, installation of probes or catheters, in addition to physical examination, nursing care, and waiting time for diagnostic interventions, as well as the underlying health condition, is related to a significant increase in the pain process.[2]

Types of pain

The importance of recognizing and classifying pain according to its characteristics is that it can be treated specifically, using pharmacological and non-pharmacological measures, to reduce it if the underlying cause cannot be eliminated.[3]

The World Health Organization (WHO) establishes a series of useful elements to classify pain according to several aspects.[3]

Table 1. Classification of types of pain based on WHO criteria.

Duration	Acute	Limited concerning time and with little psychological component.
	Chronic	Unlimited in duration and accompanied by a psychological component.
Pathogenesis	Neuropathic	Caused by a direct stimulus of the central nervous system or by injury to the peripheral nerve pathways.
	Nociceptive	Somatic: occurs due to abnormal excitation of superficial or deep somatic nociceptors. It is characterized by being localized, throbbing, and radiating along nerve pathways.
Course	Continuous	It does not disappear throughout the day and is persistent.
	Irruptive	It is a transient exacerbation of pain in well-controlled patients with stable background pain.
Intensity	Slight	When normal activities can still be carried out.
	Moderate	When it requires treatment with minor opioids and causes interference with usual activities.
According to pharmacological treatment	Responds well to opioids	For visceral and somatic pain.
	Partially sensitive to opioids	Bone pain and pain due to compression of peripheral nerves; it is convenient to make associations with other analgesic groups, such as NSAIDs or steroids.
	Low sensitivity to opiates	Pain due to spasms of the striated musculature and infiltration or destruction of peripheral nerves; tends to respond to antidepressant or anticomic drugs.

Note: Adapted from the WHO classification and according to the characteristics of each category.[3]

As previously mentioned, proper identification of the mechanisms of pain and its classification will allow the establishment of adequate therapeutic measures to achieve its reduction or remission.

Pain is a condition suffered by most patients admitted to an intensive care unit. It is frequently associated with the pathophysiological conditions in which they find themselves, in addition to the fact that, due to their critical condition, they are subjected to prolonged invasive procedures (mechanical ventilation, placement of catheters, probes, drains, mobilizations, among others) or periods of sedation or anxiolysis. For these reasons, patients temporarily lose the ability to express themselves verbally. Different studies have shown that this loss is the main reason why pain assessment tends to be displaced to the background.

Pain assessment scales

The assessment of pain in a critically ill patient who cannot express himself verbally involves the difficulty of determining the presence or even the level of pain. Through the application of assessment scales, a trained health professional will provide care focused on limiting this condition's onset and its physiological consequences. This method is of utmost importance, as it allows providing adequate care to refer to the painful condition and eliminate its source. The treatment of pain often involves the prescription of analgesics, taking into account the age and sex of the patient, the triggering etiology, and the clinical variables that may lead to prolonging the pain.

As a sign of subjective nature, the classification of pain has resorted to instruments that make it a measurable element.[4]

Behavioral Pain Scale (BPS)

The Behavioral Pain Scale is an assessment tool for patients undergoing mechanical ventilation and deep sedation. It is widely used and its degree of reliability has been validated

Table 2. Items evaluated according to the Behavioral Pain Scale (BPS)

Facial expression	*Score*
Relaxed	1
Partially contracted	2
Strongly contracted	3
Grimace of pain	4
Upper limb movement	***Score***
No movement	1
Partially flexed	2
Strongly flexed with finger flexion	3
Permanently flexed	4
Adaptation to mechanical ventilation	***Score***
Tolerates mechanical ventilation	1
Coughs, but tolerates MV most of the time	2
Fights with the fan	3
Impossible to ventilate	4

Note. Score indicates: greater than or equal to 6 = presence of pain; greater than or equal to 7 = excruciating pain; less than 6 = objective.

by multiple studies. The scale assesses the items shown in Table 2.

The BPS represents one of the most appropriate scales in terms of its psychometric properties and high-reliability score. Likewise, its use facilitates decision-making concerning pain management interventions, and constitutes a parameter linked to the titration of analgesic drugs and to the duration of mechanical ventilation, sedation, and days of in-hospital stay.[5]

Critical-Care Pain Observation Tool (CPOT)

This scale was developed based on a series of multicenter studies conducted by Gélinas (2007), in which a total of 93 patients were interviewed about their experience with pain in the Intensive Care Unit. About 65.6% of the patients reported having had mechanical ventilation, and about 77.4% recalled having pain during the time of the procedure.[6]

Table 3. Items evaluated according to the Critical-Care Pain Observation Tool (CPOT)

Facial expression	***Score***
Relaxed	0
Tense	1
Grimaces	2
Body movement	***Score***
No movement	0
Slow and cautious, asks for attention	1
Restless, pulls the tube	2
Muscle tone	***Score***
Relaxed	0
Tense, rigid	1
Very tense or stiff	2
Adaptation to the fan	***Score***
Adapted	0
Coughs, but tolerates	1
Fights with the fan	2
Vocalization (extubated)	***Score***
Speaks in a normal tone	0
Sighs, moans	1
Screams, cries	2

Note. The score indicates: 0 = minimum pain; 8 = maximum pain.

Pain Indicator Behavior Scale (ESCID)

Scale created in 2011 by Latorre,[7] defines in a precise and quantified way each of its items to minimize the subjectivity of the observer

Table 4. Items evaluated according to the Pain Indicator Behavior Scale (ESCID)

Musculatura facial	***Score***
Relaxed	0
Tense, frowning	1
Habitual frowning, clenched teeth	2
Peace of mind	***Score***
Relaxed, normal movements	0
Occasional fidgeting, restlessness and/or posturing	1
Frequent movements, including head and limbs	2
Muscle tone	***Score***
Normal	0
Increased flexion of fingers and toes	1
Rigid	2
Adaptation to mechanical ventilation	***Score***
Tolerates mechanical ventilation	0
Coughs, but tolerates mechanical ventilation	1
Fights with the fan	2
Comfort	***Score***
Comfortable, quiet	0
Calms to touch and/or voice. Easy to distract	1
Difficult to control by touch or speech	2

Note. The score indicates: 0 = no pain; 1-3 = mild to moderate pain; 4-6 = moderate to severe pain; 6 = very severe pain.

Scales are a valuable tool for assessing pain in patients hospitalized in the intensive care unit. Since it represents a sensitive topic, further studies are required.

Material and methods

A descriptive and longitudinal study was carried out, in which a pain assessment was applied to critically ill patients, with mechanical ventilation and sedoanalgesia protocol, of the ICU. Three scales were applied (BPS, CPOT, and ESCID), which together with the recording of physiological variables, helped to determine the presence of pain during the performance of four potentially painful procedures, including aspiration of secretions, mobilization, wound healing and installation of probes or catheters. The information was compiled in an Excel

spreadsheet for subsequent analysis in the IBM Statistics SPSS 22.0 program. All changes obtained in the score of the different scales were entered on a record sheet, in addition to the patient's sociodemographic data. The type of pharmacological analgesia the patient was undergoing as part of his or her treatment and the type of administration used to achieve analgesia were also included. Likewise, analgesic boluses and continuous intravenous infusion during the procedure were recorded and the patient's level of sedation was included according to the Richmond Agitation-Sedation Scale (RASS), which is useful and accurate for measuring such levels and is valid for both ventilated and non-ventilated patients.

The data collection sheet included a section to specify what type of procedure was being performed in the pain assessment:

1. Mobilization due to lateralization or for hygiene (change of sheets).
2. Healing of wounds, regardless of their location.
3. Aspiration of tracheobronchial secretions.
4. Catheter or catheter installation: urinary drainage catheter, orogastric catheter, nasogastric catheter or transrectal catheter installation, central venous catheter installation.

The last section included a space for recording the patient's physiological variables, considering:

1. Heart rate
2. Respiratory frequency
3. Blood pressure
4. Diaphoresis
5. Lacrimation

Data were collected from a sample of 29 patients, obtained through convenience sampling and according to inclusion and exclusion criteria. The patient admission criteria of the NOM-025 SSA-2013, specific for the organization and operation of intensive care units,8 were also considered.

Results

Sociodemographics

A prevalence of male patients was observed (51.7%), as well as an age range from 28 to 83 years with a mean of 56.9 years and a standard deviation of 17.79 years. The main pathologies (Table 5) were grouped in the category Other (44.8%), and included polytrauma, renal and hepatic failure; the rest of the sample presented some type of shock or sepsis (17.2%) or had been admitted for post-surgical care (17.2%). The length of in-hospital stay ranged from 3 to 10 days.

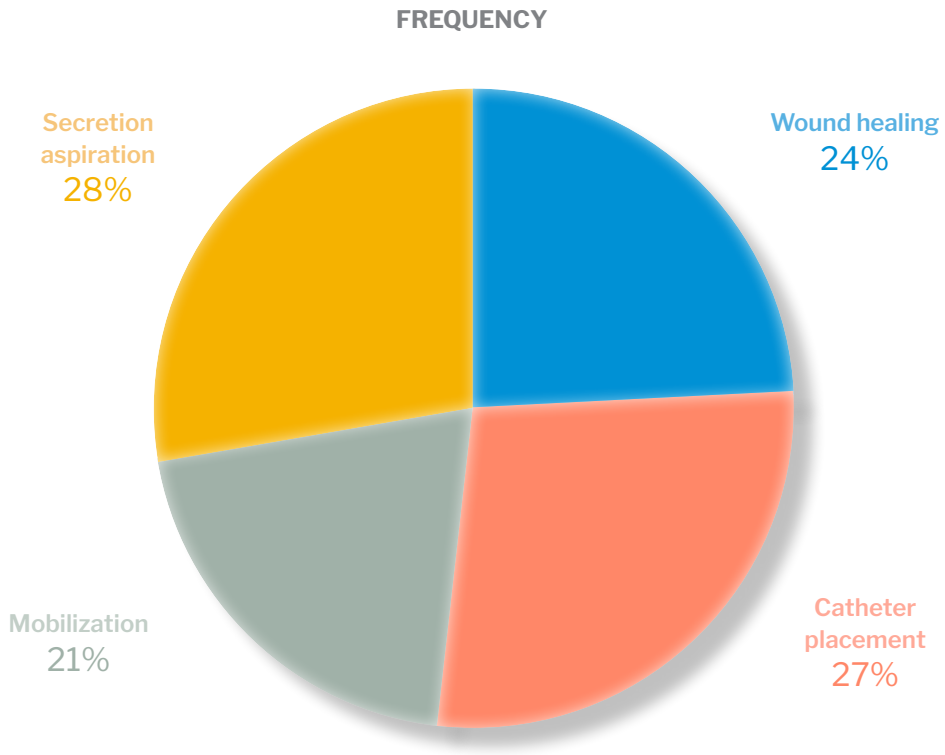
Table 5. Main pathologies of the patients included in the study

Diagnosis	*Frequency*	*Percentage*
Metabolic syndrome	2	6.9
Severe cranioencephalic trauma	4	13.8
Shock/sepsis	5	17.2
Others	13	44.8
Post-surgical	5	17.2
Total	**29**	**100**

Procedures

On examining the four procedures in the study, it was found that the installation of probes and catheters and secretion aspiration were the most common, with a total of eight cases each (Graph 1). However, taking the three scales as a cut-off point, secretion aspiration and mobilizations showed more pain.

Graph 1. Percentage of the sample corresponding to each of the procedures.



The results of the three scales showed that secretion aspiration and mobilization were the procedures that caused more pain and greater intensity; on the contrary, the installation of probes caused less pain and less intensity. Also, it was observed that before the procedure most of the patients had a relaxed facial expression (48.4 %, n=14), while during the procedure a partially contracted facial expression predominated (48.3 %, n=14). In addition, in six cases pain grimaces were observed (20.7%). After the procedure, the facial expression of the patients was mostly relaxed again (75.9 %, n=22).

Behavioral Pain Scale (BPS)

A calculation was made of the mean with the score obtained according to the BPS before, during, and after the procedure. It was also identified that during the procedure the presence of pain was greater, since the mean was 7.07, while before and

after the procedure it was 5.69 and 2.83, respectively.

Table 6. Mean of the scores obtained with the application of the BPS

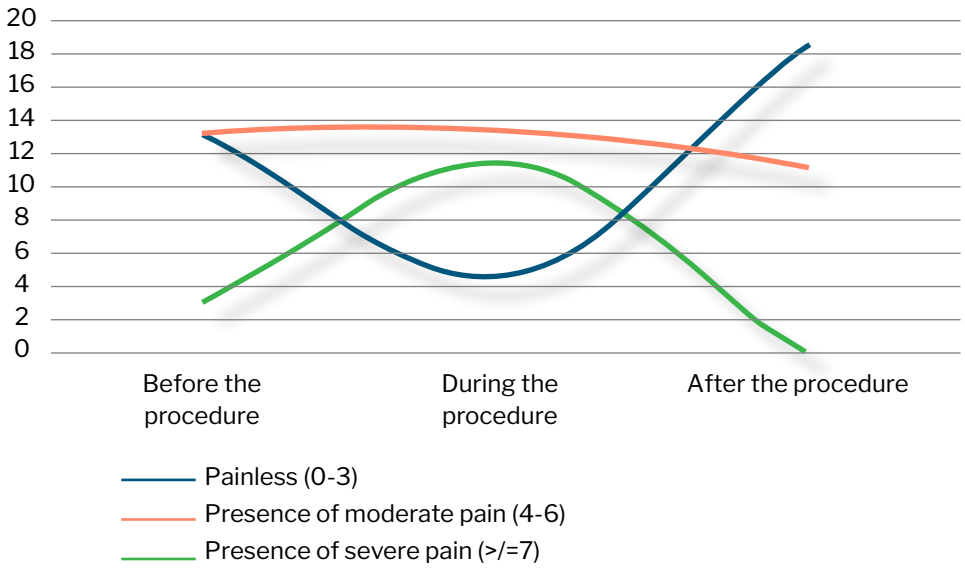
	N	*Minimum*	*Maximum*	*Media*	*Deviation*
Before the procedure	29	3	10	5.69	1.873
During the procedure	29	4	10	7.07	1.831
After the procedure	29	0	5	2.83	1.441

Before and after the procedure, the absence of pain predominated in the patients. During the procedure, the presence of pain was recorded in 75.9% (n=22).

Critical Care Observation Tool (CPOT)

The presence of severe pain was only present in three patients before the procedure, 10.3% of the total sample. However, during the procedure it increased, being present in 11 patients (37.9%). The presence of moderate pain remained constant before and during the procedure (44.8%). Finally, most patients did not present pain after the procedure (62.1%, n=18). As shown in Graph 2, the number of patients without pain predominated before and after the procedure. However, during the procedure the curve is inverted.

Graph 2. Presence of pain based on the CPOT scale.



Pain Indicator Behavior Scale (ESCID

Before the procedure, 37.9% of the patients were observed to have relaxed facial muscles; the same percentage showed tension or frowning. When the interventional procedure was performed, 41.4% of the participants showed tension and frowning and 58.6% presented clenched teeth; no patient showed a relaxed expression. At the end of the procedure, those with relaxed facial musculature predominated (62.1%, n=18).

Table 7. Media de las puntuaciones obtenidas con la aplicación de la ESCID

	N	*Minimum*	*Maximum*	*Media*	*Deviation*
Before the procedure	29	0	9	3.72	2.644
During the procedure	29	1	10	6.38	2.382
After the procedure	29	0	6	2.55	1.920

Before the procedure, patients suffered mild to moderate pain in 37.9% of cases. During the intervention, the majority presented severe pain (51.7%, n=15) and moderate to severe pain (31%, n=9).

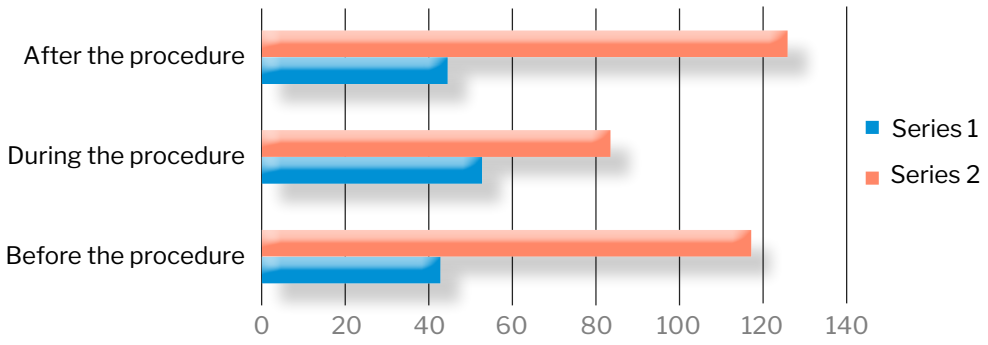
Use of drugs for analgesic measures

The drug most commonly used before, during, and after the procedures was buprenorphine, in 51.7, 51.7 and 62.1% of the cases, respectively. Continuous infusion as an analgesic measure was performed in all cases. Finally, intravenous bolus was used before, during, and after the procedures 31, 65.5, and 34.5% of the time, respectively.

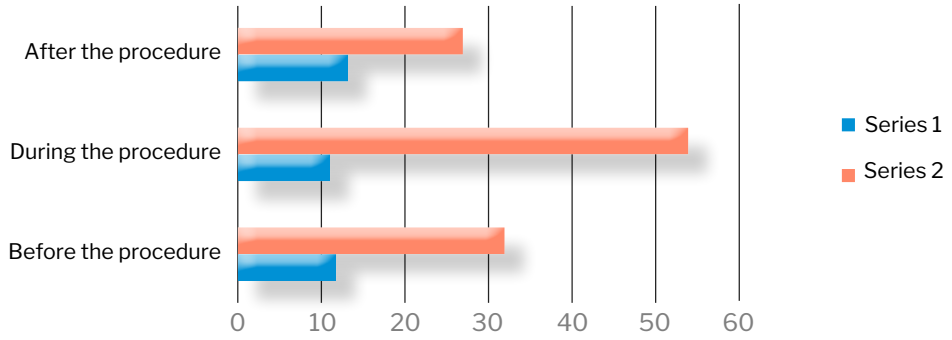
Physiological variables

The changes in heart rate showed that the increase was more evident during the procedure (Graph 3). Likewise, an increase in respiratory frequency was observed during the procedure (Graph 4).

Graph 3. Changes in heart rate



Graph 4. Changes in respiratory frequency



Based on the BPS cut-off points, the presence of pain was identified in 10.3% of the sample before wound healing, probe installation, and mobilization procedures; in the case of secretion aspiration, the percentage increased to 17.2%. During the performance of the procedures, the presence of pain increased in all cases. It was recorded in 17.2% for wound healing and probe installation and 20.7% for mobilization and secretions. After the procedures, no patient presented pain.

Regarding the CPOT test, it was identified that the procedures causing the most pain before its application were mobilization and probe installation. During the procedures, wound healing caused severe pain in four patients, while secretion aspiration did so in three cases. After the procedures, no participant presented severe pain.

According to the ESCID scale, wound healing and secretion aspiration were the two procedures that caused the most pain before their application. It should be noted that wound healing, probe installation, and mobilization were the procedures that caused the most pain; no patient reported the absence of pain. After the different procedures, no patient showed intense pain. The results of the three scales suggest that secretion aspiration and mobilization cause more pain and greater intensity; on the contrary, the installation of probes causes less pain and less intensity.

Statistical tests were performed to determine associations between the pain scores obtained in the three scales and the type of analgesic used, use of infusion, and intravenous bolus. For this purpose, the distribution of the data was first evaluated using the Kolmogorov-Smirnov test, the results of which made it possible to identify the test to be used for the correlation of variables. In the case of BPS, an abnormal distribution was found before and during the procedures, and a normal distribution after the procedures. The distributions are abnormal in the CPOT scale during and after the procedure; before a normal distribution was shown. Finally, according to the ESCID scale, the distribution of the data was abnormal before and during the procedures and normal after the procedures.

Discussion

In a study carried out in an IMSS hospital in Ciudad Obregón, an incidence of pain was observed in 69.4% of hospitalized patients; of this percentage, 5.5% corresponded to mild pain and 63.8% to moderate-intense

pain.[9] If these results are compared with the proportion of patients with pain in the present study, significant differences are observed considering the three scales applied:

- According to the BPS, diagnosed pain in patients was lower, as people without pain accounted for 51.7, 24.1, and 100% of the sample before, during, and after the procedures, respectively.
- CPOT showed that the presence of pain was also lower before and after the procedures; however, during these procedures, patients presented pain in 82.9% of the cases, and in 37.9% the pain was intense.
- According to ESCID, the prevalence of pain was only lower than that observed in the Ciudad Obregón hospital after the procedures. During the procedures, pain was very intense (51.7%).

This comparison also makes it possible to see the difference between the results obtained on the three scales. It can be seen that CPOT and ESCID are more precise since they have more categories for classifying pain. It also shows that during the procedures the pain is comparable to the figures observed in the Ciudad Obregón hospital, i.e., at that stage, the pain seems to be more acute.

In a study carried out by the American Association of Critical-Care Nurses (AACN), the results were also different from those obtained here. This organization found that the procedure causing the most pain in patients is changing posture. In contrast, in CEMENAV patients, the aspiration of secretions causes the most pain, while mobilization was observed to cause the least pain. These differences may be attributed to the fact that the AACN had a larger sample size (6,000 patients).[10]

To conclude, several studies have shown that pain assessment and the consequent application of anesthesia produce beneficial effects in the reduction of pain and adverse reactions to these drugs. It is also mentioned that these procedures are frequently omitted.

Conclusion

The procedures that most frequently cause the most pain are mobilization and aspiration of secretions. The procedure that causes the least pain is the insertion of catheters. It is considered that this may be because catheter insertion is usually performed in more sedated patients. No correlations were found between the level of pain and the type of analgesic administered, the use of infusion or intravenous bolus. It is considered that the analgesics evaluated may have the same level of effectiveness as the infusion and intravenous bolus anesthetic methods, which would explain this lack of significant correlation.

Finally, it was observed that the CPOT and ESCID scales tend to be more accurate, as they have a greater number of categories for classifying pain. According to the BPS scale, the total sample did not present pain after the procedure, while according to the CPOT only 18 people were in that category and, according to the ESCID, six patients. This can be attributed to the fact that the ESCID is more specific for measuring pain since it has three cut-off points. In contrast, the BPS and CPOT scales have one and two cut-off points, respectively. All standardized scales for measuring pain have validated and reliable criteria to be applied; the important thing is to use them together with adequate analgesia.

Limitations of the study

The workload of the nursing staff sometimes

prevented the evaluation of all patients who met the inclusion criteria. Likewise, the hemodynamic status of the patient limited the evaluation of all those with acute complications. In general, staff routine and lack of time were factors that limited the length of observation periods and the number of participants.

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Original article

Requisitos de selección de los residentes de la especialidad de enfermería intensiva y emergencia

Selection requirements for residents of the intensive and emergency nursing specialty

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Resumen

Introducción: La especialidad de postgrado es la formación académica que proporciona al profesional la actualización, profundización, perfeccionamiento o ampliación de las competencias laborales necesarias para el desempeño profesional que requiere un puesto de trabajo.

Objetivo: Determinar el cumplimiento de los requisitos de admisión para el ingreso de los profesionales de enfermería a la especialidad de Enfermería intensiva y emergencia de la Universidad de Ciencias Médicas de Villa Clara, Cuba.

Métodos: Se realizó un estudio descriptivo retrospectivo en el primer trimestre del 2022 en la Facultad de Tecnología de la Salud y Enfermería. Se analizaron 15 expedientes de licenciados en Enfermería que fueron admitidos como matrícula en el 2020. Se estudiaron las variables sexo, experiencia profesional, grupo de edad, índice académico y cumplimiento de los requisitos de admisión.

Resultados: 73,33% de los residentes matriculados fueron mujeres, 86,66% tenía más de 30 años de edad, 60% más de 15 años de experiencia laboral en el área de cuidados intensivos, 80% contaba con un índice académico superior a 4.0 puntos.

Conclusiones: Los criterios de admisión exigidos por el programa de la especialidad fueron cumplidos en la totalidad de los profesionales matriculados, pero resultan insuficientes para optimizar el proceso de selección. El análisis exhaustivo de los programas existentes en instituciones extranjeras permitió identificar requisitos que pueden ser incluidos con el objetivo de perfeccionar el sistema de admisión actual, entre ellos se encuentra la aprobación de un examen que se promedie con el índice académico de la carrera de enfermería.

Palabras clave: enfermeras especialistas, cuidados críticos, educación de postgrado en enfermería, programas de posgrado en salud.

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Abstract

Introduction: The postgraduate specialty is the academic training that provides the professional with the updating, deepening, improvement, or broadening of the labor competencies necessary for the professional performance required by a job position.

Objective: To determine the fulfillment of the admission requirements for the entrance of nursing professionals to the specialty of Intensive and Emergency Nursing at the University of Medical Sciences of Villa Clara, Cuba.

Methods: A retrospective descriptive study was carried out in the first quarter of 2022 in the Faculty of Health Technology and Nursing. 15 files of nursing graduates admitted as matriculants in 2020 were analyzed. The following variables were studied: sex, professional experience, age group, academic index, and fulfillment of admission requirements.

Results: 73.33% of the enrolled residents were women, 86.66% were over 30 years of age, 60% had more than 15 years of work experience in the intensive care area, and 80% had an academic index higher than 4.0 points.

Conclusions: All the professionals enrolled met the admission criteria required by the specialty program, but more is needed to optimize the selection process. The exhaustive analysis of existing programs in foreign institutions made it possible to identify requirements that could be included to improve the current admission system, among them is the passing of an exam that averages with the academic index of the nursing career.

Keywords: nurse specialists, critical care, graduate nursing education, graduate health programs.

Introduction

Before January 1, 1959, the improvement of health professionals in Cuba did not resemble what is happening today, since, according to the systematization of the literature, there was no improvement program for the sector's human resources; this process was only undertaken out of self-interest and outside any institutional or governmental link.[1]

In the 1960s, a permanent and laborious work of transformation began at the three levels of medical care, intending to train highly qualified professionals who, in addition to diagnosis, promotion, prevention, treatment, and rehabilitation of the patient, would respond to the problems related to the health-disease process from the perspective of social medicine and with the participation of the university as an institution.[2]

The 1962 university reform was an example of this since it made it possible to organize the different universities of the country, and in a centralized manner from 1990 to 2001, the postgraduate training process from the emergence of the faculties of medical sciences

that covered specific areas of academic training and professional improvement. The improvement of professional development was conceived at that time as a program of the Cuban Revolution.[3,4]

On the other hand, with the creation of the Ministry of Higher Education in 1976, higher medical education was subordinated methodologically to this institution and administratively to the Ministry of Public Health, which assumed the responsibility of directing, organizing, and controlling the process of training specialists in the sector. Thus began a stage of improvement of medical education, to improve the health indicators of the Cuban population.[5,6]

However, since the social changes that have taken place since the 1990s, higher education in Cuba has required a rapid improvement in the quality of the training of health professionals, especially nursing human resources, which shows that the improvement of medical science professionals is a complex process that requires a rigorous theoretical and practical construction in the current conditions.[7,8]

Nursing is one of the professions distinguished in medical education by professional performance, which is synthesized in four main dimensions: nursing care, individual, family and community, health, and environment. Nursing is concerned with the satisfaction of human needs based on the identification of health problems, employs the logic of the nursing care process as a scientific method based on evidence, and takes into account actions of promotion, prevention, cure, and rehabilitation to ensure biopsychosocial well-being through teaching, research, and assistance, to optimize the quality of nursing services.[9, 10]

In this sense, the importance of postgraduate education represents a requirement for the university faculty, so the importance of this training is based, on the one hand, on the historical reality of the centrality of education, research, and learning merged in the development processes; and on the other hand, on the relevance of lifelong education, supported by the self-management of learning and socialization of knowledge construction.[7,11]

In this context, medical education as part of the Cuban educational system acquires an integral character; it does not consist simply in facilitating the acquisition of skills but considers health as a process of social construction, which takes into account the determinants of the health-disease process in the biological, economic, ecological and psychosocial spheres of various groups. All this generates the need to guarantee a professional with a broad profile, whose mode of action responds to the characteristics and development of the society in which they works.[12,13]

In correspondence with this, the scientific and technical preparation of nursing professionals became a priority of the health system, in which the Cuban Nursing Society, since its foundation in 1976, has played a leading role in promoting, generating, and actively facilitating the achievement of this goal, which represents a requirement for the members of the guild.[14,15]

Thus, the postgraduate activity in Cuba, according to Ministerial Resolution 140 of 2019, requires that the programs must be accredited and approved by the Ministry of Higher Education; however, in its Article 51, the Ministry of Public Health is exempted from such provision with regard to specialty programs, so that all authority is conferred to the postgraduate department of this ministry

for the projection, approval and implementation of own specialty programs, according to the training needs of the sector.[11,16]

In this context, in 2005, the postgraduate specialties in nursing emerged, which constitute academic training at this level, since they provide the professional with the updating, deepening, improvement, and expansion of labor competencies for the performance required by a job position.[11] At that time, nursing professionals could access their specialties (maternal and child nursing, community nursing, intensive and emergency nursing), basic science specialties (human anatomy, histology, embryology, clinical biochemistry, normal and pathological physiology), and public health specialties (statistics and hygiene and epidemiology), which constituted a fundamental step in postgraduate nursing education.

According to Article 40 of Ministerial Resolution 140 of 2019, the structure of the programs, the different modalities of execution, as well as the requirements for admission, evaluation, permanence, and graduation in any of the postgraduate specialties, are defined in the manual for the management of this activity.[11]

The requirements for admission of applicants to each of the postgraduate training programs in nursing confer quality to the selection process, as well as elements that allow the characteristics of the promotions achieved to be evaluated in the future, which directly influences the effectiveness of the training.

This article aims to determine compliance with the admission requirements for admission of nursing professionals to the specialty of Intensive and Emergency Nursing.

Methods

A retrospective descriptive study was carried out in the first quarter of 2022 in the Faculty of Health Technology and Nursing of the University of Medical Sciences of Villa Clara. The records of the 15 graduates in Nursing admitted to the specialty of Intensive and Emergency Nursing in 2020 were analyzed. It was unnecessary to use sampling since the entire universe was studied.

The requirements that were evaluated for the selection of the enrollees were: to be a graduate of the degree in Nursing and to be practicing the profession, to have maintained a conduct following the ethical and moral principles of society, not to have physical, psychological or social limitations that may interfere in the performance, not to be incorporated or have obtained a position in any other specialty, not to be in the commission of temporary or definitive discharge before the three years from the time of being issued, and to have been released by their work center to opt for the specialty.

Variables analyzed and operationalization:

- Sex: biological and physiological characteristics that define men and women. Categories: man or woman
- Age group: time interval measured in years that frame a person's age.
  Categories: 21 to 30 years old; 31-40 years old; 41-50 years old
- Professional experience: experience in the exercise of the activities of the profession or academic discipline required for the performance of the job, measured in years from the completion and approval of the academic curriculum of the respective professional training.
  Categories: ≤ 5 years ; 6-10 years; 11-15

years; > 15 years

- Academic Index: the measure of student academic performance on a scale from 1 to 5. Categories and scale: Excellent: 5.0 points; Very good: 4.0 points; Good: 3.0 points; Failed: < 2.0 points.
- Fulfillment of selection requirements for the specialty of Intensive and Emergency Nursing: adherence by the committee to the requirements for enrollment in the residency.

  Category:

  Yes: when 100% of the requirements were met.

  No: when less than 100% of the requirements were met.

The information was processed through descriptive statistical analysis using numbers and percentages, for which the information on the entry criteria taken into account was transferred to an Excel database and expressed in the results in tables or graphs.

Regarding ethical aspects, authorization was requested from the department head of the nursing career of the Faculty of Health Technology and Nursing to carry out the present study, emphasizing that the information collected would only be of scientific interest and would be anonymous. Likewise, approval was obtained from the scientific committee and the research ethics committee of that body. Since we did not work directly with individuals, informed consent was not required.

Results

Table 1 shows the general data by age group, sex, and professional experience of the graduates in nursing who were enrolled in the intensive and emergency nursing residency. Regarding sex, out of a total of 15 enrolled 11 were women (73.33%) and only 4 were men (26.67%).

Table 1. Distribution of first-year residents in the specialty of intensive and emergency nursing according to sex, age, and years of experience.

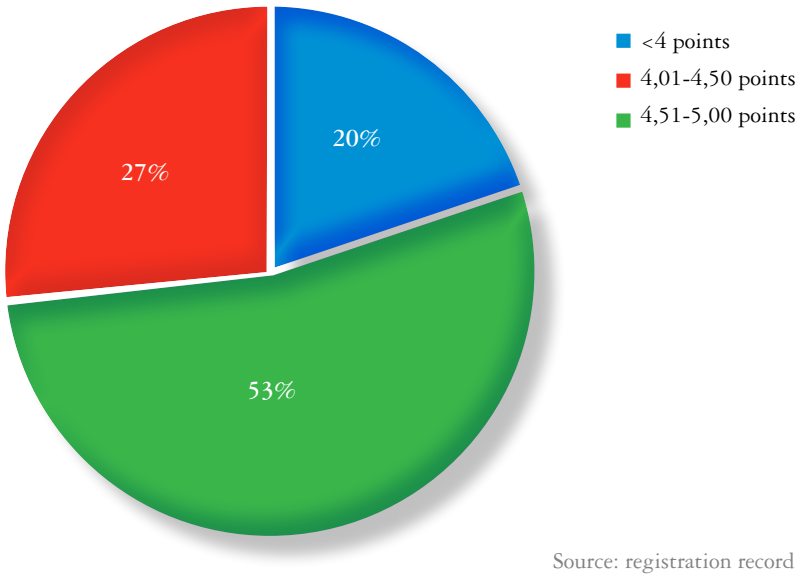
Sex	*No*	*%*
Man	4	26,66
Woman	11	73,33
Age group	***No***	***%***
21-30 years old	2	13,33
31-40 years old	8	53,33
41-50 years old	5	33,33
Years of experience	***No***	***%***
≤ 5 years	2	13,33
6-10 years	1	6,67
11-15 years	3	20,00
> 15 years	9	60,00

Source: registration record

Concerning age, of the total number of enrollees, 8 (53.33%) were found to belong to the 31 to 40 age group, 5 (33.33%) were included in the 41 to 50 age group, and only 2 (13.33%) were found to be in the 21 to 30 age group.

In the analysis of the variable *"professional experience"*, it was observed that 9 (60%) had more than 15 years of work, 3 (20%) had between 11 and 15, 2 (13.33%) had less than 5 years of work and only 1 had 6 to 10 years of experience.

Figure 1. Distribution of first-year residents of the Intensive Care Nursing specialty and emergency according to academic index.



Source: registration record

Figure 1 shows the distribution of the professionals enrolled in the intensive and emergency nursing residency according to the academic index, with scores ranging on a scale from 1 to 5, where it can be seen that 20% had a score below four points, 27% had between 4.01 and 4.50 points, and 53% had academic indexes between 4.51 and 5.00 points.

The requirements for admission to the specialty required by the residency program include graduation with a degree in nursing and practicing the profession, having maintained conduct following the ethical and moral principles of society, not having physical, psychological, or social limitations that could interfere with performance, not being incorporated or having obtained a position in any other specialty, not being on the temporary or definitive leave commission within three years of being issued, and having been released by their work center to opt for the specialty. These requirements were 100% fulfilled by the commission that carried out the process.

Discussion

The leading role of women as human resources in the nursing profession continues to be significant; it is a constant that is reiterated and that this study also reaffirms, which

coincides with the literature consulted.[17,18]

In relation to years of work experience, the results of the present investigation are related to those found by Durán et al.18 in the study entitled *"Continuing education of intensive care nurses to provide safe advanced practices"*, in which most of the professionals had more than 10 years of experience in nursing care in intensive care units.

Although no references were found in the literature alluding to the academic index that a professional must meet to enroll in the specialty of Intensive and Emergency Nursing, according to the authors' criteria, it is important to take this element into account, since undergraduate training plays a determining role in the professional and represents a measure of their future teaching performance. However, the requirements demanded by the program of the specialty of intensive and emergency nursing for admission, as can be seen, are minimal and do not guarantee the permanence of the resident in the specialty or their promotion. The authors of this article consider that this aspect should be analyzed, reevaluated, and modified to carry out a thorough selection process that allows the recruitment of professionals with a marked interest in their training and with sufficient intellectual capacity to achieve positive results and to be able to participate effectively in the training of new professionals. To this end, it is imperative to review other programs.

In this sense, in the bibliography consulted, several training programs for specialists in this area of critical care were found, belonging to universities in different countries in which, although there are similarities, differences were also observed. In the authors' opinion, these differences can enrich and optimize the selection process of candidates for the intensive and emergency nursing residency at the University of Medical Sciences of Villa Clara.

In the specialization program of the *"José Ramón Vidal"* Hospital in Argentina,[19] for example, the adult critical care nursing residency is conceived independently from the pediatric residency, as is also the case at the Pontificia Universidad Católica de Chile,[20,21] an aspect that should be taken into account due to the particular differences between these areas.

Another element of interest found in the program of the *"José Ramón Vidal"* Hospital in Argentina,[19] and which differs from the selection process carried out in Cuba, is the need to pass a written exam as an indispensable requirement, as is also required in the residency program of the *"Gral. José Francisco de San Martín"* Teaching Hospital in the city of Corrientes, Argentina.[22]

On the other hand, in the program of the University of Buenos Aires,[23] in addition to complying with the common legal documents, the admission system also includes the approval of a minimum score established for the multiple choice exam, which is averaged with the general qualification of the nursing career, thus creating an order of merit by which the applicant will choose their place of residence. This, according to the authors, optimizes the selection process by giving value to each of the formative moments of the professional.

In this regard, both the program of the Hospital Italiano de Buenos Aires[24] and the Universidad Católica del Maule de Chile[25] include as entry requirements, in addition to all the stipulated legal documentation, passing the interview that is carried out.

However, three training programs for critical care nursing residents were found that do not include admission requirements, among them the Hospital Nacional Profesor A. Posadas, in

the Province of Buenos Aires,[26] the Hospital El Cruce Néstor Kirchner, also in the Province of Buenos Aires,[27] and the Hospital Pablo Soria, in San Salvador de Jujuy, Argentina.[28]

Some critical care specialty programs in Chile were consulted as part of this research, among them the Universidad de Concepción,[29] the Universidad de Valparaiso,[30] the Universidad San Sebastian,[31] the Universidad de Chile[32] and the Universidad de Los Andes,[33] all of them with similarities in their selection process of admission candidates.

One aspect in which Cuba stands out and differs from the rest of the countries that have initiated the critical care nursing residency is the fact that the specialty program is homogeneous for all the country's Universities of Medical Sciences, while in other territories each university has its program of study with its specificities, as has already been described in this research.

In this regard, the authors agree that it is advantageous to have state institutions such as the Ministry of Public Health and the Ministry of Higher Education that direct, organize, and control all training activities through the Universities of Medical Sciences since the homogeneity of the study programs at the national level guarantees the quality of the training process, as well as the possibility of comparing the results obtained.

In countries such as Spain, this constitutes a weakness in postgraduate education since the training of professionals to become specialists does not depend on the university in question but on the Ministry of Health, which is developed in the corresponding health systems of each autonomous community, while the Ministry of Education only retains the administrative power to grant specialist degrees.[34]

Following the above, increasing professional competence to act and consistently modify reality for the good of the human being represents a major task in a sensitive sector such as health, so these claims become an essential aspect of health systems to ensure their quality, efficiency, and relevance, in which the implementation of modifications to optimize results plays a decisive role.[6]

Conclusions

The admission criteria required by the intensive and emergency nursing specialty program were met by all the professionals enrolled, but are insufficient to optimize the selection process. The existence of a direct link between the Ministry of Public Health and the Ministry of Higher Education benefits postgraduate training in Cuba. The exhaustive analysis of existing programs in foreign institutions made it possible to identify requirements that could be included in order to improve the current admission system. Among these is the passing of an exam that averages with the academic index of the nursing career.

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Original article

Level of adaptation in elderly from two locations in the State of Hidalgo, Mexico

Nivel de adaptación en adultos mayores de dos localidades del estado de Hidalgo, México

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Resumen

Introducción: el número de adultos mayores ha aumentado progresivamente en los últimos años. El proceso de envejecimiento conlleva una serie de cambios que requieren la capacidad de adaptación de la persona mayor; este nivel de adaptación permite actuar al profesional de enfermería en dicho sector de la población.

Objetivo: medir el nivel de adaptación de adultos mayores en dos localidades del estado de Hidalgo.

Material y métodos: investigación cuantitativa, transversal, retrospectiva y con un nivel de alcance descriptivo. Se aplicó el instrumento Nivel de Adaptación del Adulto Mayor Activo, con una confiabilidad de 0.87 en modo fisiológico, 0.88 en modo de autoconcepto, 0.97 en modo de interdependencia y 0.96 en modo desempeño de rol, según Kuder Richardson (KR-20), en una muestra de 156 adultos mayores, obtenida mediante la fórmula de proporciones para poblaciones finitas. La aplicación se realizó en unidades de salud de las localidades de Tepatepec y Bomintzha en el periodo mayo-junio de 2022. Se obtuvieron cartas de consentimiento informado por parte de los participantes. El análisis de los datos se realizó mediante el paquete estadístico SPSS versión 25, obteniendo frecuencias y porcentajes para cada modo adaptativo del instrumento y variables sociodemográficas.

Resultados: se presenta un nivel de adaptación integrado en el modo fisiológico en 80.1% de la población; en el modo de interdependencia en 91.7%, y en el modo función del rol en 93.5%; el modo de autoconcepto presenta un nivel de adaptación compensatorio en 93.5% de la población.

Conclusiones: los adultos mayores presentan un nivel de adaptación integrado en los modos fisiológico, interdependencia y función del rol.

Palabras clave: adaptación, adulto mayor, envejecimiento

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Abstract

Introduction: The number of older adults has increased progressively in recent years. The aging process entails a series of changes that require the adaptive capacity of the older person; this level of adaptation allows the nursing professional to act in this sector of the population.

Objective: To measure the level of adaptation of older adults in two localities in the state of Hidalgo.

Material and methods: quantitative, cross-sectional, retrospective, and descriptive research. The Adaptation Level of the Active Older Adult instrument was applied, with a reliability of 0.87 in physiological mode, 0.88 in self-concept mode, 0.97 in interdependence mode, and 0.96 in role performance mode, according to Kuder Richardson (KR-20), in a sample of 156 older adults, obtained through the formula of proportions for finite populations. The application was carried out in health units in the localities of Tepatepec and Bomintzha in May-June 2022. Informed consent letters were obtained from the participants. Data analysis was performed using the SPSS version 25 statistical package, obtaining frequencies and percentages for each adaptive mode of the instrument and sociodemographic variables.

Results: A level of integrated adaptation is presented in the physiological mode in 80.1% of the population; in the interdependence mode in 91.7%, and in the role function mode in 93.5%; the self-concept mode presents a compensatory adaptation level in 93.5% of the population.

Conclusions: Older adults present an integrated level of adaptation in the physiological, interdependence, and role function modes.

Keywords: adaptation, older adult, aging

Introduction

An older adult is a person who is over 60 years of age.[1] Currently, demographic changes related to this population have occurred worldwide, since the number of older adults has surpassed the population under 5 years of age, as a result of life expectancy exceeding 60 years in most of the world.[1,2] In 2020, older adults represented 12% of the total Mexican population, that is, for every 100 individuals under 15 years of age, there were 48 older adults.[3,4] At this stage of life, various biological, psychological, and social changes arise due to the aging process. This process occurs differently in each person[2,5] and predisposes them to adaptation.

Adaptation is a concept commonly used in nursing practice. According to Sister Callista Roy, it is a process in which the individual —who can feel and think and is perceived as a single individual or in a group— chooses to integrate as a human being into the environment and its factors.[6] Roy defines the person as a system that works as a whole, in which each element, both inputs and outputs,

control and feedback processes, are related.[6] According to this model, the person is assessed based on four adaptive modes: the physiological mode, which includes those physical and physiological processes that allow the individual to adapt and is composed of five basic needs: oxygenation, nutrition, elimination, activity and rest and protection; the self-concept-group identity mode, which constitutes a psychological mode that provides insight into the state of self-esteem and how the individual perceives him/herself and others; the role function mode, which represents a social adaptive mode centered on the roles a person occupies in his/her daily life, classified into three types: primary, secondary and tertiary, and which allows us to know aspects of the person's social life and how he/she performs each role; and the interdependence mode, another social mode that focuses on the relationships that an individual has, analyzing the structure and purpose of these relationships.[7,8,9]

According to this model, the adaptation process begins when the person perceives, interprets, and gives value to a stimulus. These stimuli are classified into focal stimuli, which are the first stimuli perceived by the person; contextual stimuli, which are present in a specific context and situation and can intensify the perception of the focal stimulus; and residual stimuli, which are those factors present in the environment that cause undefined effects according to the context. This initial perception leads to a coping process, classified into two types: innate coping processes, which are those with which the person is born and which represent automatic processes that are used instinctively and acquired coping processes, which are learned through the experiences that the person has in the course of his or her life.[10,11] This coping process results in a level of adaptation, defined as a constant point of change, and can be integrated, compensatory, or compromised.[6] The adaptation process is a set of changes that happen integrally, each older adult suffers this process differently, and that is influenced by physical aspects, such as the presence of diseases; psychological, such as self-esteem problems related to aging, and social factors, such as isolation and little participation and integration in the family, group or community.[12]

The adaptation model allows the nursing staff to perform interventions according to the information obtained and the level of adaptation of each person. In the case of older adults, research demonstrates the benefits of using this model and coupling it to the nursing intervention. For example, López Nolasco *et al.*, in their work *"Level of adaptation in the physiological mode before and after a physical activation program in the older adult"* analyzed the level of adaptation of older adults before and after a physical activation intervention. Before the intervention, the authors reported 24 older adults in a compromised state and one with an integrated level of adaptation; after the intervention, they noted that 23 older adults who were in a compromised state in the first measurement showed an integrated level of adaptation.[13] In their research *"Effect of occupational therapy on the self-concept of older adults with depression"*, López Nolasco, *et al.* reported that the intervention helped to modify the perception that older adults had of themselves and their appearance, promoting an acceptance of the changes presented at this stage.[14]

The present investigation allowed us to

know if the level of adaptation of elderly people according to the adaptive modes (physiological, role function, self-concept, and interdependence) of Sister Callista Roy's model was integrated, compromised, or compensatory. It also made it possible to assess whether this method can be the basis for nursing research, in particular, as a support in practice, in clinical judgment, and in the application of strategies and interventions, to benefit this sector of the population and their families.

Material and methods

Research with a quantitative approach, cross-sectional, retrospective, non-experimental, and descriptive design, carried out in the period May-June 2022 in the health units of the localities of Bomintzha and Tepatepec in the state of Hidalgo.[15,16] Its objective was to measure and analyze the level of adaptation according to the adaptive modes in older adults of the mentioned localities. The population was 260 older adults, and a sample of 156 participants was obtained using the formula of proportions for finite populations, with a margin of error of 5%; the sampling technique used was systematic randomized probabilistic. The inclusion criteria were: older adults with or without chronic degenerative diseases living in Tepatepec and Bomintzha, affiliated to the health units of these localities. Older adults who did not sign the informed consent form were excluded; participants who had difficulty answering the evaluation instrument were eliminated. The research project was presented to the Ethics and Research Committee of the Tlahuelilpan High School of the Autonomous University of the State of Hidalgo *"Human Responses to Health and Illness"* in April 2022 and an approval opinion was obtained from the head of the committee for the realization of this work.

Before the interview for the application of the instrument, informed consent was obtained, explaining to the participant the procedure to be carried out, the benefits of the research, aspects regarding the confidentiality of the information obtained, the risk of the research —minimum according to article 17 of the Regulations of the General Health Law on Health Research—[18] and notifying that participation, as well as withdrawal from the research, was voluntary. The informed consent form recorded: date and time, name and signature of the participant, name and signature of one or two representatives of the participant who acted as witnesses, and name and signature of the investigator. Informed consent was obtained following the provisions of Section IV, Article 100, Single Chapter of Title Five *"Research for Health"* of the General Health Law.[17] Likewise, the research followed the provisions of Articles 13, 14, Section V, 20, 21, and 22 of Chapter I, Title Two *"Ethical Aspects of Research on Human Beings"* of the Regulations of the General Health Law on Health Research,[18] as well as the ethical principles contained in the Declaration of Helsinki concerning: risks, costs and benefits; vulnerable groups and persons; scientific requirements and research protocols; privacy and confidentiality; informed consent and registration and publication of the research and dissemination of results.[19]

The Adaptation Level of the Active Older Adult instrument was applied to the participants, a tool that measures the four adaptive modes according to Sister Callista Roy's model, which contains questions with

dichotomous response options (YES-NO), whose maximum value equals 1 and the minimum value equals 0. Mode I (physiological) consists of 42 items, mode II (self-concept) of 35 items, mode III (interdependence) of 17 items, and mode IV (role function) of 18 items. The instrument allows classifying the level of adaptation as integrated, compensatory and compromised; the interpretation for each adaptive mode is as follows: physiological mode, integrated: <15, compensatory: 15-18, compromised: 19-42; self-concept mode, integrated: <12, compensatory: 12-23, compromised: 24-35; interdependence mode, integrated: <7, compensatory: 7-12, compromised: 13-18; role function mode, integrated: <7, compensatory: 7-12, compromised: 13-18. The validity and reliability of the instrument is 0.87 in the physiological mode, 0.88 in the self-concept mode, 0.97 in the interdependence mode, and 0.96 in the role performance mode, according to Kuder Richardson (KR-20).[20]

Data analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 25. The statistical technique was descriptive, frequencies and percentages were obtained for the sociodemographic variables gender, marital status, living with, occupation, presence of disease, and the level of adaptation of each adaptive mode. Then, the analysis of each variable was performed, and finally, the frequency and percentage of the level of adaptation for each adaptive mode were obtained.

Results

The sociodemographic variables (Table 1) showed a higher prevalence of the female gender (65.4%), and of the married population (44.9%) in the marital status variable. Forty-eight point one percent of the population lives with their children, while 32.1% lives with a partner. On the other hand, 21.2% of the participants are retired and 19.9% do not work. 52.6% of the population has some chronic degenerative comorbidity.

Table 1. Frequencies and percentages of sociodemographic variables

Sociodemographic variables		
	f	%
Gender		
Female	102	64.5
Marital Status		
Married	70	44.9
Widowed	44	28.2
Lives with		
Sons/daughters	75	48.1
Partner	50	32.1
Alone	16	10.3
Occupation		
Retired	33	21.2
Does not work	31	19.9
Presence of disease		
Sí	82	52.6

Source: own elaboration, 2022. n = 156.

In frequencies and percentages of the adaptation level (Table 2), it was found that 80.1% of the population has an integrated adaptation level in the physiological mode, 91.7% in the interdependence mode, and 93.5% in the role function mode. In the self-concept mode, 96.8% of the population has a compensatory level of adaptation.

Table 2. Frequencies and percentages of the variable level of adaptation in older adults in the localities of Hidalgo, Mexico.

	Adaptation level							
	Integrated		Compensatory		Compromised		Total	
Mode	*f*	%	*f*	%	*f*	%	*f*	%
Physiological	125	80.1	26	16.6	5	3.2	156	100
Self-concept	2	1.2	151	96.8	3	1.9	156	100
Interdependence	143	91.7	12	7.6	1	0.6	156	100
Role function	146	93.5	10	6.4	0	0	156	100

Source: own elaboration, 2022. n = 156.

Concerning the physiological mode (Table 3), a higher level of integrated adaptation was reported in women (53.8%), as well as in the married population (34.7%) for the marital status variable. This higher level of integrated adaptation was also observed in the population who live with their children (39.1%), who have some other occupation (41.6%), and who present some disease (43%).

In the self-concept mode (Table 4), women presented a higher level of compensatory adaptation than men, with 62.1%; this was also the case in the married population (43%). The population living with children reported a higher level of compensatory coping (46.1%), as well as the population with some other occupation (44.9%) and with some illness (51.3%).

In the interdependence mode (Table 5), the female gender presented a higher level of integrated adaptation (59.6%). Likewise, a higher prevalence of integrated adaptation level was observed in the married population (42.9%), living with children (46.1%), and with some comorbidity (49.3%).

In the role function mode (Table 6), women showed a higher level of integrated adaptation (60.9%), as well as the married population (42.3%), living with children (46.8%) and presenting some comorbidity (50%).

Table 3. Frequencies and percentages of the physiological mode in older adults in the localities of Hidalgo, Mexico.

Variable	Physiological mode																													
	Gender				Marital Status								Lives with								Occupation						Presence of disease			
	Male		*Female*		*Single*		*Married*		*Widowed*		*Free Union*		*Sons and daughters*		*Family*		*Alone*		*Partner*		*Others*		*Job*		*Retired*		*Doesn't work*		*Others*		*No*		*Yes*	
Indicator	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%
Integrated	41	26.2	84	53.8	20	12.9	54	34.7	35	22.4	16	10.3	61	39.1	12	7.7	12	7.7	39	25	1	0.6	13	8.3	23	14.7	24	15.4	65	41.6	58	37.1	67	43
Compensatory	12	7.7	14	8.9	3	1.9	15	9.6	7	4.5	1	0.6	11	7	2	1.3	4	2.6	9	5.7	0	0	5	3.2	7	4.5	6	3.8	8	5.1	14	8.9	12	7.7
Compromised	1	0.6	4	2.6	1	0.6	1	0.6	1	1.3	1	0.6	3	2	0	0	0	0	2	1.3	0	0	0	0	3	2	1	0.6	1	0.6	2	1.3	3	2

Source: own elaboration, 2022. n = 156.

Table 4. Frequencies and percentages of the self-concept mode in older adults in the localities of Hidalgo, Mexico.

Variable	Self-concept mode																													
	Gender				Marital Status										Lives with								Occupation						Presence of disease	
	Male		*Female*		*Single*		*Married*		*Widowed*		*Free Union*		*Sons and daughters*		*Family*		*Alone*		*Partner*		*Others*		*Job*		*Retired*		*Doesn't work*		*Others*		*No*		*Yes*	
Indicator	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%
Integrated	0	0	2	1.3	0	0	1	0.6	1	0.6	0	0	1	0.6	0	0	0	0	1	0.6	0	0	0	0	1	0.6	0	0	1	0.6	1	0.6	1	0.6
Compensatory	54	34.6	97	62.1	24	15.4	67	43	42	27	18	11.5	72	46.1	14	9	16	10.3	48	30.8	1	0.6	18	11.5	32	20.5	31	19.9	70	44.9	71	45.5	80	51.3
Compromised	0	0	3	1.9	0	0	2	1.3	1	0.6	0	0	2	1.3	0	0	0	0	1	0.6	0	0	0	0	0	0	0	0	3	1.9	2	1.3	1	0.6

Source: own elaboration, 2022. n = 156.

Table 5. Frequencies and percentages of the interdependence mode in older adults in the localities of Hidalgo, Mexico.

Variable	Interdependence mode																													
	Gender				Marital Status										Lives with								Occupation						Presence of disease	
	Male		*Female*		*Single*		*Married*		*Widowed*		*Free Union*		*Sons and daughters*		*Family*		*Alone*		*Partner*		*Others*		*Job*		*Retired*		*Doesn't work*		*Others*		*No*		*Yes*	
Indicator	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%
Integrated	50	32	93	59.6	19	12.2	67	42.9	42	26.9	15	9.6	72	46.1	11	7	12	7.8	47	30.1	1	0.6	16	10.2	30	19.2	27	17.3	70	44.9	66	42.3	77	49.3
Compensatory	3	2	9	5.8	4	2.6	3	1.9	2	1.3	3	1.9	3	2	2	1.3	4	2.4	3	2	0	0	2	1.3	3	1.9	4	2.6	3	1.9	7	4.5	5	3.2
Compromised	1	0.6	0	0	1	0.6	0	0	0	0	0	0	0	0	1	0.6	0	0	0	0	0	0	0	0	0	0	0	0	1	0.6	1	0.6	0	0

Source: own elaboration, 2022. n = 156.

Tabla 6. Frequencies and percentages of mode role function in older adults in Hidalgo, Mexico

Variable	Role function mode																													
	Gender				Marital Status										Lives with								Occupation						Presence of disease	
	Male		*Female*		*Single*		*Married*		*Widowed*		*Free Union*		*Sons and daughters*		*Family*		*Alone*		*Partner*		*Others*		*Job*		*Retired*		*Doesn't work*		*Others*		*No*		*Yes*	
Indicator	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%
Integrated	51	32.7	95	60.9	22	14.1	66	42.3	41	26.2	17	10.9	73	46.8	11	7	14	8.8	47	30.1	1	0.6	17	10.9	33	21.1	26	16.7	70	44.9	68	43.6	78	50
Compensatory	3	1.9	7	4.5	2	1.3	4	2.5	3	1.9	1	0.6	2	1.3	3	1.9	2	1.3	3	1.9	0	0	1	0.6	0	0	5	3.2	4	2.6	6	3.8	4	2.6
Compromised	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: own elaboration, 2022. n = 156.

Discussion

Aging is a stage of life that requires the older person's ability to adapt to each of the health spheres. Being a biopsychosocial process, different factors can condition the perception and adaptation to stimuli that are necessary to identify to guide the actions of the nursing staff. In this regard, in our study population, an integrated vital process in the physiological-physical mode was found in 80.1%, an integrated vital process in the interdependence mode in 91.7% and an integrated vital process in the role function mode in 93.5%. In

contrast, a compensatory life process in the self-concept-group identity mode is shown by 96.8%.

These results are similar to those reported by Chávez-Pérez et al. in their article "*Adaptation level of the older adult in the Casa de Día del Adulto Mayor de Apaxco, Estado de México*", in which the participants presented an integrated vital process in physiological modes in 77.1%, interdependence in 97.1% and role function in 100%. Regarding the self-concept mode, a compromised vital process was found in 97.1%.[20]

On the other hand, in the self-concept-group identity mode, it was reported that 1.2% of our population presented an integrated vital process, 96.8% had a compensatory vital process and 1.9% had a compromised vital process. These results are different from those presented by López-Nolasco et al. in their article "*Self-concept level in the elderly in the Gerontological Center of Tula de Allende, Hidalgo*", in which 62.5% reported an integrated vital process, 32.5% a compensatory vital process and 5% a compromised vital process.[21]

The level of compensatory adaptation of the self-concept-group identity mode in 96.8% of our population is similar to the percentage reported by León-Cruz et al. in their article "*Level of self-concept in the elderly of the Gerontological Center of Tula de Allende, Hidalgo, after an educational intervention*". This article mentions that before the intervention, the older adults reported a compensatory level in the self-concept mode of 94.7%.[22]

In the role function mode, 93.6% of the studied population presented an integrated vital process, 6.4% showed a compensatory vital process, and 0% reported a compromised vital process. These results are similar to those presented by Maldonado-Muñiz et. al. in their article "*Adaptation level in the role performance mode of the older adult*", in which 71.3% presented an integrated vital process, 28.2% a compensatory vital process and 0.5% a compromised vital process.[23]

Conclusions

According to the results obtained through the instrument applied to our population, it is shown that a large part of the population (80.1%) presented an integrated adaptation level in the basic needs that encompasses the physiological mode; as well as an integrated level in the interdependence mode (91.7%); which means that the great majority of the participants showed an adequate state in their interpersonal relationships. In addition, an integrated level of adaptation in the role function mode was observed in 93.5% of our population, suggesting that the older adult finds stability in each role he/she fulfills with his/her relatives, group, or community. In contrast, a compensatory adaptation level in the self-concept mode was reported in 96.8%, which indicates that the perception that the older person has in his/her physical self and personal self is slightly unstable, resulting in a compensatory state in self-esteem, body sensation and self-image, expectations, self-concept and identity in a given group.

The level of compensatory adaptation in the adaptive mode of self-concept makes it necessary to carry out research in the elderly population of the state of Hidalgo that is focused on self-esteem, body, and functional perception of the elderly in the community, and that serves as a basis for experimental studies in which interventions are applied and their results evaluated.

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Review article

Deconstrucción y reconstrucción del pensamiento enfermero: su implicación en políticas públicas

Deconstruction and reconstruction of nursing thought: its implication in public policies

Cecilia Aurora Cejudo Piza[1]

Resumen

Descripción del tema: Actualmente es necesario que los profesionales de enfermería participen de manera activa dentro de la política pública, reconociéndolo como un compromiso hacia el ejercicio de la enfermería en México. Fortaleciendo esta participación creará nuevas oportunidades para el desarrollo de la salud en nuestro país desde una perspectiva enfermera.

Relevancia: el presente trabajo surge de cuestionamientos relacionados con la poca participación activa del personal de enfermería dentro del marco sociopolítico, lo cual representa una problemática social para el quehacer enfermero. Asimismo, tiene como objetivo describir la importancia de dicha participación en la creación de políticas públicas, así como sugerir propuestas que favorezcan este cambio de paradigma de la enfermería asistencial.

Conclusiones: La enfermería se ha actualizado en el transcurso de los últimos años, siendo protagonista en distintos ámbitos de su ejercicio. Sin embargo, es necesaria la consolidación de conocimientos en la rama sociopolítica, por lo que la enfermería requiere de un cambio de pensamiento hacia la búsqueda de estrategias que le permitan mantener una participación dentro de esta área, contribuyendo de este modo al desarrollo de la salud desde un enfoque humanizado y sustentable.

Palabras clave: Enfermería, estudiantes, política.

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Abstract

Description of the topic: Nursing today must assume the commitment to exercise its active participation in the design and analysis of public policies, based on solid theoretical foundations. It is recognized that in Mexico this participation plays a minority role, so strengthening it and creating emerging opportunities will be beneficial for the development of health in Mexico, from a nursing perspective, a nursing policy.

Relevance: This paper arises from questions related to the lack of active participation of nursing personnel within the sociopolitical framework, which represents a social problem for nursing work. It also seeks to describe the importance of such participation in the creation of public policies, as well as to suggest proposals that favor this change of paradigm of nursing care.

Conclusions: Nursing has begun a path of empowerment, taking a leading role in different areas. The formation of a consolidated nursing corps with socio-political knowledge, which reconstructs its thinking, directing it to respond and expand its social participation, thus contributing to the development of health from a humanized and sustainable approach, is recognized as a priority.

Keywords: nursing, students, politics.

Introduction

Within society, nursing has played a role associated with health care, both for individuals and their communities. This role had as its starting point the political activism exercised by Florence Nightingale in the 19th century; during this period, care had a solid base in human values, as well as a historically determined political dimension, which granted it an essential participation in the collective work of health.[1] In this sense, nursing is conceptualized in favor of care, quality, and access to health care, and in defense of individuals from a professional sense, which distinguishes it from other sciences.

Nursing is a social practice that can be a force capable of mobilizing broader social change. Undoubtedly, to the extent that this practice sets its professional course by taking advantage of such windows of opportunity, it will develop a constructive influence on health equity worldwide.[2]

On the other hand, the health development of a population is determined by the relationships between the economy, politics, and the social context. These determinant issues have been widely analyzed from historical starting points, which include, according to María de la Guardia Gutiérrez, those *"environmental, biological, behavioral, social, economic, labor, cultural factors and, of course, health services as an organized and specialized response of society to prevent disease and restore health"*.[3]

Based on this, it is identified that these social determinants imply situations in which the population's health is impaired, which derives

from factors that limit or potentiate access to health services, as well as the maintenance of an optimal state of health. It should be noted that these determinants include economic and political issues that direct actions towards specific objectives.

The development of new knowledge, skills, and attitudes focused on public policy is essential for nursing to be inserted into governmental decision-making and policy formulation.[4,5] The history of nursing, as well as its social recognition as a fundamental part of the health body, provides this discipline with the necessary elements to understand health dynamics from a social approach. Likewise, the strengthening of knowledge in this area of action will allow it to respond more efficiently to the health needs of the population.

In a changing and globalized society, nursing today must assume the commitment to exercise its active participation in the design and analysis of public policies, based on solid theoretical foundations. It is recognized that in Mexico this participation plays a minority role, so strengthening it and creating emerging opportunities will be beneficial for the development of health in Mexico, from a nursing perspective, a nursing policy.

This paper arises from questions related to the social problems implied in the scarce active participation of nursing personnel within the socio-political framework of nursing work. It also seeks to describe the importance of nursing participation in the creation of public policies, as well as to suggest proposals that favor this change of paradigm of nursing care.

Development

In 2010, in the Adelaide Declaration, the World Health Organization (WHO) established health in all policies, highlighting the importance of the participation of the health area in the design of public policies as a social discussion. It also defined it as a tool that enables economic, environmental, and social development in the pursuit of the well-being of individuals in terms of health.[6]

Thus, the need for the contribution of health personnel in this political process is highlighted, starting from their training and professional experience, as a reminder of the knowledge and skills that they possess and that act as triggers for change in health issues.

On the other hand, the WHO has regularly published since 2002 the Global Strategic Directions for Nursing and Midwifery,[6] in which it emphasizes, following the historical development of nursing, the need for the involvement of these professionals in the structuring of new public health policies, seeking to achieve the objectives proposed by taking into account the efficiency that nursing personnel can provide in the construction of these strategies.

Once the need for an active participation of nursing personnel in the socio-political sphere with a focus on health is roughly recognized, questions arise: *how can the participation of this discipline in politics achieve changes in health care?, what is the change that nursing needs to reconstruct itself from another perspective?*

Concerning the second question, it is essential to emphasize that the nursing professional is inclined towards a specific area of action, dedicating himself to service and care in the assistance area, which allows his labor insertion in hospital units. However, this performance of the profession limits its field of action to the resolution of concerns and problems within the hospital area, leaving aside other spaces that require the

participation of the nursing professional as a generator of change.

In this way, the social conceptualization of nursing is maintained within a specific health area; static, as an assistant to the doctor, not independent and without social recognition, and the real meaning that nursing entails is left aside, ignoring the skills and knowledge that are developed within other fields, such as epidemiology, mental and occupational health care, as well as politics.[7]

Currently, the main assumption in the nurse's thinking is that the greatest aspiration in this discipline is to work in specialized hospital units, due to the consequences that this entails and that have already been mentioned. This idea is encouraged in the university education of the nursing professional.

The lack of knowledge of the different areas in which nursing can generate changes, and implement and design strategies directed towards the achievement of health objectives, limits professional performance and therefore the development of science.

On the other hand, and concerning the first question, the training and experience of the nursing area make it a unique discipline that can recognize health problems, propose solutions for the different obstacles that arise in its work, and intercede on behalf of patients and their families.[2]

Laura Morán[8] takes up the description by Silvina Malvárez[9] and mentions that the development of nursing has been directed towards the good care of the world, and has required a different conceptualization based on the current context, so she defines it as: *"The science, art, philosophy, ethics and politics of human care, which is organized and expressed socially with a singular identity, in a complex field of knowledge, intervention and social responsibility that institute its professional identity with the community and other health professions".* Likewise, the author categorizes it as complex when referring to the knowledge involved, which is not only physiological or anatomical, but also includes empirical knowledge and knowledge from other areas, i.e., transdisciplinary knowledge. Morán emphasizes the social responsibility associated with the discipline, starting from the visibility and social recognition it has been granted, and points out the political issue in which it is immersed, consciously or not. She also mentions, again quoting Malvárez's words, that:

The challenge of caring for the world and caring for it well implies political action, advocacy, participation, cooperation and renewed management styles, educational models oriented to the health priorities of nations in themselves and in global interconnection, new objects of research, an enormous associative action and the definitive and inexcusable adoption of teamwork, as well as the notion of intersectoriality.[8,9]

Thus, it becomes imperative to point out that care entails a political issue, and that it also arises from the education that is imparted and directed towards health care.

Therefore, the expansion of health programs, based on a nursing approach, would achieve progress in the effectiveness and attainment of the objectives set. In political matters, understanding the legal aspects, norms, and legislative changes necessary to achieve an impact requires three skills: the advancement of broad knowledge directed towards political subsystems, the strengthening of democratic transdisciplinary networks, and the contribution within the political sphere over a long time.[10]

It is recognized that nursing can formulate

policies or participate in their design, based on all the scientific evidence obtained through research in its various designs or the empirical experience acquired through practice. This discipline is capable of understanding those human aspects that can only be identified by maintaining direct contact with patients, families, and communities, as well as recognizing the impact that current policies have on health systems.

However, what is important for these changes to be achieved is that nurses recognize that their participation in the social context would provide politics with the opportunity to make a change considering their perspective and that this would achieve a different potential in practice and in the management of the resources needed to bring health to an optimal level.[11]

Based on this, other questions arise: *how can nursing be aware of the importance of its participation in political matters?,* and *how can nursing thought be deconstructed based on the above-mentioned evidence?*

For nursing to be recognized as a fundamental actor in political terms, it needs to broaden its knowledge of the legal framework that governs practices in its area, which establishes health regulations, the budget granted to it, and the deficiencies and benefits in the distribution of resources. For this reason, the strategies described by the International Council of Nursing are of utmost importance, since they would allow nursing to approach this field of action, which is necessary for advancing science.[12]

The deconstruction of nursing thought, which aims at greater participation within the care area for the resolution of problems within this field, can be addressed in the training of the nursing professional. This strategy of approaching political knowledge can be implemented during undergraduate and strengthened in graduate school.

Conclusions

The participation of nursing in formulating public policies would favor the approach to various aspects, such as the care of emerging diseases, and geriatric patients, the approach to health inequities, and the management of available resources for health care.

The development of nursing science requires knowledge in line with the current context and a recognition of the use and distribution of financial resources within the health area. Accessibility to accurate sources of information is increasingly within the reach of society, which provides the necessary clarity to address individual, family, community, and collective problems. Ignorance of these elements or bias in their knowledge limits scientific progress. On the other hand, how this knowledge is acquired is diverse for the entire population.

Regarding the knowledge that nursing personnel need about these areas, it is suggested that the proposals of the International Council of Nurses be taken up again starting with undergraduate education, since its influence on nursing students is considered essential as an initial step that allows the development of a nursing policy based on theoretical knowledge put into practice.

Among the strategies proposed to bring nursing closer to political issues, the following are described: to promote in undergraduate students the writing and expression of opinions on politics to bring them closer to current issues in this area, which will allow them early recognition of the context in which health is developed in their country and the world; to

enhance research in which nursing participates in political or social matters; distinguish national or international nurses who play a leading role or participate in political action, as well as recognize the contributions of important nurses such as Virginia Henderson or Marjory Gordon, and finally, strengthen leadership in nursing to occupy managerial, representative and change-generating positions.

Nursing has begun a path of empowerment, taking a leading role in different areas. The formation of a consolidated nursing corps with socio-political knowledge, which reconstructs its thinking, directing it to respond and expand its social participation, thus contributing to the development of health from a humanized and sustainable approach, is recognized as a priority.

Finally, to transform nursing thought, it is necessary not to encourage a romanticization of the profession, to rethink that its field of action is not only within hospital institutions, and to give opportunities to other areas, in which it is possible to develop skills and knowledge to lead science towards lasting change.

Conflict of Interest Statement

It is declared that there is no conflict of interest.

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Review article

La investigación etnográfica en enfermería: una metodología cualitativa alternativa para comprender la experiencia del paciente

Ethnographic research in nursing: an alternative qualitative methodology for understanding patient experience

Sara Santiago García[1] Belinda de la Peña León[2] Ma. Guadalupe Nava Galán[1]

Abstract

El propósito de este artículo es abordar los fundamentos para iniciar una investigación cualitativa etnográfica en el ámbito de la enfermería. Esta metodología, originada en la antropología, destaca por su cercanía con los sujetos de estudio, considerados como actores sociales clave. Su implementación implica una observación participante y contacto directo, además de una relación dialógica activa, reflexiva y crítica. Asimismo, esta metodología presta una especial atención a las formas de pensar y actuar de los individuos bajo estudio, lo que facilita la comprensión de sus modos de reacción, pensamiento y sentimiento ante situaciones de salud-enfermedad. Esto permite analizar las relaciones sociales y culturales, así como comprender las subjetividades que prevalecen en el contexto investigado.

Palabras clave: investigación cualitativa, etnografía, enfermería, experiencia del paciente.

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Resumen

The purpose of this article is to address the foundations for initiating qualitative ethnographic research in the field of nursing. This methodology originated in anthropology and stands out for its closeness to the subjects of study, considered as key social actors. Its implementation involves participant observation and direct contact, as well as an active, reflexive, and critical dialogic relationship. Likewise, this methodology pays special attention to the ways of thinking and acting of the individuals under study, which facilitates the understanding of their ways of reacting, thinking, and feeling in the face of health-illness situations. This makes it possible to analyze social and cultural relations, as well as to understand the subjectivities prevailing in the context under investigation.

Keywords: qualitative research, ethnography, nursing, patient experience

Introduction

The main purpose of this article is to inspire both experienced professionals and students who wish to enter the exciting field of qualitative research; at the same time, it is intended to provide an accessible and didactic reading that promotes disciplinary understanding based on the epistemological, methodological, interdisciplinary, transdisciplinary and multidisciplinary reference offered by ethnographic studies in nursing.

Ethnography is a valuable research tool for the discipline known as ethnonursing, which focuses on the study of the subjective and social dimensions of human experience. Its origins are located in anthropology, particularly in Bronislaw Malinowski's proposal developed in his work *Argonauts of the Western Pacific* (1922). This work presents significant narrative elements on the economic culture and adventurous life of the inhabitants of the Trobriand Islands of the Melanesian New Guinea Archipelago.

This method, which was also used by Franz Boas (1889-1940) and later by Clifford Geertz (1960-2002), is based on observation and meticulous collection of empirical data; both Boas and Geertz emphasized the importance of in-depth interpretation of cultures and their representative texts to understand their meanings.

Let us begin by exploring the etymological roots of ethnography, which are found in the Greek words *ethnos* (tribe, folk, people) and *grapho* (trace, writing, description in writing), which can be interpreted as the description of people in writing. Ethnography is a complex approach, widely used in various disciplines, such as anthropology, sociology, education, psychology, and, very recently, nursing.

Development

Ethnography can be considered as the written representation of communities, which allows the researcher to narrate experiences close to its members and forge a description and

interpretation of these conceptual structures. This is done from the perspectives of sociology and anthropology, disciplines that provide us with the ability to understand people as subjects, thus revealing their meanings and experiences.[1,2]

This kind of research was first proposed in the field of nursing by Madeline Leninger in 1960, who proposed the interpretation of the term care as a polysemous entity that can be studied from multiple perspectives. One of these is based on culture, and has been named "*cultural studies of care*". This approach allows us to explore the experiences of diverse cultures, which, in nursing terms, implies that we must respect and understand the values, beliefs, and ideals of each population we serve.[2,3,4]

Qualitative research methods, such as ethnography, are not only limited to description but also include explanations according to a theoretical construct, thus going beyond a mere representation and deepening the understanding and explanation of the phenomena studied.[2]

The development of fieldwork involves the complete immersion of the researcher in the contextual environment of the group or community being studied; the main objective is to obtain a deep understanding of the cultural practices, beliefs, values, and norms of that environment. In other words, this approach focuses on the study of the reality of individuals or groups from their context, intending to describe and understand how cultural and social practices are constructed in specific environments.[5]

This perspective has found wide application in the social, human, and health sciences, and allows the application of methods of analysis such as the hermeneutics of Georg Gadamer and the phenomenology of Edmund Husserl and Martin Heidegger. These philosophical currents can provide epistemological scientific support for both the social and health sciences, facilitating a deep understanding and interpretation of the social and cultural reality of both individuals and the communities studied.

In this context, ethnonursing acquires great relevance in the field of the discipline. Therefore, it is necessary to rethink its use in the different areas of health care as a space for professional development at the three levels of care: the community at the first level of care, clinical care at the second level, and specialized care at the third level. Likewise, its application in other scenarios becomes essential to address multicausal circumstances involving the health-illness binomial.[6]

Considering the distinction between the different fields of research and the dimensions related to the practice of care, these advances have posed challenges within the nursing paradigm, as pointed out by Fawcett. Consequently, the epistemological location of nursing has been established in the field of knowledge in the science and art of care, encompassing a variety of aspects, including the organic-biological, the emotional-relational, and the social-cultural.[7]

Now, ethnographic research can address healthcare at different stages of human life and consider how people's perspectives and experiences of health and illness change as they age or move through these different phases.[8]

As pointed out by Guber,[9] the use of the ethnographic method by the researcher in the health-disease field implies the consideration of three fundamental aspects: approach, method, and text. Approach refers

to the orientation or perspective from which the study is approached; in the context of health-illness, it implies analyzing the subjects of study from different points of view. Method refers to the processes and techniques for collecting and analyzing data and integrates participant observation, interviews, and focus groups, among other data collection techniques. The text includes written reports that present the results of the ethnographic research, which are fundamental to communicating the findings clearly and coherently.[10] These aspects are essential to address the concepts needed to understand social phenomena from different perspectives. Likewise, through observation and description, the reports seek to explain the causes of the events and to fully understand what happened.

It should be emphasized that the purpose of this method is interpretation, a description that serves to recognize the explanatory frameworks according to which the actors participating in this research describe and classify behavior, as well as those that give meaning to each of the behaviors recorded in the reports issued to explain the causes, to understand in depth how people experience attributing very particular meanings to their health-illness experiences.[11]

The main objective of the ethnographic method in the context of health-disease is to constitute a useful, practical, simple, and accessible tool for those who use it in their research, as well as to encourage active practice based on the exchange of information both with researchers and with those who collaborate in the research.[12]

This methodological approach leads us to raise a series of essential questions related to various aspects of health-disease and the assumptions that surround them:

- Regarding the way of being and decisions: *what factors influence the decisions that people make about their health, and how are these decisions influenced?*
- In doing (subjectification): *what are the specific actions that people carry out in their healthcare processes, how are their beliefs and knowledge reflected in the actions or decisions they take, and how do they experience and live the experience of illness and treatment in their daily lives?*
- In corporeality and emotions: *what is the physical experience of people about their health or illness, how do emotions and emotional states influence the experience of health or illness, and what meanings do they give to their experiences of health or illness from their emotional perspective, among others?*[12]
- Interaction with a specific disease: *how do people interpret and understand a particular disease, how does this interpretation impact their responses and coping strategies, what are the factors that shape their perception of the severity or relevance of a specific disease, and what are the factors that shape their perception of the severity or relevance of a specific disease?*

On the other hand, the information obtained from this methodology provides a better understanding of the role of the nursing professional in his or her field of research, as well as a myriad of premises for intervention. The data recorded allow for determining the most appropriate interventions for processes such as promotion, prevention, evaluation, follow-up, and treatment. In addition, it highlights the role of the professional in this area in the health process, and their participation in inter, trans and multidisciplinary teams.[13]

According to Guber,[12] the application of the ethnographic method involves fieldwork, that is, going to communities, schools, hospitals, and institutions to understand and describe in detail the way of living, coexisting, and surviving of the participants, despite the problems and difficulties that may arise from it.

The observations made clearly show that during these health-illness processes, strong relationships can be established between researchers and an extensive network that includes families, friends, neighbors, and informants. These relationships are conducive to cordial treatment and unfold in a variety of social, cultural, political, or economic contexts, and allow for the analysis of behaviors during the research process and for addressing specific situations that foster social interaction among the people involved.[9]

Concerning the above, the researcher can take on the task of becoming familiar with the place where the phenomenon he/she wants to identify takes place. Likewise, the researcher can be subjectively involved in the experience of how he/she develops in the field and the interaction with people, when establishing communication with them. According to Restrepo, a prominent Colombian researcher and anthropologist, in his book *Etnografías alcances, técnicas y éticas*, ethnography is comparable to the trade of fishermen or artisans, since it is only learned from the practice itself, as the path is forged.[13]

Following the reasoning that has been presented, no one can be an ethnographic researcher if he or she is limited to the understanding of others or the comfort of their study; it is necessary to exercise this approach in the broad field of knowledge that is generated around people, in their individual as well as community daily lives. In this way, the deep sense of their social, geographical, and cultural context is enabled, and their places of work, home, neighborhood, or community can be observed.[13]

Within the framework of the above observations, ethnography is conceived as the interaction and involvement with human reality seen from a multicultural point of view. Likewise, it is free for interpretation, so researchers can forge quests for knowledge by developing new concepts that fit social realities. Consequently, ethnography is transformed through the dominant paradigms, an example of which is nursing, which in its short historical trajectory has evolved as a scientific discipline that proposes multiple models and theories of care as principles.

In their book *Nursing Theorists and Models*, Marriner and Raile mention the work of prominent nursing theorists such as Nightingale (1859), Peplau (1952), Henderson (1955), Orem (1959), Abdellah (1960), Hall (1961), Orlando (1961), Johnson and Travelbee (1964), Wiedenbach (1964), Levine (1969), Rogers (1970), King (1971), Roy (1971), Neuman (1975), Watson (1979), Leininger (1981), Pender (1982), Rogers (1982), Benner (1984), Newman (1986), and Parse (1989). Their theoretical work is frequently applied to establish nursing paradigms in clinical practice.[14]

These elements are the basis of nursing practice, the object of study of which is care. Now, according to Hernández-Garre and Maya-Sánchez,[15] from the anthropological point of view, care is conceived as "*an evolving phenomenon subject to the historical-cultural tensions and cultural pressures that shape any*

human reality". Therefore, nursing practice focuses on providing care that is culturally coherent. These comprise the acts and decisions of assistance, support, facilitation, or enablement that cognitively conform to the cultural values, beliefs, and ways of life of individuals, groups, or institutions, to provide meaningful and helpful wellness or health care services.[15]

All this seems to confirm that ethnography consists of detailed descriptions of personal situations and events, interactions, and observable behaviors, incorporating the experiences, attitudes, beliefs, thoughts, and reflections shared by the participants as expressed by themselves.[16]

The researcher uses an ethnographic methodology to try to understand and interpret people's experiences and meanings, which affect diverse realities, some of them complex concerning the health-disease binomial. These processes of knowledge transformation are valid and reliable because they even consider geographical aspects that provide valuable data to both institutions and health personnel. Through this dynamic, new lines of interest for research emerge, which motivate researchers to contribute to the accompaniment of people in their vulnerability during the health-illness processes.[17] Likewise, different concrete examples to be examined are presented, such as self-care, the satisfaction of needs, the meaning of life in the face of illness, interactions between health personnel and the patient, and the different factors involved in seeking medical care.[17] In this way, responsibility for self-care in the face of life or death is explored with different factors, such as customs, beliefs, and expectations.

Therefore, we emphasize the relevance of kindness in the use of qualitative research, since it grants an epistemological and ontological meaning. In addition, it is necessary to consider ethical, political, and ethnographic aspects from a critical intercultural perspective. In short, this allows for an active approach to people's illnesses, as opposed to the hegemonic thinking that prevails in the field of health based on positivist thinking. The positivist approach, although widely accepted for performing statistical strategies to demonstrate measurable components for analysis, may exclude the understanding of people's ways of life, hence the importance of adopting a humanistic position in the different disciplines that address the issue of health.

It is anticipated that this text will open up questions for discussion, including: *how do we effectively conduct ethnographic research, and how can we access a person's experience of care?* An inescapable issue in providing care for people is the relationship between the abstract world of ideas - from the subjective point of view of emotions, feelings, and beliefs, among others - and concrete material realities. This establishes a multidimensional theoretical framework that contextualizes the forms of care for people in four dimensions: physical, psychological, cultural, and social and provides them with meaning and support.

It is common for the researcher to identify the problem he/she wants to address at the beginning of an investigation; however, as time goes by, it is frequent for these ideas to expand due to the problems and expectations of the researcher himself/herself, the characteristics of the subjects or places, as

well as the different conditions in which the events take place. Consequently, ambiguous or confusing aspects may arise that are constantly transformed when confronted with reality. Once the researcher takes on the role of participant observer or acting researcher, the use of data is made possible through other types of tools, such as co-participation, in-depth interviews, analysis of documents, and field diaries, which provide the informant with a vision of his or her life history in collaborative research, among other aspects.[18]

It is important to recognize fieldwork as a fundamental tool that allows us to explore the contextual, social, cultural, ecological, and economic-productive conditions of the people observed in the study. This allows a deeper insight into the culture and life of individuals through their experiences, which can help identify cultural, social, or emotional factors that may influence their health and recovery process. In this way, effective and person-centered intervention strategies can be designed that take into account their cultural and social context, as well as their needs, preferences, and other factors that influence the processes related to health and disease, as described by Calandrón.[18]

On the other hand, multiple methods can be used to help the researcher complement the required information, such as participant observation; this tool facilitates interaction with people and allows valuable information to be retrieved.

It is important to note that the researcher should especially consider that informants are individuals and, as such, should be treated with respect and dignity. In this regard, informed consent is based on a series of regulations, including the General Health Law, the Health Law Regulations, the State Health Laws, the IMSS medical services regulations, the Mexican Official Standards NOM 012-SSA3-2012, the National Commission for the Certification of Health Establishments, and the Patients' Rights Charters (CONAMED).

These tools play a crucial role in protecting the rights of informants since they clearly and precisely notify them of the objectives of the research, the possible risks and benefits associated with their participation, as well as their right to withdraw at any time without negative consequences. On the other hand, it is the researcher's responsibility to ensure the preservation of the confidentiality of the data obtained, respecting the informants' privacy and avoiding any form of discrimination or stigmatization. In short, ethics in research is fundamental to guarantee the integrity and quality of the results obtained, in addition to maintaining the trust and credibility of the scientific community and the community in general.

It is imperative to point out that the researcher must transparently conduct himself/herself, i.e., provide complete and clear information about the study, its objectives, methods, and possible risks or benefits for the informants. It is also essential to respect confidentiality, i.e., the privacy of informants, ensuring that the information collected is used only for research purposes, which implies that measures are taken to protect it and guarantee its security.

Concerning compensation for the information obtained, the researcher must be sensitive to the economic and social conditions of the informants, that is, the compensation be fair, and appropriate to the particular circumstances of each case. On the other hand, it mustn't become a form of coercion

or manipulation to obtain the desired information; the researcher must be aware of the ethical implications of his or her work and take measures to ensure the protection and respect for the rights of the informants.[19]

According to Calandrón, in any research process, respect for privacy and confidentiality of information is essential to make assertive decisions, therefore, the researcher must establish certain measures to protect the identity and privacy of informants. Furthermore, the researcher must have the ability to communicate with informants to establish whether information can be shared publicly or not and to respect their decisions. In this sense, the researcher needs to agree with the informants on the forms of dissemination of the information, respecting the limits established by them.

For the researcher, it is essential to record the data he/she collects during his/her stay in the field, which can be done in a notebook. In this way, you can record your immediate reflections, highlight the aspects that seem most relevant, ask key questions, and establish closer communication with the informant or the people with whom you have established a social relationship. It is also advisable to create a field diary to record ethical-legal aspects, mind maps, reflections, and ideas for future questions, among others.[20]

Regarding data collection, the researcher must request permission from the community leader and inform him/her in detail about the research to obtain his/her authorization. Likewise, it is important to obtain the signature of the participants for the use of communicative techniques, as well as to capture their data, either through videos, voice recordings, photographs, or other means, including in-depth interviews, mental maps, geographic maps, and anecdotes, among other methods, to gather relevant information about the problem under study and make deductions using logic or common sense.[21]

For this reason, it is necessary for the researcher to respect the privacy of information about people's lives and always consider professional secrecy; when requesting information, he/she should have the expertise to talk to the informant about whether or not it can be disseminated and respect his/her decision. Similarly, the researcher needs to agree with the informant on how the information may be disseminated, as there may be data that cannot be shared publicly.[22]

Concerning data analysis strategies, researchers can use a mental map to organize the problem identified from the research approach and find possible connections between the causal elements that directly and indirectly influence it. This process is carried out through data decomposition, which is divided into two dimensions: descriptive (*emic*) and interpretative (*etic*), as described by Medina.[21] The descriptive phase is inductive and focuses on the broad description of first-order categories and concepts. On the other hand, in the interpretative dimension, the emerging thematic nuclei and second-order concepts are united, and the qualitative vectors are shaped, allowing the deduction and interpretation of the data.[21]

The understanding of the phenomenon studied is achieved by combining the theoretical framework with the phenomenological hermeneutic approach during the analysis of data obtained through observations and interviews; this allows the creation of meta-categories,

categories, and subcategories that structure the information. According to Medina, there are different levels of ethnographic data analysis:

- Level 1: the researcher segments and identifies the units of meaning, grouping the descriptive categories, this can be achieved with the help of some support software to organize the information such as ATLAS.ti.
- Level 2: a system of emerging thematic nuclei or meta-categories is constructed.
- Level 3: qualitative vectors are identified through the interpretation of the data, making use of the theoretical framework.[21]

During this content analysis, the objective is to interpret the meanings that people confer to the observed phenomena, which allows a deeper understanding of the topic of study. To achieve this, a choice of writing design and knowledge analysis is carried out through data triangulation, i.e., different sources of information are compared, such as interviews, observations, field diaries, and data collected from different informants, among others. This is an important process in the analysis to corroborate the findings and ensure the validity of the results.[22]

This process continues until data saturation is reached, that is when sufficient information is obtained and the researcher has reached the point where he/she begins to plan the field trip and the next phase of the research process, which is the analysis and organization of the data, detailed above.[22]

The last stage is the analysis of information, which consists of a reflective and critical analysis, in addition to a conjunction of the theoretical framework with the conceptual framework, which provides the scaffolding for the construction of new empirical knowledge. The information consolidated in this step becomes a kind of dialogue, that is, the reality of the data is unveiled, which gives validity and scientific rigor.

Sometimes, data collection is achieved in a few interviews, and other times, in multiple interviews and over a long period, which generates a large amount of valuable information to understand the phenomenon under study. These data are arranged in an organized manner through a large map of all the coordinates that are important for the research, other times the use of software can be of help for the understanding by categories of analysis.[22]

Ethnography understood as the interaction and involvement with human reality based on multiculturalism, is free of theoretical interpretation so that researchers can build knowledge searches by developing new concepts. Likewise, they can propose them from the results obtained, so that they are suitable to support clinical practice or involve theoretical aspects that can support nursing paradigms.[23]

In short, ethnography is about understanding and participating in the lives of different groups of people. It is a flexible way of studying human reality from diverse cultures. Through this approach, researchers can create new ideas and theories that aid in clinical nursing practice. However, when conducting this type of research it is crucial to consider ethical and political aspects, especially from a perspective that values diversity and is critical of possible biases. This implies treating the people who share information with respect, protecting their privacy and rights, and avoiding any form of discrimination or stigmatization

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Case study

Intervenciones de enfermería aplicadas a una persona con EVC isquémico secundario a infección por SARS-CoV-2

Nursing interventions applied to a person with ischemic CVE secondary to SARS-CoV-2 infection

Jessica Mendoza Galarza[1] Joseph Tiulenin Dimas Carrera[1]

Resumen

Introducción: El presente estudio de caso muestra el impacto de la infección por SARS-CoV-2, en particular, sus manifestaciones neurológicas, que incluyen la anosmia, ageusia, adinamia, confusión, alteración en el estado de conciencia y alteración en la circulación cerebral, y que pueden generar secuelas como el evento vascular cerebral (EVC) isquémico.

Objetivo: aplicación de intervenciones y acciones especializadas a un paciente con EVC isquémico secundario a infección por SARS-CoV-2, con base en la teoría del autocuidado.

Material y métodos: se realizó una valoración neurológica del paciente mediante un instrumento de valoración elaborado por estudiantes del posgrado de Enfermería Neurológica con base en los requisitos de autocuidado universal planteados por Dorothea Orem. Se mantuvo un seguimiento holístico, y se proporcionaron cuidados según planes de intervención específicos para las alteraciones presentadas.

Descripción del caso clínico: paciente con diagnóstico médico de EVC isquémico de la arteria cerebral media izquierda. Debido al estado de salud que presentaba durante la aplicación del instrumento de valoración, para la adquisición de datos se contó con el apoyo de la persona responsable, mediante consentimiento informado.

Relevancia: La COVID-19, ocasionada por la infección de SARS-CoV-2, se caracteriza por la afinidad del virus a los receptores ECA2 presentes en todo el organismo humano. El cerebro, debido a los múltiples receptores de este tipo que presenta, genera una sintomatología específica. Esto deriva en cuadros neurológicos que, dependiendo de la gravedad de la enfermedad, podrían ocasionar secuelas en la persona infectada.

Conclusiones: El personal de enfermería tiene un papel importante en el cuidado de las personas infectadas por SARS-CoV-2, ya que mediante los cuidados especializados que brindan posibilitan su estabilización y recuperación.

Palabras clave: SARS-CoV-2, COVID-19, síndrome post agudo de COVID-19, factores de riesgo, trombosis, síndrome de liberación de citoquinas, accidente cerebrovascular.

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Abstract

Introduction: The present case study shows the impact of SARS-CoV-2 infection, in particular, its neurological manifestations, which include anosmia, ageusia, adynamia, confusion, altered state of consciousness, and altered cerebral circulation, and which can generate sequelae such as ischemic cerebral vascular event (CVE).

Objective: application of interventions and specialized actions to a patient with ischemic CVE secondary to SARS-CoV-2 infection, based on the self-care theory.

Material and methods: a neurological assessment of the patient was carried out using an assessment instrument developed by students of the postgraduate course in Neurological Nursing based on the universal self-care requirements proposed by Dorothea Orem. Holistic follow-up was maintained, and care was provided according to specific intervention plans for the alterations presented.

Description of the clinical case: patient with a medical diagnosis of ischemic CVE of the left middle cerebral artery. Due to the state of health presented during the application of the assessment instrument, the data acquisition was supported by the responsible person, through informed consent.

Relevance: COVID-19, caused by SARS-CoV-2 infection, is characterized by the affinity of the virus for ECA2 receptors present throughout the human body. Due to its multiple receptors of this type, the brain generates a specific symptomatology. This results in neurological symptoms which, depending on the severity of the disease, may cause sequelae in the infected person.

Conclusions: Healthcare personnel play an important role in caring for people infected with SARS-CoV-2 since their specialized nursing services enable stabilization and recovery.

Keywords: SARS-CoV-2, COVID-19, post-acute COVID-19 syndrome, risk factors, thrombosis, cytokine release syndrome, stroke.

Introduction

At the end of 2019, the world faced a complex health situation arising from the discovery of a new variant of a virus of the *Coronaviridae family*, which distinguishes itself by its rapid transmissibility and great impact on infected individuals.

COVID-19 is a disease of recent appearance caused by SARS-CoV-2 infection and characterized by the affinity of the virus for the ECA2 receptors present throughout the human body. This particularity, together with the host conditions (immune response, presence of risk factors, disease onset symptoms, management, and follow-up) makes possible the development of sequelae in the infected person.

Due to its multiple ACE2 receptors, the brain generates a specific symptomatology that can manifest in infected persons as anosmia, ageusia, adynamia, allodynia, headache, dizziness, altered state of consciousness, confusion, ataxia and alterations in cerebral circulation. The latter is the consequence of a set of systemic inflammatory phenomena, in

which the host immune response is directly proportional to the severity of the disease. If the inflammatory response is not adequately and timely controlled, changes begin to develop in the cerebral circulation that may generate optimal conditions for the development of an ischemic cerebral vascular event, which is considered a sequela of SARS-CoV-2 infection.

Background

In December 2019, a cluster of severe pneumonia cases with unknown etiology occurred in Wuhan City, China. Two-thirds of the cases had reported visiting the Wuhan seafood market, so on December 30 of the same year, it was closed. The following day, the World Health Organization (WHO) was notified of these cases of pneumonia of idiopathic etiology.[1]

On January 12, 2020, the genome of the new virus was analyzed and named 2019-nCov.[1] Subsequently, on February 11, the disease was taxonomically designated as SARS-CoV-2 (SARS-CoV-2), and then named coronavirus disease 2019 (COVID-19).2 Following the presence of cases of this coronavirus in countries such as Thailand, Japan, Korea, Spain, and 109 other countries, on March 11, 2020, the WHO declared a global public health emergency due to the COVID-19 pandemic.[1,2]

The term coronavirus derives from the corona-like appearance of the virus envelope, observable by electron microscopy. It is a virus with single-stranded RNA and a great genetic diversity, which makes it easily recombine and generate new types, some capable of infecting humans.[1] Coronaviruses belong to the family *Coronaviridae*, subfamily *Orthocoronavirinae*, which consists of four genera (alpha, beta, delta, and gammacoronavirus),[3] and can be classified as mild or highly pathogenic, depending on the clinical picture they cause.[4]

According to its viral structure, it is composed of four proteins: the surface protein (S, class I trimeric fusion glycoprotein), the envelope protein (E), the matrix protein (M), and the nucleocapsid protein (N). Protein S plays an important role in determining tissue tropism in the host.[5]

It has been suggested that the high invasiveness of SARS-CoV-2 into the human body is due to the binding of the virus to an angiotensin II-converting enzyme receptor (ACE2), whose target receptor is located in the lungs, but is also present in the central nervous system, kidneys and other organs. The invasion cycle begins when the S protein of SARS-CoV-2 binds to the ACE2 receptors, causing a structural alteration of the S protein, which facilitates the binding of the viral envelope to the cell membrane and thus the release of the viral RNA into the host cell.[1,6,7]

Neurotropism is the ability of a pathogen to invade and survive in the nervous system.[8] In SARS-CoV-2 infection, it has been reported in dopaminergic neurons, astrocytes, oligodendrocytes, ventricles, medial temporal gyrus, posterior cingulate cortex, and olfactory bulb.[5,8]

There are several hypotheses about the access of SARS-CoV-2 to the central nervous system (CNS) through the following pathways:

- Direct infection: genetic material of the virus has been detected in tissue samples from the nervous system, suggesting that the virus directly invades the nervous system through the ECA2 receptors present in the nervous system.[8]
- Hematogenous: the blood-brain barrier

is composed of vascular endothelium, astrocytes, pericytes, and extracellular matrix, with the vascular endothelium being the structure that hosts ACE2 receptors.[1,6,7,8] Once the virus enters the blood circulation, cytokine production occurs, which generates an increased permeability of the blood-brain barrier and promotes viral entry into the CNS.[8]

- Neuronal: it is the most important mechanism by which neurotropic viruses enter the CNS. Its access occurs through the olfactory or trigeminal nerve, where it spreads locally through the cribriform plate of the ethmoid bone.[1,6,7] Subsequently, it lodges in the brain parenchyma and cerebrospinal fluid, causing an inflammatory and demyelinating reaction.[8]
- Digestive: Viral replication in the intestine causes cell necrosis, inflammation, and dysbiosis, resulting in a breakdown of the intestinal barrier, which allows the virus to pass directly into the blood or lymphatic circulation.[9]

The clinical manifestations present differently in each individual due to their particular characteristics, among which the following stand out:

- Risk factors: comorbidity with diabetes mellitus, hypertension, chronic renal failure, chronic obstructive pulmonary disease (COPD), cancer, heart disease, obesity, overweight, smoking, hypercholesterolemia, hypertriglyceridemia, sedentary lifestyle, poor access to health services, previous vascular disease (aneurysms), age over 60.[10,11]
- Interaction of the virus with ACE2 receptors: ACE2 is present in several cells of the human body, and is responsible for converting angiotensin I into angiotensin II and obtaining vasodilator, antifibrosis, anti-inflammatory, and natriuresis-promoting effects.[12]
- Innate immune response: this is responsible for activating an antiviral response (interaction of macrophages, neutrophils, dendritic cells, and epithelial cells of the target organ), limiting virus replication, and favoring the adequate adaptation of the host immune response.[8,10]

When installed in the CNS, SARS-CoV-2 can trigger neurological manifestations, which by their characteristics are grouped as follows: [4]

1) Neurological conditions secondary to the infectious process, such as ischemic CVE, as well as conditions associated with ACE2 receptor affinity, which can cause hemorrhagic CVE.
2) Neurological symptoms associated with immunosuppression and opportunistic diseases.
3) Neurological symptoms typical of critically ill patients, especially muscle dysfunction or rhabdomyolysis.
4) Neurological symptoms triggered by viral invasion in neurological or muscular areas, which generate olfactory and gustatory alterations, or myositis.
5) Unclassifiable neurological pictures due to lack of information; the presence of hallucinations has been suggested.

Patients with critical COVID-19 develop severe coagulopathy (COVID-19-associated coagulopathy), resulting from the systemic inflammatory response, showing elevated D-dimer levels, thrombocytopenia and pathological data of microangiopathy.[1,8]

Likewise, after a severe infectious disease, such as COVID-19, there is a prolonged and exhausting *compensatory anti-inflammatory*

response syndrome (CARS), which leads to post-infectious immunosuppression, the aim of which is to counteract the proinflammatory state, prevent maladaptive multiorgan dysfunction and restore immune homeostasis.[13] If this response is repressed too much, a stage of prolonged immunosuppression, *immunosuppression, and catabolism syndrome* (PICS) can be reached, in which the recovered patient is more prone to reactivation of the latent SAR-CoV-2 virus, presenting relapses or reactivation. Some authors refer to these relapses and their symptomatology as post-COVID syndrome, long or persistent COVID.[13]

To unify criteria, the National Institute for Health and Care Excellence proposes the following symptomatic phases of SARS-CoV-2 infection:[14]

- Acute COVID-19: duration of up to 4 weeks from symptom onset.
- Post-acute COVID-19: symptomatology persisting for more than 4 weeks or occurrence of late or long-term complications. Includes patients with persistent COVID-19 (long COVID) and post-COVID-19 sequelae.

These sequelae include symptomatology of long duration (months or years), in the absence of any active infection. Its pathophysiology is associated with a state of chronic hyperinflammation, and the following hypotheses have been suggested:[14]

1) There is an alteration in the integrity of the blood-brain barrier, which allows permeability of neurotoxic substances; this, added to the increase in IL-6 levels, exacerbates muscle loss, causing fatigue and muscle weakness.
2) Autoimmune: autoantibodies act on immune system modulator proteins, altering their function and impairing virological control.
3) Persistence of a hypercoagulable state associated with SARS-CoV-2 infection (thromboinflammatory state).
4) Affection of the autonomic nervous system caused by the virus, resulting in orthostatic intolerance syndromes (orthostatic hypotension, vasovagal syncope, and postural orthostatic tachycardia syndrome).
5) Viral persistence caused by a weak or absent immune response (relapses or reinfections).

When an excessive and poorly regulated immune cell response is generated, a cytokine storm is produced that can lead to altered vascular permeability, coagulopathy, and a proinflammatory effect. These conditions may result in cerebral edema.[1,3] It has been suggested that this cytokine storm acts as a causal factor of CVD, as it is associated with intravascular alterations that cause an interruption in cerebral circulation and generate stimulation of the sympathetic nervous system, predisposing to stress cardiomyopathy and cardiac arrhythmias and promoting intracardiac thrombus formation, raising the risk of cardioembolic type CVE.[15]

Some studies propose a relationship between the presence of CVE and certain risk factors, such as age over 60 years, comorbidity of diabetes mellitus, obesity, arterial hypertension, SARS-CoV-2 infection of critical presentation, blood hypercoagulability, hyperlipidemia, coronary artery disease, congestive heart failure, atrial fibrillation, history of CVE or transient ischemic attack, and active smoking.[2,15] Ischemic CVE is characterized by the functional loss of some area of the central nervous system due to thrombotic occlusion

of a cerebral artery; this occlusion occurs suddenly and has the possibility of being transient or permanent.[16]

Normally, cerebral metabolism maintains a balance between cerebral blood flow (CBF), blood pressure, and the blood-brain barrier, the latter two being responsible for the regulation of cerebral blood flow.[17] The cerebral blood flow demand is high and represents 20% of cardiac output. The CBF of an average human adult is 50mL/100gr of tissue/min, in white matter it is 20mL/100gr of tissue/min and in gray matter, it is 80mL/100gr of tissue/min.18 When the CBF begins to decrease, various cellular processes occur: with a CBF of 50-25mL/100gr/min there is a selective loss of neurons; with a CBF of 50-35mL/100gr/min protein synthesis is reduced and there is selective gene expression; with a CBF of 35-25mL/100gr/min the cerebral metabolic rate of glucose rises and then falls, generating anaerobic glycolysis and increased lactate levels; with a CBF of 30-20mL/100g/min the pH decreases and glutamate is released; with a CBF of 25-15mL/100g/min phosphocreatine is reduced and adenosine triphosphate (ATP) depletion and infarction occur; with a CBF of 10mL/100g/min or less anoxic depolarization occurs, intracellular calcium increases, extracellular potassium is released and loss of cellular ionic homeostasis occurs.[18]

The risk factors for CVD are similar to those involved in the development of COVID-19, so it is not unlikely to find people who present COVID-19 and CVD simultaneously.[19] Moya-Guerrero suggests different hypotheses to understand the origin of CVD in people with COVID-19: 19

- Classic arrhythmogenic mechanism: when a person develops a severe infection such as COVID-19, he/she presents a state of stress, which implies an exaggerated sympathetic activation that leads to cardiac arrhythmias, the most frequent being atrial fibrillation, related to the development of ischemic events.
- Inflammatory markers: fibrinogen, C-reactive protein and leukocytes alone are predictive of the course of an ischemic CVE.
- Hypercoagulable state: individuals with COVID-19 have elevated D-dimer levels and a lengthened prothrombin time, resulting in a hypercoagulable state. D-dimer values are generally related to the severity of the disease.
- Hypoxia: firstly, it acts as a prothrombotic factor, since it induces the secretion of cytokines and catecholamines, generating endothelial damage and an alteration in capillary flows. On the other hand, a prolonged hypoxic state causes the secretion of erythropoietin, which produces secondary polycythemia and generates an increase in blood viscosity, slowing vascular flow and thus facilitating the formation of blood clots.
- Endothelial dysfunction: endothelial cells contain ACE2 receptors, a target receptor of SARS-CoV-2, which represents a factor for endothelial dysfunction. This condition facilitates platelet and coagulation factor activation.

Material y methods

A person with a diagnosis of ischemic CVE of the left middle cerebral artery admitted to the fourth-floor hospitalization service of the Manuel Velasco Suárez National

Institute of Neurology and Neurosurgery was selected. The selection was made during the clinical practices of the Neurological Nursing specialty of the morning shift (7:30 am to 2:00 pm), comprised in the period from May 3 to 7, 2021.

Due to the clinical condition of the selected person, the responsible family member was contacted to obtain his or her authorization to carry out the case study, as well as a follow-up of the patient's health status. Authorization was obtained by signing an informed consent form.

The patient was evaluated using a neurological nursing assessment instrument based on the self-care requirements proposed by Dorothea Orem. We had the support of the person responsible for the collection of the missing information. Likewise, the patient's electronic clinical record was accessed, following the specifications dictated on the clinical record of the Electronic health record information system NOM-024-SSA3-2012.Subsequently, a review and analysis of references published nationally and internationally were carried out using databases such as SciELO, PubMed, Medline, Google Scholar, and different websites. Various descriptors were used with the Boolean operators AND and OR, and the keywords previously described were used.

Presentation of the case

SThe patient was Mr. J.D.R., who had a diagnosis of ischemic CVE of the left middle cerebral artery. The patient was administered an assessment instrument based on the universal self-care requirements developed by students of the Neurological Nursing postgraduate course.

Table 1. Health history of Mr. J.D.R. according to the neurological nursing assessment instrument.

HFH	Father deceased of unknown cause with a diagnosis of diabetes mellitus, mother deceased of unknown cause, and a brother with a diagnosis of systemic arterial hypertension.
NPPH	Onset of smoking in adolescence with an approximate consumption of 2 cigarettes per week, suspended after infection by SARS-CoV-2. Occasional alcoholism, drug addictions denied and complete vaccination.
PPH	Allergic to ampicillin, diagnosed with diabetes mellitus in 2014 with no control or follow-up of the disease. Family members reported that he went to private medical consultation only in case of discomfort; sometimes it was necessary to administer rapid-acting insulin, but then the treatment was not continued. Infection by SARS-CoV-2 in December 2020, presenting symptoms with fever, anxiety, adynamic, periods of diaphoresis, and hyperglycemia (capillary glycemia figures were not specified). Treatment was performed at home with supplemental oxygen support through a reservoir mask; NPH insulin, 10 IUI every 24 hours SC; enoxaparin, 40mg every 24 hours SC; protec aspirin, 100mg every 24 hours and relative rest. In addition, the primary caregivers report that after the acute period of COVID-19, pulmonary exercises were started using an incentive inspirometer.

Note: HFH = heredofamilial history, NPPH = nonpathological personal history, PPH = pathological personal history.
Source: Own elaboration.

Health status (update)

On May 5, 2021, the patient presented vital signs of HR 95x', RR 26x', BP 120/80 mmHg, temperature 36.3°C, isochoric pupils, with response to light stimulus and pupillary diameter of 3mm, minimally conscious state, Glasgow scale score of 9, FOUR scale score of 11, oxygen saturation 96%, VAS scale not assessable. Left fronto-temporo-parietal surgical wound with bulging encephalic mass. Motor aphasia, right facial paralysis of central type. Tracheostomy with ventilatory support in CPAP mode, with a FiO2 at 35%, and PEEP of 5. Presence of abundant thick yellowish secretions, peripheral venous access in right thoracic limb with continuous infusion of isotonic solution at 20mL/hour. Upper and lower extremities with skin integrity, right hemiplegia and left hemiparesis, with placement of gentle restraint of the left upper limb because the person was trying to remove the invasive therapeutic devices. Depressible soft abdomen with the presence of a gastrostomy tube with a diet of intakes every 8 hours. Stage II pressure lesion in the sacral region covered with local treatment (skin protector, hydrocolloid dressing, hypocellular dressing, and with permanent secondary dressing of Hipafyx, which was changed at detachment or at one week, whichever occurred first), presence of bladder catheterization with continuous derivation. The patient had periods of diaphoresis due to body mobilization and aspiration of tracheal secretions. Blood tests showed: Na 190 mmol/L, K 4.3 mmol/L, Cl 138.8 mmol/L, glucose 126 mg/dL, urea 36.8 mg/dL, BUN 17 mg/dL, CrS 0.4 mg/dL, uric acid 2.8 mg/dL, cholesterol 64 mg/dL, alkaline phosphatase 225 IU/L, direct bilirubin 0.2 mg/dL, glutamic oxalacetic transaminase 152.2 IU/L, glutamic pyruvic transaminase 179.1 IU/L, serum gamma-glutamyl transferase 94 IU/L, total protein 6.8 g/dL, PT 16.5 sec, INR 1.24, TTP 34.5 sec, leukocytes 11.4, erythrocytes 3.11, hemoglobin 7.9g/dL, hematocrit 26.9%, platelets 339, lymphocytes 7.5%, monocytes 4.5%, eosinophils 2.2%, basophils 0.2%, neutrophils 9.7 and C-reactive protein 4 mg/dL.

Ethical considerations

The professional ethics of nurses should be guided by the fundamental principles of bioethics, which are autonomy, beneficence, nonmaleficence, and justice.[20]

As part of the code of ethics, the International Council of Nurses emphasizes its primary duties, which include promoting health, preventing disease, contributing to the restoration of health and alleviating suffering, and at all times showing respect for human and cultural rights, as well as the right to life, free choice and dignity of individuals.[20]

Often, nurses work with patients who are unable to communicate verbally, which does not imply that they lose their humanity, but rather that they are at a disadvantage.[20]

Neurological nursing assessment

Neurological nursing assessment is a useful method for detecting and recognizing neurological alterations in a person. It is very useful for nursing professionals, since it enables them to detect neurological deterioration in advance, facilitating the identification of possible secondary damage and its timely treatment.[21] The neurological assessment of Mr. J.D.R. is described below.

- Vital signs: heart rate 95 beats per minute, respiratory rate 26 breaths per minute,

blood pressure 120/80 mmHg, body temperature 36.3°C, oxygen saturation 96%, VAS scale not assessable.

- Consciousness: minimally conscious state, with a score of 9 on the Glasgow scale and 11 on the FOUR scale.
- Pupillary assessment: symmetrical pupils with response and diameter of 3mm.
- Cranial nerve assessment: I: not assessable; II: campimetry not assessable. Visual reflexes: photomotor and consensual, present in both eyes; accommodation: not assessable; corneal: present in both eyes; pupillary cutaneous: present in both eyes; III, IV, VI: eye movements, levoversion, dextroversion, supraversion and infraversion, present; little cooperation from the person; V: V1: right portion, corneal reflex present, nasal cavity moistened; V2: not assessable; V3: sensory function not assessable. Presence of jaw movements; VII: motor function: eye closure movements against the examiner's resistance (only movement assessable, when touching the eyelids, the person closes them tightly), sensory function not assessable, secretory function with slightly decreased wetting of both eyes, same as in both nares; VIII: vestibular function not assessable, cochlear function not assessable; IX, X: motor function: the person is not able to swallow, parasympathetic secretomotor function with adequate salivary production, sensitive function with presence of gag reflex; XI not assessable; XII not assessable.
- Assessment of the motor system: the person presents problems with mobilization, as he has right hemiplegia (0/5 on the Daniels muscle strength scale) and left hemiparesis (2/5 on the Daniels muscle strength scale).
- Sensitivity assessment: in the right hemibody the extremities are areflectic and in the left, hyporeflectic (+).

Intervention plan

During the assessment, eight universal self-care requirements were found to be altered. From this, the following diagnoses were developed.

Table 2. Nursing diagnoses made to Mr. J.D.R. according to the self-care requirements that were altered.

Maintenance of sufficient air supply.	• Impaired spontaneous ventilation R/T bulbar center dysfunction in the dorsal respiratory and ventral respiratory nuclei M/B inability to perform diaphragmatic activity during inspiration and expiration, dependence on artificial airway, respiratory muscle fatigue, respiratory rate of 26 per minute. • Ineffective airway patency R/T cranial nerve X alteration, inadequate secretion management M/B altered state of consciousness (minimally conscious state), inability to expectorate thick secretions, presence of rales, increased secretion production.
Maintenance of sufficient food intake.	• Impaired swallowing R/T impairment of the IX and X cranial nerve, altered state of consciousness (minimally conscious state) M/B weakness of lip closure, impaired tongue tone, strength and mobility, fractionated swallows.
Maintenance of a sufficient water supply.	• Hyperosmolar imbalance R/T damage to the supraoptic nucleus of the hypothalamohypophyseal fasciculus M/B excess extracellular solutes (serum sodium 190 mmol/L, chloride 138.8 mmol/L), effective osmolarity 387 mOsm/kg, decreased skin turgor, tachycardia (120 bpm), periods of restlessness.

Provision of care associated with disposal processes.	• Impaired bowel function R/T cranial nerve X dysfunction, prolonged bed rest M/B decreased peristaltic movements (6 per minute), decreased number and frequency of bowel movements (1 time per week), Bristol 1 stool.
Maintaining a balance between activity and rest.	• Impaired physical mobility R/T decreased cerebral blood flow in primary and secondary motor areas (Brodmann areas 4 and 6) M/B right hemiplegia, fatigue, right hemibody Daniels scale score of 0, left hemiparesis, left hemiparesis, left hemibody Daniels scale score of 2. • Loss of total right sensation R/T left parietal lesion (decreased cerebral blood flow in Brodmann's areas 1, 2 and 3) M/B loss of position sense, tactile localization and discrimination, weight sensation, and stereognosis. • Intolerance to mobilization R/T disruption of cerebral blood flow in primary and secondary motor areas (Brodmann areas 4 and 6) M/B tachycardia (132 beats per minute), tachypnea (34 breaths per minute), diaphoresis, restlessness following postural changes, fatigue. • Impaired skin integrity R/T prolonged stay in bed M/B pressure exerted from bony prominence on the skin, intolerance of the person to postural changes, stage II pressure injury in sacral region, Braden scale score of 10.
Maintaining a balance between social interaction and solitude.	• Impaired cognitive function (language) R/T decreased cerebral blood flow in Brodmann areas 44 and 45 M/B motor aphasia, alexithymia, and absence of articulate sound.
Prevention of hazards to human life, functioning, and well-being.	• Incapacity for self-care R/T interruption of cerebral blood flow in primary and secondary motor areas (Brodmann areas 4 and 6) M/B absence of right hemibody contraction, inability to perform self-care independently, Barthel index score of 0. • Disturbance of well-being R/T interruption of cerebral blood flow in left cerebral hemisphere M/B tachycardia (132 beats per minute), diaphoresis, tachypnea (34 breaths per minute). • High risk of tissue hypoxemia R/T hemoglobin levels of 7.9 g/dL. • Risk of bronchial aspiration R/T minimally conscious state, inability to expectorate secretions alone, presence of thick secretions. • Risk of arterial hypertension R/T sodium retention (serum sodium levels of 190 mmol/L), inadequate functioning of the renin-angiotensin-aldosterone system.
Promotion of human functioning and development in social groups in accordance with human potential, known human limitations, and the human desire to be normal.	• Spiritual suffering R/C chronic disease state M/P minimal cooperation with care provided, periods of anger. • Alteration of family processes R/T illness of one of the family members M/B anguish, sadness, and inadequate family adaptation.

Source: own elaboration.

The nursing diagnoses made were reviewed and the intervention plan shown below was generated.

Table 3. Intervention plan of nursing diagnosis 1 applied to Mr. J.D.R.

Altered requirement: maintenance of sufficient air supply.	
Diagnosis: impaired spontaneous ventilation R/T bulbar center dysfunction in the dorsal respiratory and ventral respiratory nuclei M/B inability to perform diaphragmatic activity during inspiration and expiration, dependence on artificial airway, respiratory muscle fatigue, respiratory rate of 26 per minute.	
Nursing system: fully compensatory.	**Objective:** to avoid fatigue in the respiratory musculature, and to maintain a respiratory frequency between 18 and 22 breaths per minute.
Nursing interventions	Nursing actions
Ventilation aid	• Maintain a patent airway. • Position the person to facilitate ventilation/perfusion matching. • Monitor the effects of position change on oxygenation (arterial blood gas levels). • Observe respiratory muscle fatigue.
Airway suction	• Determine the need for tracheal suctioning. • Auscultate breath sounds before and after suctioning. • Provide universal precautions. • Hyperoxygenate with 100% oxygen using the ventilator. • Use sterile disposable equipment for each tracheal suctioning procedure. • Observe the person's oxygen status (SvO2 levels) and hemodynamic status (MAP level and heart rate) immediately before, during, and after suctioning. • Aspirate the oropharynx after completion of tracheal suctioning. • Clean the area around the tracheal stoma after completion of tracheal suctioning.
Management of invasive mechanical ventilation	• Monitor conditions that indicate the need for ventilatory support (respiratory muscle fatigue, neurological dysfunction, anesthesia, refractory respiratory acidosis). • Control activities that increase O2 consumption (fever, pain, or basic nursing activities) that may replace ventilator support settings and cause O2 desaturation. • Provide care to alleviate the person's distress (positioning, tracheobronchial clearance, bronchodilator therapy, sedation and/or analgesia, frequent equipment checks). • Perform aseptic technique in all aspiration procedures. • Monitor the individual's progress on current ventilator settings and make appropriate changes per physician's orders.

Evaluation: the patient maintained oxygen saturation above 96%, reducing episodes of tachypnea and diaphoresis, mechanical ventilation parameters continued under the same conditions (CPAP mode, FiO2 35%, PEEP 5).

Source: own elaboration.

Table 4. Intervention plan of nursing diagnosis 2 applied to Mr. J.D.R.

Altered requirement: maintenance of sufficient water supply.	
Nursing diagnosis: hyperosmolar imbalance R/T damage to the supraoptic nucleus of the hypothalamohypophyseal fasciculus M/B excess extracellular solutes (serum sodium 190 mmol/L, chloride 138.8 mmol/L), effective osmolarity 387 mOsm/kg, decreased skin turgor, tachycardia (120 bpm), periods of restlessness.	
Nursing system: fully compensatory.	**Objective:** to restore the water-solids balance.
Nursing interventions	Nursing actions
Electrolyte management	• Observe if serum electrolytes are abnormal. • Maintain permeable IV access. • Administer fluids as prescribed. • Maintain adequate intake and elimination records. • Obtain samples for laboratory analysis of electrolyte levels (arterial blood, urine, and serum gases). • Place cardiac monitor. • Control electrolyte imbalances associated with hypernatremia (hyperchloremia and hyperglycemia). • Look for signs of dehydration (decreased sweating, decreased urine output, decreased skin turgor, and dry mucous membranes). • Promote skin integrity.
Liquid handling	• Keep an accurate record of intake and elimination. • Perform bladder catheterization. • Monitor hydration status (moist mucous membranes, adequate pulse, and orthostatic blood pressure). • Monitor vital signs. • Administer IV therapy as prescribed.
Electrolyte monitoring	• Monitor serum electrolyte levels. • Observe signs and symptoms of hypernatremia: extreme thirst, fever, dryness, sticky mucous membranes, tachycardia, hypotension, lethargy, confusion, altered mental status, and seizures. • Observe signs and symptoms of hyperchloremia: weakness, lethargy, rapid, deep breathing, and coma.
Evaluation: the person achieved a correction in serum electrolyte levels and effective osmolarity (Na 139 mmol/L, Cl 99.6 mmol/L, and 284.7 mOsm/kg).	

Source: own elaboration.

Table 5. Intervention plan of nursing diagnosis 3 applied to Mr. J.D.R.

Altered requirement: maintenance of a balance between activity and rest.	
Nursing diagnosis: loss of total right sensory R/T left parietal lesion (decreased cerebral blood flow in Brodmann's areas 1, 2, and 3) M/B loss of position sense, tactile localization and discrimination, weight sensation, and stereognosis.	
Nursing system: fully compensatory.	**Objective:** to diminish the effects of the deficit in perception and prevent related complications.

Nursing interventions	Nursing actions
Skin stimulation	• Select the type of skin stimulation best suited to the person and his/her conditions (massage, cold, heat, menthol, vibration, or transcutaneous electrical nerve stimulation). • Apply stimulation directly on or around the affected site. • Establish the duration and frequency of stimulation according to the method chosen.
Skin surveillance	• Monitor skin color and temperature. • Observe for areas of discoloration and loss of skin integrity. • Observe areas of friction and pressure. • Observe for skin rashes or abrasions. • Observe excessive moisture or dryness of the skin. • Take note of skin changes. • Implement measures to prevent further deterioration (alternating pressure cushion, repositioning schedule). • Use an assessment tool to identify individuals at risk of loss of skin integrity (Braden scale).
Environmental management	• Create a safe environment for the person. • Identify the individual's safety needs based on physical function, cognitive, and behavioral history. • Provide a clean and comfortable environment. • Avoid exposing the skin to irritants. • Identify environmental safety hazards (physical, chemical, and biological). • Eliminate risk factors from the environment when possible.

Evaluation: the person showed a relaxed facial expression and posture for longer periods. There were no lesions associated with right total hemianesthesia.

Source: own elaboration.

Discharge plan

The discharge plan provides primary caregivers, nursing staff, and the family with information on the care to be provided once the patient leaves the hospital and goes home, to avoid complications, reduce possible hospital readmissions and, in general, improve the patient's quality of life.[22]

The following is a summary of the activities used in the discharge plan for Mr. J.D.R. based on the CUIDARME mnemonic (communication, urgency, information, diet, environment, recreation and use of free time, medications and treatments, spirituality):

Table 8. Discharge plan for Mr. J.D.R. based on the CUIDARME mnemonic

Effective communication	With the support of the nursing consultancy service, scheduled training was provided to caregivers before Mr. J.D.R.›s discharge, and relevant information was provided; the link with nutrition and dietetics, palliative care, and rehabilitation services was facilitated.
Emergencies and warning signs	Primary caregivers are told that if their family member presents with any of the following signs, they should go to the hospital nearest to their home: drowsiness for abnormal periods, persistent headache, vomiting, seizures, confusion or disorientation, generalized pain that does not decrease with medication, new pressure lesions, increased secretions, pain or swelling in the pressure lesion that was present in the sacral region, constipation, increased tracheal secretions and changes in their characteristics, presence of secretions around the stomas (tracheal and gastric), pain or erythema, or sensation of shortness of breath.

Information	Caregivers were trained on hand washing techniques, airway management, gastrostomy tube care, skin care, prevention of pressure injuries, treatment of stage II pressure injury in the sacral region of Mr. J.D.R., prevention of constipation, mobilization in the environment, sponge bath, use of the communication board.
Diet	The nutrition and dietetics service explained to Mr. J.D.R.'s caregivers the preparation of food, the amounts to be administered, and the intervals at which they would be administered. The nursing staff oriented them on the recommendations to promote feeding (positioning of the person at the time of feeding, speed of infusion of the diet, temperature of the diet), care of the gastrostomy tube (washing the tube after the administration of food or medication, avoiding traction of the tube), and the importance of hydration and oral hygiene.
Environment	Based on the background information provided regarding the person's environment, guidance was given on how to maintain adequate lighting in the room intended for Mr. J.D.R., hygienic measures for the family member and his environment, the need to remove objects that could obstruct the passage and the use of bed rails.
Recreation and use of free time	The person's physical and occupational rehabilitation was carried out by INNN's rehabilitation service. The nursing staff guided the caregivers on the importance of maintaining body alignment, modifying postural reactions, avoiding overstimulation, taking walks near the home, as well as providing Mr. J.D.R. with readings, movies, or music that are of interest to him.
Medications and harmacological treatments	The caregivers were oriented on the indications of the medications prescribed for Mr. J.D.R., their possible adverse effects, the most appropriate schedules for their administration according to his rhythm of life and the characteristics of the medications, the routes of administration, the care required for the conservation of the medications and on strategies for polypharmacy (use of pill dispensers, schedules, and calendars, alarms). Also, with the support of the nursing consultancy service, the primary caregivers were educated on the characteristics of the cures to be performed on Mr. J.D.R.'s pressure injury, the frequency and the products to be used.
Spirituality	It was recommended that caregivers continue to strengthen their religious beliefs (attendance at ceremonial meetings) and involve Mr. J.D.R. to promote relief. Also, always to facilitate the expression of each family member's feelings.

Source: own elaboration.

Relevance

A fundamental aspect of increasing the generation of evidence by nursing professionals is to encourage and guide them to engage in evidence-based research and publication strategies. It is only through this exercise and familiarization with best practices that the importance of specialized care will be magnified, thereby achieving greater recognition for professionals and the discipline. In short, this will have a positive impact on the interventions provided to the population on which the activities of the nursing staff are focused.

Conclusions

This case study exemplifies the importance of the control and management of risk factors present in the population (comorbidities), as well as the relevance of timely and adequate care of people infected with SARS-CoV-2, as it is a prognostic factor for their health status.

It is gratifying to report the successful application of interventions and actions according

to the self-care theory to Mr. J.D.R., who was admitted to INNNN with an ischemic cerebral vascular event following infection by SARS-CoV-2. Despite the constant challenges during the patient's clinical follow-up, the objectives set were met through the support of the multidisciplinary team, and the participation of Mr. J.D.R. and his family, who proved to be an excellent pillar in his clinical evolution.

Finally, it should be noted that nursing professionals should be fully involved in the process of recovery of the health of the people under their care, providing care based on scientific support, which will always strengthen the efficiency of the interventions carried out; that is why individualized care plans should be developed, useful in the training of future nursing professionals.

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Innovation in nursing practice

Guía clínica intervenciones de enfermería en procuración de órganos de personas adultas con muerte encefálica

Clinical guide nursing interventions in organ procurement for adult patients with encephalic death

Teresa de Jesús Solís López[1] Josefina Gallegos Martínez[2]

Abstract

Introducción: Las instituciones hospitalarias son las sedes donde se brinda el proceso de procuración, donación y trasplante de órganos, por lo cual deben garantizarse los pasos operativos con la participación coordinada del personal capacitado y comprometido. Los profesionales de salud y de enfermería de las Unidades de Cuidados Intensivos (UCI) o afines, que están directamente relacionados con los procedimientos de procuración de órganos, deberán realizar las intervenciones basadas en evidencia científica y cuidado humanizado.

Objetivo: Desarrollar una guía clínica de intervenciones de enfermería en procuración de órganos en las personas adultas con muerte encefálica (ME), mediante el uso de la taxonomía NANDA-NOC-NIC.

Métodos: La Guía Clínica de Intervenciones de Enfermería en Procuración de Órganos de personas adultas con ME, se basó en el Manual Metodológico para el Desarrollo de Guías de Práctica Clínica de Enfermería, del Sistema Nacional de Salud de México. Se ocupa de las principales complicaciones de ME e incorpora elementos del juicio clínico para comunicarse mediante la taxonomía NANDA-NOC-NIC.

Conclusiones: El proceso de donación-trasplante de órganos es una estrategia de subsistencia principalmente para enfermos crónicos. Las intervenciones de enfermería guían el mantenimiento de órganos de personas con ME de forma correcta y eficiente, a fin de generar un proceso óptimo de procuración-donación-trasplante de órganos.

Palabras clave: enfermería, sistema nervioso, muerte encefálica, procuración de tejidos y órganos.

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Resumen

Introduction: Hospital institutions are the sites where the process of organ procurement, donation, and transplantation takes place, so the operational steps must be guaranteed with the coordinated participation of trained and committed personnel. Health and nursing professionals in Intensive Care Units (ICU) or similar, who are directly related to organ procurement procedures, should perform interventions based on scientific evidence and humanized care.
Objective: To develop a clinical guide for nursing interventions in organ procurement in adults with encephalic death (ED), using the NANDA-NOC-NIC taxonomy.
Methods: The Clinical Guide for Nursing Interventions in Organ Procurement in Adult Persons with ED was based on the Methodological Manual for the Development of Nursing Clinical Practice Guidelines of the Mexican National Health System. It addresses the main complications of ED and incorporates elements of clinical judgment to communicate using the NANDA-NOC-NIC taxonomy.
Conclusions: The process of organ donation-transplantation is a subsistence strategy mainly for the chronically ill. Nursing interventions guide the maintenance of organs of people with ED correctly and efficiently, to generate an optimal organ procurement-donation-transplantation process.

Keywords: nursing, nervous system, encephalic death, tissue and organ procurement.

Introduction

From 1966 to 2015, the number of deceased organ donors in Mexico increased, of which 491 were due to encephalic death (ED) and 1,475 due to cardiorespiratory arrest (PCR). In 2019, the number of deceased donors increased to 2,495 (564 due to ED and 1,931 due to PCR), a 1.7-fold increase, bringing the deceased donor rate to 19.7 per million inhabitants. The increase in the incidence of chronic non-communicable diseases that lead to terminal organ failure concomitantly increases the need for transplants.[1] Regarding these facts, which were expressed in the initiative to reform Articles 321, 322, and 324 of the Mexican General Health Law, related to donations and transplants, it was mentioned that the greatest difficulty lies in obtaining the necessary organs.[2] Legislatively, the procurement, donation, and transplantation of organs and tissues from a deceased person are consistent with the right of every person to the protection of health (Article 4 of the Political Constitution of the United Mexican States).

Hospital institutions are the sites where these procedures are performed and where the largest number of potential donors and recipients are located. In hospitals, the

operational steps must be guaranteed with the coordinated participation of trained and committed personnel.[2]

In this scenario, health and nursing professionals in Intensive Care Units (ICU) or similar are directly related to the processes and procedures of organ procurement, since they must perform interventions based on scientific evidence and humanized care so that they implement the necessary measures to avoid as much as possible potential damage to organs for transplantation.[3-8] This implies maintaining the physiology and cellular homeostasis of the human organism to prevent electrolyte, endocrine, cardiovascular, and pulmonary alterations, as well as hematological and autonomic nervous system alterations[9,10] that prevent organ donation and transplantation. For these purposes, it is necessary to have the infrastructure and structure of human resources in health to carry out organ procurement actions, in the humanized sense of facilitating the reception of organs by sick people for their survival and quality of life.[11-15]

In Mexico, there is a dynamic organ transplantation activity in line with the resumption of transplantation programs under the context of the COVID-19 pandemic. In this sense, the variants of concern Alpha, Beta, Gamma, Delta and, above all, Omicron, predominant from the year 2021, are contemplated to incorporate precautionary measures for the processes of organ procurement, donation, and transplantation, under the responsibility of the hospital coordinators of donation and with the participation of the team of trained personnel for each stage.[13] For these reasons, it is important to know the scientific aspects, regulatory frameworks, processes, and preservation procedures of the organs most frequently procured or with the highest waiting rate that are requested from persons with ED, since they require quality maintenance and interventions specific to the pandemic context.[2-8,13]

The insufficiency of published scientific material to guide nursing interventions in the correct organ procurement for adults with ED, and to provide theoretical, methodological, technical, and humanistic bases for an efficient organ donation and transplantation process under the best possible conditions, led us to propose the development of a clinical guide for nursing interventions in the procurement of the most frequent organs to be donated by adults with ED, such as kidneys, lungs, heart, corneas or pancreas. This guide is based on the NANDA-NOC-NIC taxonomy.

Methods

The present work consisted in the elaboration of the Clinical Guide for Nursing Interventions in Organ Procurement for adults with ED (GCIEPO), based on the methodology proposed in the Methodological Manual for the Development of Clinical Practice Guidelines for Nurses (MMDGPCE), of the Mexican National Health System.[16]

The rationale was based on a previous systematic review that was developed using descriptors of the PICO method focused on the main topic, the evaluation of the level of scientific evidence of the publications, according to the Oxford Center for Evidence-Based Medicine (OCEBM), and the AGREE II report checklist. This previous phase of systematic review has already been published.[17]

The GCIEPO addresses the major complications of organ procurement and uses the standardized nursing language of the North American Nursing Diagnosis Association (NANDA) for diagnoses, the Nursing Interventions Classification (NIC) for interventions, and the Nursing Outcomes Classification (NOC) for outcomes.

At the end of each care plan, a "*clinical judgment*" is presented to support the scientific basis of nursing care.

Results

Table 1 presents a checklist for the determination of ED, taken from the clinical guide for the diagnosis of encephalic death of the Ministry of Health.[18] This makes it possible to focus nursing interventionsfor organ procurement based on the prevention of complications (Tables 2-8), since cardiac arrest, in the presence of ED, becomes noticeable 24 to 48 hours after confirmation of the diagnosis.

Table 1. Checklist for determination of encephalic death.

Prerequisites (All must be evaluated)	• Irreversible coma of known cause. • Neuroimaging studies to explain the coma. • Absence of CNS depressant drugs (if indicated, request toxicological examination); in case of administration of barbiturates, serum levels should be <10 ug/ml. • Absence of residual effect of muscle relaxants. • Absence of serious acid-base disorders, electrolyte abnormalities, or endocrine. • Normothermia or mild hypothermia (>36ºc). • Systolic blood pressure ≥100 mmHg. • Absence of spontaneous breathing.
Clinical evaluation (All must be evaluated)	• Pupils unresponsive to light. • Absent corneal reflex. • Absence of oculocephalic reflexes (check for cervical spine integrity). • Absence of oculovestibular reflexes. • Absence of facial movements to painful stimuli of the supraorbital nerve and temporomandibular joint. • Absence of gag reflex. • Absence of cough reflex to tracheal suction. • Absence of motor response to painful stimuli in all four extremities (spinal integration reflexes are allowed).
Apnea test (All must be evaluated)	• Patient with hemodynamic stability. • Adjustment of ventilatory parameters to maintain normocapnia (PaCO2 35-45 mmHg) • Preoxygenation with FiO2 100% for 10 minutes or until reaching PaO2 >200 mmHg. • Setting the PEEP (end-expiratory pressure) level to 5 cmH2O. • Provide O2 through tracheal suction catheter at carina level at 6 L/min or connect patient to T-piece with CPAP (continuous positive airway pressure) at 10 cmH2 O. • Disconnect the fan. • Verify absence of spontaneous breathing. • Obtain an arterial blood gas measurement after 8-10 minutes, reconnect the patient to the ventilator. • pCO2 ≥60 mmHg or 20 mmHg increase from baseline. • Aborted apnea test.

Complementary studies (if the clinic does not provide enough information to confirm or issue the medical diagnosis of ED, one of the studies requested by the treating physician is required, based on the General Health Law).	• Conventional cerebral angiography. • Electroencephalogram. • Computed tomography angiography. • Transcranial Doppler ultrasound. • Magnetic resonance angiography. • Angiogammagraphy. • Positron emission computed tomography. • Somatosensory evoked potentials.

Source: Guidelines for Diagnosis of encephalic death and management of the potential organ donor.[18]

Clinical judgment

It is important to point out that transcranial Doppler is the gold standard method in the diagnosis of ED.[19]

Table 2. Clinical Guide Nursing Interventions in Organ Procurement for adults with ED (GCIEPO).

Endocrine system			
Complication: Hyperglycemia and hypothyroid states			
Applicable nursing diagnoses (NANDA)	**Applicable Nursing Objectives (NOC)**	**Specific Nursing Interventions (NICs)**	**Specific Nursing Interventions (NICs)**
00179 Risk of unstable blood glucose level	2111 Severity of hyperglycemia 2113 Severity of hypoglycemia 2300 Blood glucose level	2120 Management of hyperglycemia 2314 Administration of medication: intravenous 2380 Medication management 2280 Hormone replacement therapy	2395 Medication management 2380 Medication management
Complication: Diabetes insipidus			
Applicable nursing diagnoses (NANDA)	**Applicable Nursing Objectives (NOC)**	**Specific Nursing Interventions (NICs)**	**Specific Nursing Interventions (NICs)**
00025 Risk of fluid volume imbalance 00195 Risk of electrolyte imbalance	1937 Risk control: dehydration 0606 Electrolyte balance 0601 Water balance 0617 Severity of hyponatremia 0606 Electrolyte balance 0600 Electrolyte and acid-base balance 0619 Severity of metabolic acidosis 0620 Severity of metabolic alkalosis	0590 Urinary elimination management 2080 Liquid handling 4120 Liquid handling 4130 Liquid monitoring 4260 Shock prevention 4140 Liquid replenishment 4258 Shock management: volume 0590 Urinary elimination management	2395 Medication management 2380 Medication management

0607 Severity of hypercalcemia	2000 Electrolyte management
0608 Severity of hyperchloremia	2001 Electrolyte management: hypercalcemia
0609 Severity of hyperkalemia	2002 Electrolyte management: hyperkalemia
0610 Severity of hypermagnesemia	2003 Electrolyte management: hypermagnesemia
0611 Severity of hypernatremia	2004 Electrolyte management: hypernatremia
0612 Severity of hyperphosphatemia	2005 Electrolyte management: hyperphosphatemia
0613 Severity of hypocalcemia	2006 Electrolyte management: hypocalcemia
0614 Severity of hypochloremia	2007 Electrolyte management: hypokalemia
0615 Severity of hypokalemia	2008 Electrolyte management: hypomagnesemia
0616 Severity of hypomagnesemia	2009 Electrolyte management: hyponatremia
0617 Severity of hyponatremia	2010 Electrolyte management: hypophosphatemia
0618 Severity of hypophosphatemia	2020 Electrolyte monitoring
	1910 Acid-base equilibrium management
	1911 Acid-base balance management: metabolic acidosis
	1912 Management of acid-base balance: metabolic alkalosis
	1913 Management of acid-base balance: respiratory acidosis
	1914 Acid-base balance management: respiratory alkalosis

Clinical judgment

Hyperglycemic states are due to peripheral insulin resistance, insufficient reduction of insulin secretion by the pancreas, and unsuppressed glycogenolysis, as well as increased regulatory mechanisms, which cannot regulate cellular homeostasis due to hypothalamic-pituitary adrenocortical damage and catecholamine secretion. For these reasons, the daily work of nursing should focus on monitoring capillary glycemic figures to analyze the need for insulin infusion therapy, basal insulin therapy, or insulin schedule, to maintain the glycemic target around 140 and 160 mg/dl.

On the other hand, pituitary ischemic injury produces a decrease in plasma levels of pituitary hormones, especially vasopressin (ADH) levels, undetectable approximately six hours after issuing the medical diagnosis of ED, while the hormone triiodothyronine (T3) decreases by more than 50% in the first hour and is undetectable nine hours later. Consequently, hypothyroidism occurs, leading to myocardial exhaustion, a shift to anaerobic metabolism, and reduced cardiac function, so in these cases nursing practice should focus on hormone therapy substitution, administering a bolus of 20 µg of intravenous T4, followed by a continuous infusion at 10 µg/hour, or a bolus of 4.0 µg of intravenous T3, followed by a continuous infusion at 3 µg/hour. Likewise, external administration of vasopressin is also required, to avoid the presence of diabetes insipidus with high glycemia figures. As for the clinical condition of hypothyroidism, we do not yet have a nursing diagnosis that addresses it, so only the interventions that could be used for such a case are included.

Diabetes insipidus is due to a lack of antidiuretic hormone secretion, leading to polyuria or osmotic diuresis, causing fluid depletion which in turn leads to hypotension and, in the worst clinical scenarios, hypovolemic shock, as well as electrolyte abnormalities such as hypernatremia, hyponatremia, and hypertonic dehydration, to name the most frequent. In these situations, nursing should focus on monitoring fluid control or diuresis, skin assessment through mucous membranes and skin folds, with the application of fluid therapy using hypotonic solutions, such as half molar saline solution, i.e. 0.45%. Likewise, the administration of vasoactive drugs through intravenous desmopressin or noradrenaline in a bolus of 1 to 4 µg, followed by a continuous intravenous infusion of 0.5 to 2 µg, or from the institutional protocol or the dose-response of the person, optimizing in the following goals of tissue perfusion, should be considered: [20-29]

- Heart rate: 60-100 bpm
- Systolic blood pressure: ≥100 mmHg
- Mean arterial blood pressure: 70-90 mmHg
- Diuresis >1cc/kg/h (50-100 cc/h)
- Body temperature: >35ºC.
- Arterial gasometry: partial pressure of oxygen (PaO2) ≥100mmhg, partial pressure of carbon dioxide (pCO2) 35-45 mmHg, pH 7.35-7.45.
- Central venous pressure: 8-10 mmHg

Table 3. Clinical Guide Nursing Interventions in Organ Procurement for Adults with ED (GCIEPO)

Cardiac system			
Complication: Arterial hypertension followed by hypotension due to volume loss and arrhythmias			
Applicable nursing diagnoses (NANDA)	**Applicable Nursing Objectives (NOC)**	**Specific Nursing Interventions (NICs)**	**Generalized Nursing Interventions (NICs)**
00240 Risk of decreased cardiac output 00029 Decreased cardiac output	1928 Risk control: hypertension 1933 Risk control: hypotension	2300 Medication administration 2314 Medication administration - intravenous	2395 Medication management 2380 Medication management

00200 Risk of decreased cardiac tissue perfusion 00228 Risk of inefficient peripheral tissue perfusion 00204 Ineffective peripheral tissue perfusion 00267 Risk of unstable blood pressure	2112 Severity of hypertension 2114 Severity of hypotension 0400 Effectiveness of the cardiac pump 0414 Cardiopulmonary status 0401 Circulatory status 0422 Tissue perfusion 0405 Tissue perfusion: cardiac 0416 Tissue perfusion: cellular 0404 Tissue perfusion: abdominal organs 0407 Tissue perfusion: peripheral 0408 Tissue perfusion: pulmonary	2395 Medication management 3480 Lower extremity monitoring 4030 Administration of blood products 4040 Cardiac care 4020 Decrease in hemorrhage 4090 Arrhythmia management 4162 Management of hypertension 4170 Management of hypervolemia 4175 Management of hypotension 4180 Management of hypovolemia 4120 Liquid handling 4054 Management of central venous access device 4092 Pacemaker management: temporary 4050 Cardiac risk management 4250 Management of shock 4254 Management of shock: cardiac 4258 Management of shock: volume 4130 Liquid monitoring 4210 Invasive hemodynamic monitoring 4070 Circulatory precautions 4010 Prevention of bleeding 4260 Prevention of shock 4150 Hemodynamic regulation 4140 Liquid replenishment 4200 Intravenous therapy 6680 Monitoring of vital signs

Clinical judgment

In the first instance, the presence of ED releases catecholamines and, consequently, produces vasoconstriction, which leads to a state of arterial hypertension and cardiac arrhythmias, in the worst-case scenario. After this sympathetic cascade or storm, there is a marked reduction of the same that generates an inotropic and chronotropic deficiency, in addition to peripheral vascular resistance, present due to dehydration secondary to diabetes insipidus (polyuria) that results in a state of hypotension, bradycardia, and hypovolemia. In these cases, the work of

critical care nurses should be focused on preserving cardiac volemia, which will give way to sufficient perfusion and oxygenation of the other organs to be donated

For this reason, in situations of hypotension or hypovolemia that do not subside with the administration of parenteral therapy, vasoactive drugs such as adrenaline, norepinephrine, or dobutamine are used employing dose-response, in such a way that the person with a medical diagnosis of ED is individualized. In the presence of bradyarrhythmias, aleudrine is administered pharmacologically or, if not corrected, a pacemaker is applied. In the presence of tachyarrhythmias, pharmacological administration of amiodarone is used under the corresponding medical prescription. The hemodynamic goals are as follows: [20-29]

- Left ventricular ejection fraction of at least 45% with the least amount of vasoactive drugs
- Heart rate: 60-100 bpm
- Systolic blood pressure: ≥100 mmHg
- Mean arterial blood pressure: 70-90 mmHg
- Diuresis >1cc/kg/h (50-100 cc/h)
- Body temperature: >35ºC.
- Arterial gasometry: partial pressure of oxygen (PaO2) ≥100mmHg; partial pressure of carbon dioxide (PCO2) 35-45 mmHg; pH 7.35 - 7.45.
- Central venous pressure: 8-10 mmHg

In addition, it is important to remember that in the pathophysiology of ED, there is a permanent increase in intracranial pressure, so the presence of arterial hypertension is evident. This may be followed by hypotension and hypovolemia, which is why it was integrated into the NOC and NIC and the clinical judgment. [20-29]

Table 4. Clinical Guide Nursing Interventions in Organ Procurement in Adults with ED (GCIEPO)

Sistema térmico		
Thermoregulatory system		
Applicable nursing diagnoses (NANDA)	**Applicable Nursing Objectives (NOC)**	**Specific Nursing Interventions (NICs)**
00220 Risk of thermal injury 00007 Hyperthermia 00253 Risk of hypothermia 00274 Risk for ineffective thermoregulation 00008 Ineffective thermoregulation	0800 Thermoregulation 1923 Risk control: hypothermia 1908 Risk detection 00006 Hypothermia 0800 Thermoregulation 1913 Severity of physical injury 1908 Risk detection	3840 Precautions in malignant hyperthermia 3900 Temperature control 3740 Treatment of fever 3786 Treatment of hyperthermia 3800 Treatment of hypothermia 6610 Risk identification

Clinical judgment

In the loss of body thermal regulation, there are clinical episodes of both hypothermia and hyperthermia, so the nursing function must maintain thermal goals between 35 and 37 °C, to preserve the organs to be donated. Otherwise, such thermal dysregulation leads to the presence of disseminated intravascular coagulation and arrhythmias.[20-29]

Table 5. Clinical Guide Nursing Interventions in Organ Procurement in Adults with ED (GCIEPO)

Pulmonary system		
Complication: Lung injury		
Applicable nursing diagnoses (NANDA)	**Applicable Nursing Objectives (NOC)**	**Specific Nursing Interventions (NICs)**
00031 Ineffective airway clearance 00274 Risk of ineffective thermoregulation 00008 Ineffective thermoregulation	0415 Respiratory status 0402 Respiratory status: gas exchange 0410 Respiratory status: patency of airways 0403 Respiratory status: ventilation 0416 Tissue perfusion: cellular 0408 Tissue perfusion: pulmonary 1100 Oral health 1935 Risk control: aspiration	1710 Oral health maintenance 1910 Management of acid-base balance 2300 Medication administration 2395 Medication management 2380 Medication management 1911 Acid-base balance management: metabolic acidosis 1913 Acid-base balance management: respiratory acidosis 1912 Acid-base balance management: metabolic alkalosis 1914 Acid-base balance management: respiratory alkalosis 3160 Aspiration of secretions 3390 Ventilation support 4106 Embolism care: pulmonary 3300 Management of mechanical ventilation: invasive 3304 Management of mechanical ventilation: prevention of pneumonia 3140 Airway management 3180 Management of artificial airways 3350 Respiratory monitoring 3200 Precautions to prevent aspiration

Clinical judgment

Increased intracranial pressure following irreversible loss of encephalic function results in neurogenically induced lung injury as a result of proinflammatory cytokine release, as well as inadequate management of invasive mechanical ventilation, so ventilatory goals should be as follows: [20-29]

- Partial oxygen pressure (PaO2) should be maintained above 100 mmHg.
- Individualized inspired oxygen fraction (FiO2) to preserve the oxygenation of the economy.
- Positive end-expiratory pressure (PEEP) from 6 and 8 cm H2O to 15 cm H2O.
- Tidal volume (TV) with targets of 6 to 8 ml/kg of predicted weight, mean of 7 ml/

kg of predicted weight

- Oxygen saturation of 95% -Oxygen saturation of 95%
- Plateau pressure <30 cm H2O
- Maximum pressure <35 cm H2O

Likewise, it is important to point out that, before admission to the surgical area, the inspired oxygen fraction should be increased to 100%. In addition, ventilator-associated pneumonia should be prevented by suctioning secretions, a semi-fowler position with approximately 30° of head elevation, and oral hygiene with chlorhexidine. Greater attention should also be paid when the tidal volume of the established goals is increased and, at the same time, the person is on increased volemia or fluid therapy, since this could lead to the presence of acute pulmonary edema and prevent transplantation. [20-29]

Table 6. Clinical Guide Nursing Interventions in Organ Procurement for Adults with ED (GCIEPO)

Hematological system		
Complication: Disseminated intravenous coagulopathy and systemic inflammatory reaction		
Applicable nursing diagnoses (NANDA)	**Applicable Nursing Objectives (NOC)**	**Specific Nursing Interventions (NICs)**
00206 Risk of bleeding 00205 Risk of shock 00268 Risk of venous thromboembolism	0409 Blood coagulation 0401 Circulatory status 0416 Tissue perfusion: cellular 1932 Risk control: thrombi 2114 Severity of hypotension 1933 Risk control: hypotension 1908 Risk detection 0414 Cardiopulmonary status 0401 Circulatory status 0413 Severity of blood loss 0419 Severity of hypovolemic shock 0418 Severity of cardiogenic shock 0420 Severity of neurogenic shock	2300 Medication administration 2314 Medication administration - intravenous 2395 Medication management 3480 Lower extremity monitoring 4030 Administration of blood products 4040 Cardiac care 4020 Decrease in hemorrhage 4090 Arrhythmia management 4175 Management of hypotension 4180 Management of hypovolemia 4120 Liquid handling 4054 Management of central venous access device 4092 Pacemaker management: temporary 4050 Cardiac risk management 4250 Management of shock 4254 Management of shock: cardiac 4258 Management of shock: volume 4130 Liquid monitoring 4210 Invasive hemodynamic monitoring 4070 Circulatory precautions 4010 Prevention of bleeding 4260 Prevention of shock 4150 Hemodynamic regulation 4140 Liquid replenishment 4200 Intravenous therapy 6680 Monitoring of vital signs 4106 Embolism care: pulmonary 4110 Precautions in embolism 4270 Management of thromboembolic therapy

Clinical judgment

The systemic inflammatory response occurs due to the presence of ischemic encephalic injury and metabolic changes produced by the catecholamine storm, as well as an inadequately restored cardiovascular state, while disseminated intravascular coagulopathy is preceded by the release of tissue thromboplastin from necrotic encephalic tissue. Similarly, nursing care is focused on the prevention of these situations.[20-29]

Table 7. Clinical Guide Nursing Interventions in Organ Procurement for Adults with ED (GCIEPO)

Optical system		
Complication: Corneal injury		
Applicable nursing diagnoses (NANDA)	**Applicable Nursing Objectives (NOC)**	**Specific Nursing Interventions (NICs)**
00245 Risk of corneal injury	1902 Risk control 1916 Risk control: visual impairment 1927 Risk management: dry eye 1924 Risk control: infectious process 1908 Risk detection 2110 Severity of dry eye	6540 Infection control 2395 Medication management 6610 Risk identification 6680 Vital signs monitoring 6550 Protection against infections 1360 Prevention of dry eyes 1650 Eye care 2310 Administration of medication: ophthalmic

Clinical judgment

The corneal lesion is due to low or no tear production, which leads to opacification of the corneal stroma with loss of optical transparency. For these reasons, a trained and standardized corneal procurement team is in charge of performing interventions so that the cornea does not present complications and is properly preserved. In addition, the post-mortem corneal viability time must be taken into account, since procuration and processing, to be optimal, have a time window of 72 hours according to the European Directorate for the Quality of Medicines and HealthCare (EDQM). In the process of procurement and preparation for donation, the eye bank of the United States of America performs a serological blood test and an inspection of the corneas through imaging and analysis of the donor's medical history.[30, 31]

Table 8. Clinical Guide Nursing Interventions in Organ Procurement for Adults with ED (GCIEPO)

Family system		
Complication: Alteration of the parental role of the person with a medical diagnosis of ED		
Applicable nursing diagnoses (NANDA)	**Applicable Nursing Objectives (NOC)**	**Specific Nursing Interventions (NICs)**
00074 Compromised family coping 00073 Disabling family coping	2608 Family resilience 1300 Acceptance: health status	6260 Organ procurement

1307 Death with dignity
1500 Parent-child bonding
1814 Knowledge: therapeutic procedure
1803 Knowledge: disease process
2007 Comfortable death

Clinical judgment

According to the above clinical conditions, we can observe that the presence of ED triggers imbalances in the cellular homeostasis of the human being in a maximum period of 96 hours, of which only three people can be potential candidates for the process of organ donation-transplantation. Therefore, care should also focus on the emotional grief of the potential donor's family. That is, regardless of the family's decision in the face of the possibility of donation and the haste to start procuring the target organs, due to the limited time available, it is necessary to preserve the patient's rights as a patient and eventually the rights as a human being. Nursing interventions must attend to this parental role, since the person is a human being before being a donor and, in the face of death that makes it impossible to say goodbye to close ones, the emotional mourning process must take place.[20, 29]

Conclusions

The process of organ donation-transplantation has become a subsistence strategy. This guide shows the nursing interventions so that the maintenance of organs of people with a medical diagnosis of ED is adequate, efficient, and correct, to generate an optimal process of organ donation-transplantation.

Finally, it is recommended that this guide should be reviewed and updated every one to three years and that the situations of donors who die of cardiac arrest and the pediatric population should also be addressed. Likewise, health education strategies should be created concerning the culture of organ donation-transplantation, since nowadays this process is a relevant means of subsistence.

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