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Original article

# Lesiones por presión: la incidencia en el paciente crítico con neumonía por SARS-CoV-2, en respuesta a la estrategia del decúbito prono durante la pandemia COVID-19

# Pressure lesions: incidence in critical patient with pneumonia due to SARS-CoV-2 in response to decubitus prone position during COVID-19 pandemic

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## Resumen

**Introducción:** Se suele aplicar en pacientes con SARS-CoV-2 el decúbito prono (DP) prolongadamente, pues ha demostrado beneficios para solventar la falta de equipos de ventilación mecánica; sin embargo, también tiende a producir lesiones por presión (LPP) en regiones anatómicas no experimentadas en otras prácticas.

**Objetivo:** Calcular la incidencia de LPP en el paciente crítico de COVID-19 en DP, describir características de los pacientes y las lesiones.

**Metodología:** Estudio observacional, descriptivo, de carácter transversal con enfoque retrospectivo. La recolección de datos se realizó en un hospital de tercer nivel de la Ciudad de México, incluyó 230 pacientes que desarrollaron LPP posterior a su ingreso. Se analizó el expediente electrónico y los registros de la clínica de heridas, la recolección de datos se generó en Excel y el análisis estadístico en el programa SPSS.

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**Resultados:** La incidencia fue de 18.05%, las LPP con esfacelo corresponden al 33.9% y las de necrosis al 40%. La localización anatómica en pabellón auricular, pómulos y tórax fue de 36.1% y 46.5% fueron lesiones de categoría III con afectación de las estructuras musculares. La correlación con el IMC demostró que pacientes con sobrepeso presentaron mayor incidencia de LPP con fibrina y esfacelo en un 60.3%.
**Limitación del estudio:** No se consideraron variables como la carga de trabajo de enfermería.
**Originalidad:** Esta investigación no ha sido postulada previamente en ningún órgano editorial.
**Conclusiones:** La incidencia coincide con estudios en otros países, por lo que es necesario estandarizar las acciones para la prevención de LPP y reducir su incidencia.

**Palabras clave:** lesiones por presión, pronación, neumonía, estado crítico.

## Resumen

**Introduction:** Prolonged prone decubitus (PD) is usually applied in patients with SARS-CoV-2, as it has shown benefits to solve the lack of mechanical ventilation equipment; however, it also tends to produce pressure injuries (PI) in anatomical regions not experienced in other practices.
**Objective:** To calculate the incidence of PI in the critical patient of COVID-19 in PD, describe patient characteristics and injuries.
**Methodology:** Observational, descriptive, cross-sectional study with retrospective approach. Data collection was performed in a tertiary level hospital in Mexico City, including 230 patients who developed PI after admission. The electronic file and wound clinic records were analyzed, data collection was generated in Excel and statistical analysis in the SPSSs program.
**Results:** The incidence was 18.05%, PI with slough corresponded to 33.9% and those with necrosis to 40%. The anatomical location in the pinna, cheekbones and thorax was 36.1% and 46.5% were category III lesions with involvement of muscular structures. Correlation with BMI showed that overweight patients had a higher incidence of PI with fibrin and sphacel in 60.3%.
**Limitation of the study:** variables such as nursing workload were not considered.
**Originality:** this research has not been previously postulated in any editorial body.
**Conclusions:** The incidence coincides with studies in other countries, so it is necessary to standardize actions for the prevention of PI and reduce its incidence.

**Keywords:** pressure injuries, pronation, pneumonia, critical condition.

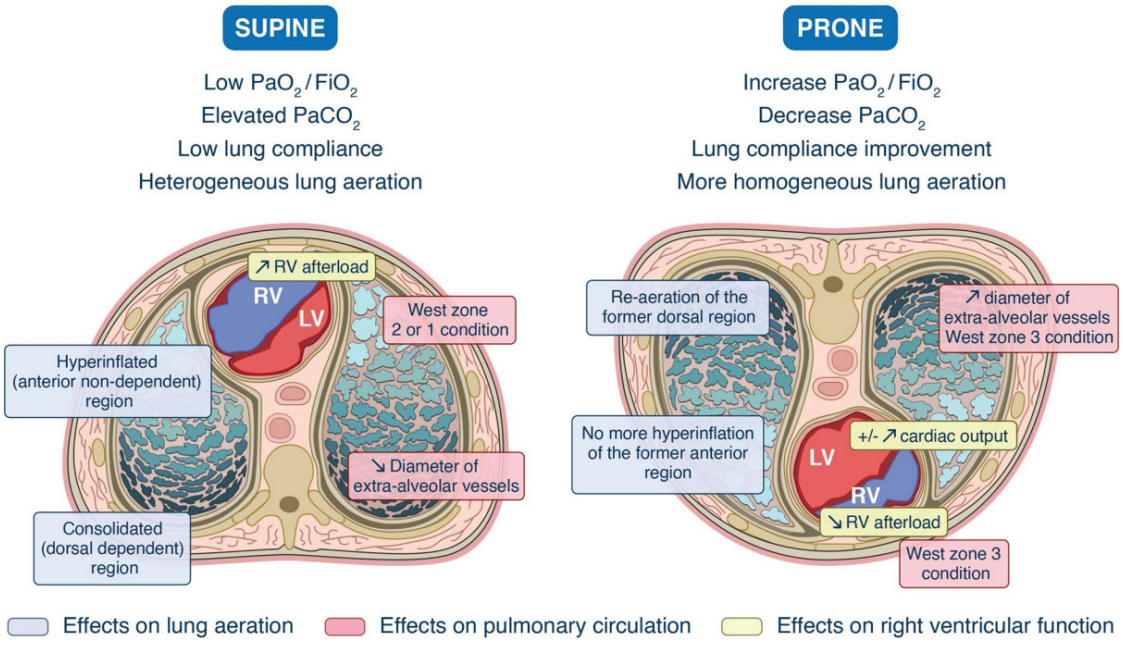
## Introduction

COVID-19 pathology is an emerging disease, since in March 2020 the World Health Organization announced the increase of cases in several countries, declaring a pandemic status.[1] This caused a radical change in medical service assistance, since the spread of the virus led to a 9% increase in the number of patients requiring care in Adult Intensive Care Units (AICU).[2]

Consequently, the pressure on healthcare systems and the lack of knowledge of the disease left patient safety, considered a priority and mandatory element of the universal right of the AICU patient, in the background,[3] as the main measure chosen was prone decubitus (PD). Implemented for several hours, PD can increase the risk of pressure injuries (PI) if the patient is critically unstable and is subjected to hemodynamic support through fluid therapy, application of vasopressor drugs, mechanical ventilatory support, neuromuscular relaxants, vasodilators and treatments aimed at counteracting COVID-19.[4]

The worldwide lack of specialized equipment to provide ventilatory support made it necessary to implement measures such as the PD, an anatomical position that improved the respiratory condition of patients.[5] This practice has been used for people with acute respiratory distress syndrome (ARDS), and is the main strategy that has shown benefit in patients with clinical manifestations of COVID-19 (Figure 1).

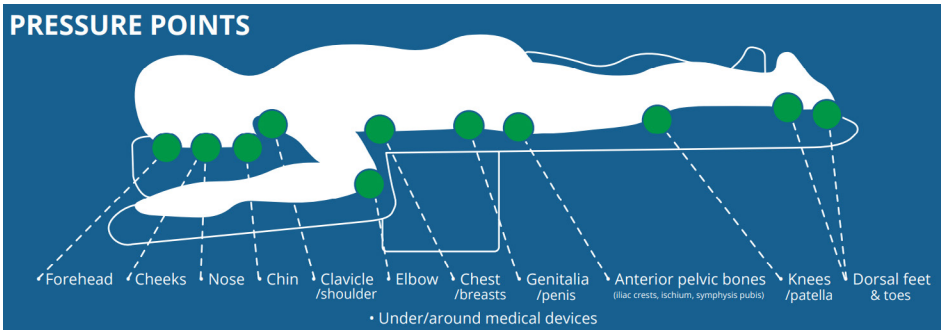
**Figure 1.** Effect of prone decubitus on the COVID-19 patient.




In supine position the weight of the heart and the abdominal mass compress the posterior part of the diaphragm. In prone position the shape of the thorax and lungs is modified, increasing the lung mass in independent zones resulting in significant modification of PaO2 (partial pressure of oxygen), PaCO2 (partial pressure of carbon dioxide) and SatO2 (oxygen saturation). Source: Vieillard *et al*.

However, this measure has generated injuries in body areas with greater susceptibility to direct contact with certain surfaces, such as mattresses and some devices used during PD (Figure 2). In this sense, the PI that previously occurred in the supine position are also currently manifested in PD and, therefore, change the panorama of this practice, since in some contexts PI become unavoidable or their risk is highly elevated due to inadequate or contraindicated preventive techniques.[6]

**Figure 2.** Pressure points in the patient in prone position.




The figure depicts the critical pressure points during patient positioning in PD. For recommendations on PD positioning, please refer to the National Pressure Injury Advisory Panel website (npiap.com).

PI are the main complication in hospitalized patients in the AICU, however, the evidence on necessary and specific interventions for their prevention in the PD is quite limited.[7] In this sense, PI are a problem that affects health systems worldwide, directly impacting the morbidity and mortality of patients.[8]

Specifically, PI are located in the skin and consist of the loss of continuity with the underlying tissues, causing an increase in pressure on them, generally in a bony prominence, which exceeds the 20 mmHg that the skin physiology supports before injury (Figure 3).[9]

**Figure 3. PI in patients in PD.**

The image represents a grade III PI with 80% sphacelated tissue and 20% granular tissue islets, located in the thoracic anatomical region in a female patient in PD, admitted to the CEMENAV AICU. Rights provided by family member.

Worldwide, the antecedents prior to the COVID-19 pandemic show that the prevalence rate of PI in hospital areas is diverse (Table 1).[10] In the study by Pancorbo et al. carried out in Spain, it is mentioned that the prevalence is centered on adult patients admitted to hospital areas with a population of 0.12%; and in patients over 65 years of age with 0.47%.[11] In Brazil, a significant prevalence of 41% is reported.[12] Multicenter studies in Mexico report a crude prevalence of PI of 12.94% to 17%. Dr. Leonardo Liceaga hospital reported 11.60% prevalence, with a risk of presenting PI of 17.79%, while in 2019 Hospital General de Zona no. 30 in Baja California recorded 79.15%.[12]

**Table 1. Background of PI.**

| Pre-COVID-19 pandemic global PI history | |
|---|---|
| Country | PI incidence |
| Japan | 5,1% |
| Spain | 8% |
| Italy | 8,3% |
| Netherlands | 23.1% |
| United States | 15% |
| Canada | 26% |

The percentage prevalence of PI prior to the COVID-19 pandemic in patients in the supine position is presented.

In Ecuador, one of the few incidence studies was conducted in 2019, which showed that 34% of patients presenting with PI range between 60 and 70 years of age, while 17% are older than 71 years.13 It should be noted that works on prevalence are cited as background of great importance, as little evidence has been found on studies of the incidence of PI in the prone patient.

## Objective

The objective of the present investigation is to calculate the incidence of PI in the critically ill patient by COVID-19 taken to the PD, as well as to describe the type of patients and lesions identified.

## Materials and methods

The study was observational, descriptive, cross-sectional and retrospective in nature, and was carried out at the third-level hospital of the Naval Medical Center (CEMENAV) in Mexico City, with prior authorization from the hospital bioethics committee and the biostatistics department. For the analysis, only the total number of patients admitted to the AICU-COVID area in the year 2020 was considered, and data was collected from the physical and digital records of this area from May 1 to August 30, 2022. For the correct use of the collection, verification and recording formats, prior training was given to intensive care nursing staff, who analyzed

the digital and physical clinical records with the support of nursing staff specialized in wound and stoma care, as they provided records of the PI in the patients.

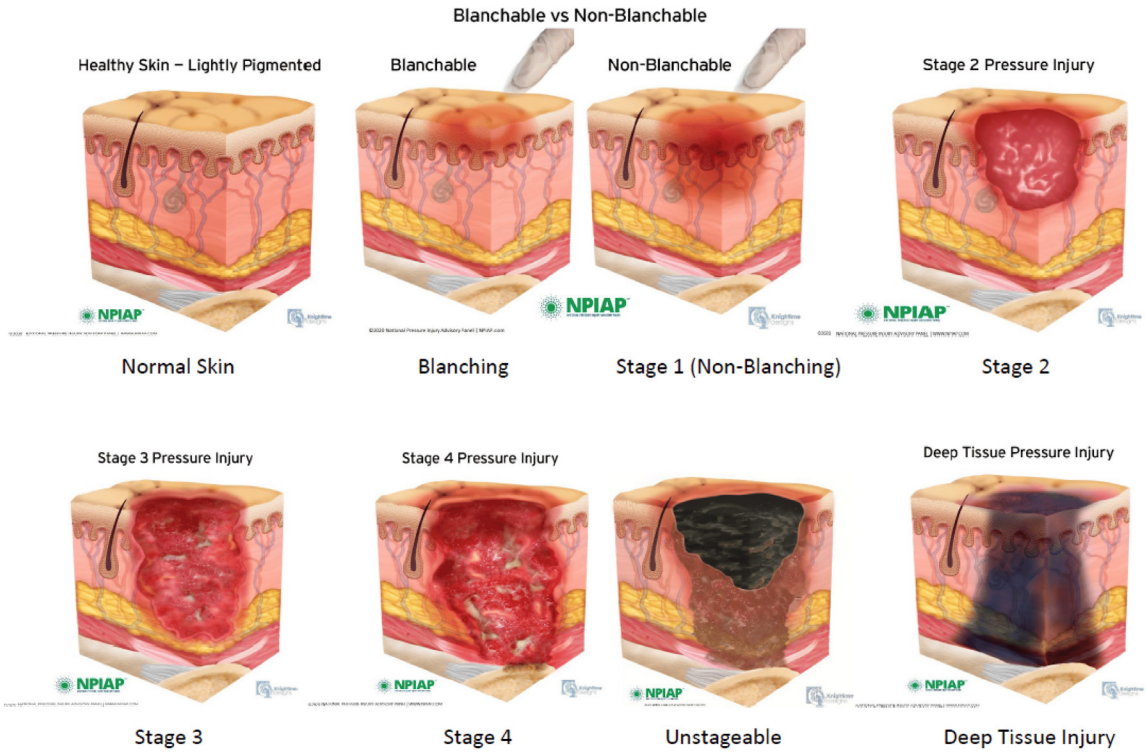
The selection criteria only considered critically ill patients with established PD protocol, men and women between 45 and 90 years of age, with mechanical ventilatory support, sedated, diagnosed with SARS-COVID-2 and without previous injuries at admission.

To verify the quality of the data obtained, the information from the CEMENAV's Hospital Information System (HIS), in which the legal documents of the patients' hospital stay are recorded, was compared with the physical clinical record in the AICU-COVID area.

Likewise, the processing of the general and determinant data on the incidence of PI was carried out using an Excel database, in which the information obtained was recorded.

On the other hand, in order to standardize the evaluation of PI and its development, the PI classification system of the National Pressure Ulcer Advisory Panel (NPUAP) and the European Pressure Ulcer Advisory Panel (EPUAP) was applied; this information is part of the data recording instrument to categorize lpp according to the grades established as I, II, III and IV (Figure 4).[14]

**Figure 4. Classification of PI.**




Source: The image represents the categorization of PI classifications as adapted from EPUAP (European Pressure Ulcer Advisory Panel), NPUAP (National Pressure Ulcer Advisory Panel) and PPPIA (Pan Pacific Pressure Injury Alliance). Vecin *et al.*

This assessment was applied by the wound clinic staff who were in direct contact with the patients and was recorded in their physical and electronic records, as well as in the wound clinic registry as part of their routine. In this way, the information was recorded so that it could be extracted at a later date.

In order to facilitate data collection and evaluate the study variables (body mass index or BMI, days of hospital stay, comorbidities and time in PD), the document *"Wound Assessment Form"* of the Danish company COLOPLASTt, which is widely validated and used in the most important countries in the world in wound treatment, was used. In addition, as part of the instrument used for data collection, a modification was made to the PD to allow evaluation of the anatomical areas injured in it. Subsequent to data collection, the data was entered into an Excel database.

Data processing was carried out with the SPSS software, which was used to obtain descriptive statistics to determine the frequencies and percentages of each of the variables and Pearson's chi-squared correlation, in order to analyze the impact of these variables on the incidence of PI. The SPSS was also used to calculate the incidence rate, which is represented by the formula I.R. $= \frac{x}{y}\ x\ K$, in which X is the total number of people in the population who became ill due to the specific cause of the study, in this case PI, Y is the total amount of time without the presence of the disease in the patient during the observation period, and K represents the assigned extension factor or enhancer. Likewise, the incidence density was represented by the formula I.D.$= \frac{x}{y}\ x\ K$, with the substitution of values.

## Results

The total population was 1,274 patients admitted to the critical areas during the COVID-19 pandemic in 2020; the sample size selected was calculated electronically with a 95% confidence level and a margin of error of 5%, with a total of 230 patients. A stratified sampling was chosen in order to establish only the number of patients admitted per area, where each patient was assigned according to the availability of a bed for their care, intended only for unstable patients, with mechanical ventilatory support and pronation protocol. During the analysis, 10 patients were excluded because they did not meet the inclusion criteria, 7 because their age was between 45 and 90 years old, and 3 because they did not have the base diagnosis according to the International Classification of Diseases (ICD) for patients with COVID-19.

Absolute frequencies and percentages were applied to the sociodemographic data of the patients by means of SPSS, and the result was that 64.3% (N=148) were men and only 35.7% (N=82) were women, with an average mean age of 61 to 70 years old.

The incidence of the 1,274 patients was also calculated with the SPSS and it was found that only 230 presented PI during hospital stay, which is a total incidence rate of 18.05%, that is, out of every 100 admissions for COVID-19; 18 patients presented one or multiple PI. Regarding the density of the calculated incidence, it was obtained as a result that out of every 1000 patients in 12 months of risk 15.04 of them may develop PI during the PD.

Likewise, the statistical test of frequencies and percentages of the SPSS was applied for the specific data of the PI, which gave the following results: 40% (N=92) presented a PI with sphacellar/necrotic tissue, and only 46.5% (N=107) had category III lesions, whose depth affects the subcutaneous cellular tissue and muscular structures (Table 2).

Regarding the anatomical location of the PI, the use of frequencies and percentages of the SPSS resulted in 36.1% (N=83) occurring in the pinna, cheekbone, thorax and sternum (Table 2).

Table 3 shows the general and clinical data (BMI, days of hospital stay, time in PD, and comorbidities) and the predisposing factors for PI. Pearson's chi-square test was used for the correlation analysis, which allowed us to identify the variables with the greatest

**Table 2.** General data on PI at the Naval Medical Center (CEMENAV).

| General data on PI | | |
|---|---|---|
| **Total patients with pressure injury** | | |
| ***Type of injury*** | ***N*** | *%* |
| No injury | 1 | 0.4% |
| Erythema | 21 | 9.1% |
| Erythema/Edema | 37 | 16.1% |
| Fibrin | 1 | 0.4% |
| Sphacelated | 78 | 33.9% |
| Sphacelated/Necrotic | 92 | 40.0% |
| Total | 230 | 100% |
| **Classification of PI by stage** | | |
| No injury | 1 | 0.4% |
| Stage I | 25 | 10.9% |
| Stage II | 97 | 42.2% |
| Stage III | 107 | 46.5% |
| Total | 230 | 100% |
| **Anatomical location of PI** | | |
| ***Anatomical area*** | ***N*** | *%* |
| NO INJURY | 1 | 0.4% |
| PAB. A, ZB. | 25 | 10.9% |
| MAM, PECT | 1 | 0.4% |
| PAB. A, ZB, THOR, STNM | 83 | 36.1% |
| PAB. A, ZB, SC, MAM, PECT, THOR, STNM | 48 | 20.9% |
| PAB. A, ZB, SC, MAM, PECT, THOR, STNM, TIB, IC | 72 | 31.3% |
| **Total** | **230** | **100%** |

Source: Area of biostatistics of CEMENAV 2020. Data are presented as the number of patients (N) with PI and their corresponding percentages. Abbreviations: PAB. A= pinna; ZB= cheekbones; MAM= breast; PECT= pectoralis; THOR= thorax; STNM= sternum; SC= supraclavicular; TIB= tibia; IC= iliac crest.

association to PI. The relationship with BMI resulted in 60.3% (N=47) of overweight patients (BMI=25-29.9) presenting a higher incidence of PI with fibrin and sphacel, while 59.8% (N=55) of obese patients (BMI=30.0-39.9) presented PI with characteristics of sphacel and necrosis; this implies that the higher the degree of obesity measured in BMI, the greater the lesions and complications. In relation to BMI and anatomical location,

**Table 3.** General data on predisposing factors for PI.

| General data on the predisposing factors for PI | | |
|---|---|---|
| **Total number of patients by BMI and degree of obesity** | | |
| ***BMI*** | ***N*** | *%* |
| BMI < 18.50 = Low weight. | 1 | 0.4% |
| BMI 18,5 – 24,99 = Medium weight | 43 | 18.7% |
| BMI 25,00 – 29.99 = Overweight. | 97 | 42.2% |
| BMI 30 – 39.99 = Obesity. | 71 | 30.9% |
| BMI > 40 = Morbid obesity. | 18 | 7.8% |
| **Total** | **230** | **100%** |
| **Days of hospital stay in the AICU** | | |
| ***Days of stay.*** | ***N*** | *%* |
| 1-10 days of AICU.. | 70 | 30.4% |
| 11-20 days de AICU. | 92 | 40.0% |
| 21-30 days de AICU. | 42 | 18.3% |
| 31-40 days de AICU. | 14 | 6.1% |
| 41-50 days de AICU. | 8 | 3.5% |
| 55-65 days AICU. | 4 | 1.7% |
| **Total** | **230** | **100%** |
| **Temporality in prone decubitus** | | |
| ***Prone cycles.*** | ***N*** | *%* |
| Without Pronation = 0 horas. | 1 | 0.4% |
| Incomplete cycle = 24 to 48 hours. | 45 | 19.6% |
| 1 cycle = 72 hours. | 31 | 13.5% |
| 2 Cycles = 144 hours. | 54 | 23.5% |
| 3 Cycles = 216 hours. | 42 | 18.3% |
| 4 Ciclos = 288 horas. | 57 | 24.8% |
| **Total** | **230** | **100%** |
| **Associated comorbidities** | | |
| ***Type of comorbidity*** | ***N*** | *%* |
| No comorbidities | 43 | 18.7% |
| DM2. | 20 | 8.7% |
| DM2+SAH. | 41 | 17.8% |
| DM2+OB. | 14 | 6.1% |
| SAH. | 37 | 16.1% |
| SAH+OB. | 21 | 9.1% |
| DM2+SAH+OB. | 22 | 9.6% |
| OB. | 27 | 11.7% |
| Other | 5 | 2.2% |
| **Total** | **230** | **100%** |

Source: CEMENAV 2020 biostatistics area. Data are presented as the number of patients (N) and their corresponding percentages, categorized by body mass index (BMI), days of hospital stay in the Adult Intensive Care Unit (AICU), temporality of the patient in PD and comorbidities presented. Abbreviations: DM2= Diabetes Mellitus Type 2; SAH= Systemic Arterial Hypertension, OB= Obesity.

patients with obesity presented the greatest number of lesions in the auricular pavilion, cheekbones, breasts or pectorals (depending on gender), thorax, tibias and iliac crests, which establishes that the degree of BMI has a direct influence on the lesions in greater anatomical areas (Table 4).

Pearson's chi-square statistical test was also applied to the correlation between the length of stay of the patients and the appearance of PI. The result was that during a stay of 1 to 10 days the lesions with greater frequency were only erythema and edema, considered not serious within the classification of PI, which were manifested in 56.8% (N=21). However, in stays of 11 to 20 days patients had more severe lesions, with presence

**Table 4.** Relationship between BMI and anatomical location of PI.

| Relationship between BMI and anatomical location of PI | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Anatomical area of present injury | | | | | | |
| **BMI** | **% / Total N.** | **No Injury** | **PAB. A. - ZB.** | **MAM. - PECT.** | **PAB. A. ZB - THOR. STNM** | **PAB. A. ZB, SC, MAM. PECT, THOR– STNM** | **PAB. - A ZB, SC, MAM - PECT, THOR– STNM, TIB. IC.** | **TOTAL** |
| **BMI < 18.50 - Low weight.** | % of Pressure Injury | (0%). | (0%). | (0%). | (0%) | (0%) | (1.4% N=1) | (0.4% N=1) |
| **BMI 18,5 – 24,99 – Medium weight.** | % of Pressure Injury | (0%). | (40.10% N=10). | (0%). | (18.1% N=15) | (29.2% N=14). | (5.6% N=4) | (18.7% N=43) |
| **BMI 25,00 29.99 – Overweight.** | % of Pressure Injury | (100% N=1). | **(52.0% N=13).** | (100% N=1). | **(55.4% N=46).** | **(52.1% N=25).** | (15.3% N=11). | (42.2% N=97) |
| **BMI 30 – 39.99 Obesity.** | % of Pressure Injury | (0%). | (4.0% N=1). | (0%). | (24.18% N=20) | (18.8% N=9) | **(56.9% N=41).** | (30.9% N=71) |
| **BMI > 40 – Morbid obesity.** | % of Pressure Injury | (0%). | (4.0% N=1). | (0%). | (2.4% N=2) | (0%) | (20.8% N=15) | (7.8% N= 18) |
| **Total** | | N=1 | N=25 | N=1 | N=83 | N=48 | N=72 | N=230 |

Source: biostatistics area of CEMENAV 2020. Data are presented as the number of patients (N) and percentages of the relationship between categorical variables of anatomical location and BMI intervals. Abbreviations: PAB.A= pinna; ZB= cheekbones; MAM= breast; PECT= pectoral; THOR= thorax; STNM= sternum; SC= supraclavicular; TIB= tibia; IC= iliac crest.

in tissues such as slough and necrosis in 40.2% (N=37), which may include involvement of deep tissues, cartilage and even bone. This indicates that a greater number of days of stay implies a higher degree of complication of PI.

The time in PD and the appearance of PI derived mostly in mild lesions in patients with incomplete prone cycles, however, patients with more than 288 hours in PD developed more severe lesions, which determines that the time in PD considerably influences the probability of lesion appearance and its severity (Table 3).

## Discussion

In the health care field, the study of PI

is frequent, since they are direct and indirect indicators of the quality of health care. Within this scenario, some issues are more susceptible to the nursing staff, since they are with the patients most of their hospital stay, although their care is not only their responsibility. It is necessary to remember that there are pathologies that can aggravate the conditions for the incidence of PI, as happened during the COVID-19 pandemic due to the lack of an effective treatment for the disease, the limitation of resources and the overcoming of hospital capacity, which required an optimization of care. The PD showed great benefits in patients subjected to mechanical ventilation, since the evidence that was analyzed refers that it improves oxygenation, however, it is also a factor associated with the development of PI. The factors related to the incidence of PI continue to be a topic of great interest in the health area, since they not only have detrimental effects on the patient's health, but also economic and social effects that deteriorate their quality of life. The control of PI continues to be one of the fundamental pillars of nursing care, therefore, it is of great importance to search for strategies to reduce its incidence and achieve its complete prevention.

In relation to the targets established for the incidence of PI in CEMENAV during 2020, our results indicate that the figures have remained in ranges similar to those shown in other national and international studies. The incidence of PI in the AICU-COVID areas in the 2020 period reached levels of 18.05%, above those presented by Japan with 5.1%; Spain with 8%; Italy with 8.3% and the United States with 15%. These figures are lower than those of the Netherlands (23.1%) and Canada (26%), where an increase in incidence is reflected according to the study by Andrade Fonseca *et al*.10

On the other hand, according to the study by Parra Carlo *et al*,[12] Brazil reported a significant prevalence of 41% in the same year 2020, above the incidence in CEMENAV, given that the study was carried out during the pandemic and the study in Brazil in a pre-pandemic period; being above Mexico with 21.0%. Multicenter studies in Mexico report a crude prevalence of PI of 12.94% to 17%, that is, below the 18.05% reached by CEMENAV during the pandemic.[15]

In the study by Pancorbo Hidalgo *et al*.[11] carried out in Spain in 2013, it is described that the prevalence of PI occurs in adult patients with 0.12%, and in patients over 65 years of age with an increase of 0.47%, which is relevant in terms of age range as a parameter for comparison with with the CEMENAV figures in patients aged 61 to 70 years. Due to the period in which the research by Pancorbo Hidalgo et al. was carried out, it should be noted that this study has the significant difference that only patients admitted to COVID areas were considered. Finally, in the study by García et al. it was found that 34% of the patients presenting PI were between 60 and 70 years of age, while 17% were older than 71 years, similar to the results of the CEMENAV study.[13]

According to the NPUAP and EPUAP PI classification system, 46.5% of the CEMENAV patients in PD had category III PI, considered a serious injury, and 42.2% had category II PI, results that differ from those found by Pancorbo Hildalgo *et al*. who reported that the most prevalent PI were category I with 24.6% and category II with 39.3%. The contrast with the severity of the injuries of the CEMENAV patients is evident, reaching degrees that compromise deep tissues such as muscle, with the possibility of aggravating the state of health and causing complications, from systemic infection by bacteria that invade the wounds to the loss

of functionality of the affected anatomical area. The importance of the severity of a PI should be considered for patients, as it is not a secondary finding.

Finally, with respect to the location of the PI in the present investigation, the scenario differs greatly from the other studies, as they only refer to PI in supine patients, which have a higher incidence in sacrum and heels.16 Since our analysis focuses on the PD, the lesions occur in anatomical locations that are uncommon in other positions: 36.1% were lesions in cheekbones, pinnae thorax and sternum, and patients with a BMI of 30.0 to 39.9 generated a greater number of lesions in tibia, iliac crest and supraclavicular, represented in 31.3%.

The above leads to reconsider studies on PI in patients who require the use of the PD protocol, in order to analyze whether the high incidence found is related to work overload or even to the lack of knowledge, stress and anxiety that may affect nurses during the COVID-19 pandemic. One of the limitations of this study was probably not considering in the variables certain subjective data for the appearance of PI, such as the application of risk scales specifically for critically ill patients or the assessment of severity scales for mortality, which some authors consider as predisposing factors for patients at greater risk, among them the APACHE or SOFA, as well as the workload of nursing personnel and the number of patients assigned that prevent safe and quality care.

## Conclusions

In response to the main objective of the research, of the 1,274 patients admitted to the CEMENAV's AICU-COVID in 2020 who required PD, 230 developed PI. Therefore, the incidence was 18.05%, a figure similar to that found in other national and international studies and considered by the National Group for the Study and Advice on Pressure Ulcers and Chronic Wounds (GNEAUPP) as a high incidence. The application of the scale for the classification of PI allowed us to analyze that stage I, II and III lesions were those with the greatest presence in the patients.

The variables that had the greatest impact on PI were the degree of obesity of the patients according to the BMI scale and the hours in PD. The anatomical areas with the highest incidence of PI were pinnae, cheekbones, breasts or pectorals, thorax, tibiae and iliac crests, which indicates that the BMI has a direct impact on the appearance of PI in greater anatomical areas.

It has become evident that PI are present in hospital units, of which CEMENAV is not exempt. This shows an incidence of great importance, so it is necessary to consider new evaluations with possible variables not included in this research, as well as the analysis and implementation of guidelines and protocols that allow the prevention of PI during PD. In this sense, the study is considered a highly relevant contribution to the search for quality care and patient safety in the AICU of CEMENAV and any other institution aimed at maintaining integrity and health.

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