

ORIGINAL ARTICLE

Morbidity and mortality in Cuban collaborators in an Integral Diagnostic Center in the Bolivarian Republic of Venezuela

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ABSTRACT

Introduction: critical or non-critically ill patients' medicine is oriented to the care of patients with acute and severe pathophysiological alterations that may compromise life and are potentially reversible.

Objective: to describe the behavior of morbidity and mortality in Cuban collaborators in an Integral Diagnostic Center in the Bolivarian Republic of Venezuela.

Methods: a descriptive, cross-sectional study was carried out in the Intensive Care and Hospitalization Wards of an Integral Diagnostic Center of the Capital District in the Bolivarian Republic of Venezuela from January 2019 to November 2020; the sample consisted of 282 collaborators who requested admission during that period.

Results: the largest number of patients admitted to Intensive Care had a diagnosis of clinical disease -chronic decompensated arterial hypertension (21%)-, the most representative age group was 50 to 59 years old (32.17%) and male sex (65.73%), with a longer stay between four and six days (28%), 17 patients were ventilated (11.90%) and one death was reported with a diagnosis of atherothrombotic cerebral infarction. Among those admitted to hospital, surgical admissions (25.18%), age between 30 and 39 years (34.53%) and female sex (65.47%) were the most common, with a stay of between one and three days (43.17%). Arterial hypertension (34.75%) was the most relevant comorbidity, while the greatest number of admissions were of the medical occupational profile (34.75%).

Conclusions: the morbidity of the collaborators was similar to that of their Venezuelan counterparts. There was only one death in the group of ventilated patients.

Key words: morbidity; mortality; critical care; hospitalization

RESUMEN

Introducción: la medicina del enfermo en estado crítico o no se orienta a la atención de enfermos con alteraciones fisiopatológicas agudas y graves que pueden comprometer la vida y son potencialmente reversibles.

Objetivo: describir el comportamiento de la morbilidad y la mortalidad en colaboradores cubanos en un Centro de Diagnóstico Integral en la República Bolivariana de Venezuela.

Métodos: se realizó un estudio descriptivo, de corte transversal, en las Salas de Terapia Intensiva y de Hospitalización de un Centro de Diagnóstico Integral del Distrito Capital en la República Bolivariana de Venezuela en el período desde enero de 2019 hasta noviembre de 2020; la muestra estuvo conformada por 282 colaboradores que demandaron ingreso en ese período.

Resultados: el mayor número de pacientes ingresados en Terapia Intensiva tenían diagnóstico de enfermedades clínicas -hipertensión arterial crónica descompensada (21%)-, el grupo de edad más representativo fue el de 50 a 59 años (32,17%) y el sexo masculino (65,73%), con mayor estadía entre cuatro y seis días (28%), se ventilaron 17 enfermos (11,90%) y se informó un fallecido con el diagnóstico de infarto cerebral aterotrombótico. Entre los ingresados en hospitalización fueron mayoritarios los ingresos quirúrgicos (25,18%), las edades entre 30 y 39 años (34,53%) y el sexo femenino (65,47%), sobresaliendo la estadía entre uno y tres días (43,17%). La hipertensión arterial (34,75%) fue la comorbilidad más relevante, mientras que el mayor número de ingresos fueron del perfil ocupacional médico (34,75%).

Conclusiones: la morbilidad de los colaboradores se comportó parecida a sus similares del país venezolano. Solo hubo un fallecido en el grupo de enfermos ventilados.

Palabras clave: morbilidad; mortalidad; cuidados críticos; hospitalización

INTRODUCTION

The acute respiratory failure and the need for mechanical ventilation constitute one of the main causes of admission to Intensive Care Units (ICU). The burden of acute respiratory failure is high in terms of morbidity and mortality, as well as the cost of its main treatment: mechanical ventilation. The incidence of this disease varies according to the established criteria and the region studied; in Europe this disease has an incidence of between 70 and 80 cases per 100,000 inhabitants per year and in the United States it varies between 130 and 140 cases per 100,000 patients per year. In the ICU of the "Arnaldo Milián Castro" University Provincial Hospital of Santa Clara City, Villa Clara Province, Cuba, about 50% of the total admissions receive mechanical ventilatory assistance for some reason, so it has become one of the main causes of admission. Mortality studies have shown a figure of around 30% in Intensive Care Units in Europe and the United States and a significant increase has been related to sepsis, shock states, respiratory distress, hepatic failure, malignancy, advanced age and chronic renal failure. Mortality is much lower when the affected organ is only the lung than when other organ dysfunctions are associated.

The development of different surgical techniques and anesthetic techniques during the last decade has led to an increase in the number and complexity of surgical interventions.^(1,2,3,4) Pregnant and puerperal women are also very frequently admitted to obstetrics and gynecology wards and ICU (mainly as a consequence of preeclampsia, which eventually evolves into eclampsia, one of the three most frequent causes of mortality in pregnant women, together with thromboembolic disease and postpartum hemorrhage).^(5,6,7) In the Bolivarian Republic of Venezuela, the Cuban medical mission assists, among others, the Integral Diagnostic Centers (CDI), medical institutions that have in their structure conventional hospitalization rooms and Intensive Care Rooms, where adult patients are admitted for the Specialties of Internal Medicine,

Orthopedics and Traumatology, Obstetrics, Surgery and other related specialties. In spite of the existence of a group of researches on the subject, it is necessary to investigate in ICUs because in recent years the morbidity and mortality in the ICU and in the hospitalization wards are not accurately known. This research has the objective of describing the behavior of morbidity and mortality in an ICU of Cuban collaborator patients admitted to these units.

METHODS

Design and population

A descriptive, retrospective, cross-sectional study was conducted at the "María Eugenia González" Comprehensive Diagnostic Center (CDC) of the Capital District in the Bolivarian Republic of Venezuela center assisted since March 2018 by the staff of the "Salvador Allende" Comprehensive Health Center (CHC) (national reference center) by repairs of the latter, of Cuban collaborators admitted in the period from January 1, 2019 and up to November 21, 2020. All patients aged 20 years and older who were admitted to the CDC from any of the states in the period covered by the study due to surgical (urgent or elective) and clinical diseases, requiring intensive support of vital functions or specialized continuous monitoring were consecutively included.

Operationalization of the variables

- Age: taken in years of age and grouped into the following classes: 20 to 29 years, 30 to 39 years, 40 to 49 years, 50 to 59 years, 60 to 69 years and 70 years and over.
 - Sex: according to gender, male and female.
 - Comorbidities (according to history and established diagnostic criteria): arterial hypertension (AHT)- was considered as from systolic blood pressure >140 mmHg and diastolic >90 mmHg), bronchial asthma, chronic gastritis, diabetes mellitus type 1 and type 2,^(2,8) chronic obstructive pulmonary disease (COPD), hypothyroidism, ischemic heart disease, hypercholesterolemia.
 - Profile for which he/she came to the mission from Cuba: doctor, nurse, administrative, special, sports, statistician, pharmacist, pharmacy, rehabilitation, electromedicine, cook, driver, journalist, laboratory, economist, diplomat, computer, accountant, optician.
- Diseases requiring admission:
- Postoperative: postoperative states of appendectomy, ectopic pregnancy, herniorrhaphy, bridle lysis, etc.
 - Chronic decompensated arterial hypertension or debut hypertension.
 - Urinary tract infection: high or low according to clinical and laboratory examination.
 - Delayed or ongoing abortion
 - Dengue fever according to clinical criteria and with positive IgM
 - Osteomyoarticular diseases: discopathies, sacrolumbalgia and other traumas
 - Pneumonia: community-acquired, non-severe and severe (major criteria: need for mechanical ventilation, presence of septic shock; minor criteria: systolic blood pressure <90 mmHg, respiratory rate ≥ 30 rpm, $PaO_2/FIO_2 < 250$, multilobar infiltrates, confusion and disorientation -or both-

uremia (BUN420 mg/dl), hypothermia $<36^{\circ}\text{C}$, leukopenia $<4 \times 10^9$ leukocytes/l and thrombocytopenia 100×10^9 platelets/l. Nosocomial pneumonia: it was diagnosed by the presence of inflammatory infiltrate in a chest X-ray or computed axial tomography (CT). At least one of the following criteria must have been present after 48 hours of hospitalization: fever greater than 38°C with no other origin, leukocytosis greater than 12×10^9 /l or leukopenia less than 4×10^9 /l, and at least one of the following criteria (two if only clinical criteria are used): appearance of purulent sputum or change in its characteristics, cough or dyspnea or tachypnea, auscultation: presence of crackles, hoarseness or wheezing).

- Acute cholecystitis
- Upper gastrointestinal bleeding: with clinical and endoscopic demonstration.
- Nonspecific febrile syndrome: with no apparent clinical or laboratory demonstrable cause.
- Cerebrovascular disease (CeVD): regardless of the type of disease
- Cardiac arrhythmias: current criteria were taken into account.
- Acute myocardial infarction (AMI): current criteria were taken into account.
- Unstable angina: with and without electrical changes -Malignant tumors: with and without electrical changes
- Malignant tumors: by clinical and complementary criteria.
- Cranioencephalic trauma (TBI): according to clinical and imaging criteria.
- Hospital stay: intervals of one to three days, four to six days, seven to nine days, 10 to 12 days, 13 to 15 days and 16 days and more were considered.

The morbidity rate was considered to be the number of individuals considered ill or affected by a disease in a given space and time. It is the frequency of the disease in proportion to a population. Morbidity is an important statistic to measure the evolution or regression of a disease, to evaluate its health importance and to determine possible solutions. The computation of the morbidity rate requires that the period and place be specified.

The most frequently used morbidity rates are as follows:

- Prevalence: frequency of all cases (old and new) of a disease or pathological condition at a given point in time (point prevalence) or during a defined period (period prevalence).
- Incidence: the rapidity with which a disease occurs. Also the frequency with which new cases of a disease/condition are added (developed or discovered) during a specific period and in a specific area.

Bias control: in order to increase the precision and accuracy of the data required for the research, the following biases were taken into account: selection bias, classification bias, confounding bias, information bias and precision bias. The processing of the results was carried out by the authors and a specialist outside the study and the results were compared.

Sources of data collection

The data necessary for the variables under study were obtained mainly from the patient registry books of the Intensive Care and Hospitalization wards and from the medical records to be definitively recorded in a database created with the SPSS 17.0 statistical package for Windows.

Statistical analysis

For qualitative variables, the absolute and relative frequencies (by hundreds) of the different categories and ratios were obtained; for quantitative variables, the means, medians, standard deviation and ranges were obtained. The data were processed using the SPSS version 17.0 statistical program for Windows. Morbidity and mortality rates were estimated using the following expressions: morbidity of clinical cases = total cases with clinical morbidity \times 100% total sample, morbidity of surgical cases = total cases with surgical morbidity \times 100% total sample and total mortality = total deceased cases \times 100% total sample.

Ethical considerations

The present study complied with the basic ethical precepts of the clinical-epidemiological research process. The management of the CDI and the Ethics Committee of the center gave their approval.

RESULTS

In Table 1, there was a predominance of the medical profile (34.75%) and the nursing one (21.28%), either in the Intensive Care Unit or in the Inpatient Ward.

Table 1. Distribution according to the profile of the Cuban collaborators admitted

Profil	Intensive Care Unit		Hospitalization Room		Total	
	No.	%	No.	%	No.	%
Physician	42	29.40	56	40.30	98	34.75
Nurse	25	17.50	35	25.18	60	21.28
Administrative	17	12.00	9	6.50	26	9.22
Special	8	5.60	12	8.63	20	7.09
Sportsman	10	7.00	8	5.75	18	6.38
Statistician	7	5.00	3	2.16	10	3.55
Pharmacy	5	3.50	3	2.16	8	2.83
Rehabilitation	6	4.20	2	1.44	8	2.83
Electromedicine	6	4.20	1	0.72	7	2.48
Chef	4	2.80	1	0.72	5	1.80
Driver	4	2.80	1	0.72	5	1.80
Journalist	1	0.70	3	2.16	4	1.42
Laboratory	3	2.10	1	0.72	4	1.42
Economist	1	0.70	2	1.44	3	1.10
Diplomat	1	0.70	1	0.72	2	0.71
Informatician	1	0.70	1	0.72	2	0.71
Accountant	1	0.70	0	0.00	1	0.35
Optician	1	0.70	0	0.00	1	0.35
Total	143	100	139	100	282	100

The age group in the Hospitalization Room (Table 2) for the male sex, that predominated, was between 50 and 59 years of age, while for the female sex it was between 30 and 39 years of age. There were 1.2 women admitted for every man.

Table 3 shows the age group of those admitted to the Intensive Care Unit: for males, the predominant age group was between 50 and 59 years, while for females it was between 40 and 49 years. For every woman there were 1.92 men admitted.

Table 2. Distribution according to age and sex of Cuban collaborators admitted to the Hospitalization Room

Age group (years)	Sexo				Total	
	Masculine		Feminine			
	No.	%	No.	%	No.	%
20 - 29	2	1.44	25	17.99	27	19.42
30 - 39	12	8.63	36	25.90	48	34.53
40 - 49	11	7.91	20	14.39	31	22.30
50 - 59	18	12.95	9	6.47	27	19.42
60 - 69	5	3.60	1	0.72	6	4.32
Total	48	34.53	91	65.47	139	100

Note: older patient: male, 67 years old, with a history of hypertension and chronic gastritis, admitted for bacterial enterocolitis and younger patient: female, 21 years old, journalism student, with a previous health history, admitted for non-specific febrile syndrome.

Table 3. Distribution by age and sex of Cuban collaborators admitted to the Intensive Care Unit

Age group (years)	Gender				Total	
	Masculine		Feminine			
	No.	%	No.	%	No.	%
20 - 29	7	4.89	11	7.69	18	12.60
30 - 39	15	10.49	11	7.69	26	18.18
40 - 49	23	16.08	16	11.19	39	27.27
50 - 59	35	24.47	11	7.69	46	32.17
60 - 69	12	8.39	0	0.00	12	8.40
≥70	2	1.40	0	0.00	2	1.40
Total	94	65.73	49	34.26	143	100

Note: older patient: male, 70 years old, with a health history, admitted for non-Q AMI and younger patient: female, 23 years old, with a history of gallbladder stones, admitted for acute cholecystitis.

Among the comorbidities, AHT (98, 34.75%) and bronchial asthma (21, 7.45%) stand out -Table 4.

Table 4. Distribution of comorbidities in Cuban collaborators admitted to the hospital

Comorbidities	Intensive Care Unit (n=143)		Hospitalization Room (n=139)		Total (n=282)	
	No.	%	No.	%	No.	%
	AHT	73	51.05	25	18	98
Bronchial asthma	13	9.10	8	5.75	21	7.45
Chronic gastritis	4	2.80	12	8.63	16	5.70
Diabetes mellitus	9	6.30	6	4.32	15	5.32
COPD	5	3.50	10	7.20	15	5.32
Hypothyroidism	7	4.90	4	2.90	11	3.90
Ischemic heart disease	7	4.90	3	2.16	10	3.55
Hypercholesterolemia	8	5.60	2	1.44	10	3.55
Other	5	3.50	2	1.44	7	2.48
Total	31	91.61	72	51.80	203	72.02

AHT: arterial hypertension; COPD: chronic obstructive pulmonary disease

Table 5 shows the patients with pathological conditions. Of a total of 282 patients, 281 were discharged alive; there was only one patient who died with a diagnosis of atherothrombotic cerebral infarction. The postoperative period had the highest number of cases (63, 22.34%) in the series and in

hospitalization. In the ICU, decompensated chronic arterial hypertension had the highest number of cases (30, 21%).

Table 5. Distribution of the main diseases that demanded admission among Cuban employees

Pathologies	Intensive Care Unit		Hospitalization room		Total	
	No.	%	No.	%	No.	%
Postoperative	28	19.60	35	25.18	63	22.34
AHT	30	21.00	4	2.90	34	12.10
Urinary tract infection	2	1.40	18	13.00	20	7.10
Delayed abortion	1	0.70	18	13.00	19	6.74
Dengue	11	7.70	8	5.75	19	6.74
Peritonitis	13	9.10	3	2.16	16	5.70
Ostiomyoarticular disease	0	0.00	14	10.10	14	5.00
Pneumonias	9	6.30	4	2.90	13	4.61
Acute cholecystitis	3	2.10	9	6.47	12	4.25
Upper gastrointestinal bleeding	5	3.50	6	4.31	11	3.90
Nonspecific febrile syndrome	1	0.70	10	7.20	11	3.90
CVD	8	5.60	0	0.00	8	2.84
Cardiac arrhythmias	8	5.60	0	0.00	8	2.84
AMI	8	5.60	0	0.00	8	2.84
Unstable angina	8	5.60	0	0.00	8	2.84
Malignant tumors	2	1.40	3	2.16	5	1.80
TBI	5	3.50	0	0.00	5	1.80
Others	1	0.70	7	5.04	8	2.84
Total	143	100	139	100	282	100

AHT: arterial hypertension; CVD, cerebrovascular disease; AMI, acute myocardial infarction; TBI: traumatic brain injury.

Note: 17 patients were treated with invasive mechanical ventilation in the ICU (11.9%), with one death, for 5.9% of the total number of patients ventilated. Fifty-one patients (18.10%) were transferred to Cuba to complete the study and treatment.

In the series the stay of one to three days predominated (91, 32.27%), the same as among those admitted to the inpatient ward, while in the intensive care wards the stay of four to six days was greater (40, 28%) -Table 6-.

Table 6. Distribution according to the length of stay of Cuban collaborators admitted to the country

Stay hospital (days)	Intensive Care Unit		Hospitalization room		Total	
	No.	%	No.	%	No.	%
1 - 3	31	21.70	60	43.17	91	32.27
4 - 6	40	28.00	43	31.00	83	29.43
7 - 9	26	18.18	20	14.40	46	16.31
10 - 12	19	13.30	10	7.20	29	10.28
13 - 15	12	8.40	3	2.16	15	5.32
≥16	15	10.50	3	2.16	18	6.38
Total	143	100	139	100	182	100

Note: longest stay patients: In the ICU, with 32 days, female patient, 49 years old, with a history of HT, diagnosed with ischemic cerebral infarction frontotemporoparietal and right occipital and mechanical artificial ventilation (MAV), who died. In Hospitalization, with 43 days, male patient, 52 years old, with a history of AHT and gastritis with the diagnosis of Panadizo.

DISCUSSION

The effectiveness of ICU care is usually evaluated through in-hospital mortality adjusted to the clinical severity of the patients. Hospitalization rooms allow the admission and follow-up of patients with potential complications who do not require intensive follow-up.

In the series, the predominance of the medical and nursing profile in the admissions is related to the fact that these profiles are the majority in the Cuban collaboration in Venezuela. In contrast to the patients admitted to the ICU, there was a predominance of the female sex in hospitalization in relation, above all, to gynecological diseases such as deferred abortion; the same happens with the majority stay between one and three days in hospitalization for the same cause, for urinary tract infection and for video laparoscopic surgeries performed. These units represent an important context in the care work in hospitals, aspects that demand the realization and updating of research in this environment.

In the present investigation, an approach of the current state of the most important incidence and prevalence rates was achieved. According to the data reflected in the ENVIN-HELICS Registry, Spanish ICUs admit a higher percentage of patients with clinical diseases (67.2%), while surgical causes accounted for 32.8%,⁽⁹⁾ which coincides with the present investigation. Some probable explanations would be the criteria for admission to the ICU of ICDs and the predominance of clinical diseases in the setting in which the present investigation was carried out; however, very similar results were obtained to other investigations in which the average age is in the fourth and fifth decades of life.⁽¹⁰⁾ In an investigation carried out the male sex predominated,⁽¹¹⁾ as in the present series and in other studies.^(12,13) Without doubt male patients suffer a greater number of serious diseases than females, which could explain the findings of the present investigation. In the sample of patients admitted to the ICU there are diseases not typical of these wards, such as urinary tract infections, among others, which were admitted to this unit because of marked general condition and hypotension, as occurs in all ICUs worldwide.^(3,4,5,6,7,8,9,10,11,12) Hypertension was the most frequent comorbidity,⁽¹³⁾ a fact that is related to the frequency of this disease in the Cuban population. In the severe patient almost never appears only one disease and most of them present comorbidities. In this research, AHT was the main one found, as in the literature reviewed; when AHT and other cardiovascular risk factors coexist, they can mutually potentiate each other, resulting in a higher risk.^(14,15) In relation to diabetes mellitus, the number of affected patients is increasing and current estimates exceed 1.6 million new cases per year in those over 20 years of age. The rate of increase in diabetes is highest in developing nations due to urbanization.⁽¹⁶⁾ In another study 47% of patients had at least one associated comorbidity and one of the most frequent was diabetes mellitus, followed by AHT;⁽¹⁷⁾ most of the studies reviewed coincide with this one.

One study found that operations were the third leading cause of admission to the ICU, with high mortality, and that postoperative evolution, although related to the deterioration of vital functions and the promptness of their restoration, was strongly influenced by the characteristics of the surgical procedure.⁽¹⁷⁾

Since the ICU is a reference service in the care of severe collaborators in this work there was an increase in admissions from other states and the operating room, which is not very consistent with other bibliographies reviewed in which this type of patients are hospitalized in their states. The SOAP (Sepsis Occurrence in Acutely-Ill Patients) study⁽¹⁶⁾ reported that 30% of ICU admissions in European hospitals are due to sepsis, with a high mortality rate; in this series almost 27.3% of patients admitted to the ICU were for sepsis. In recent years there has been a change in the epidemiological profile of infections in the ICU related to the characteristics of the patients and associated risk factors, which predispose to more severe infections and infections caused by opportunistic and multiresistant germs. After several days, a compensatory anti-inflammatory response with immunosuppression may contribute to death.^(16,17) Respiratory infections are the main cause of admission as a clinical disease in several reports of multiple studies.⁽¹⁶⁾ In contrast to other studies^(16,17) in this study, ischemic cerebrovascular disease ranked fifth in morbidity and first in mortality. Surgical patients admitted to ICUs are in critical condition or suffer acute physiological disorders mainly as a result of the surgical intervention. Severely operated patients are an indisputable reason for admission to the ICU; this work coincides with previous studies in which patients admitted to the ICU showed a predominance of emergency surgery due to peritonitis, a fact that adversely affects their satisfactory evolution⁽¹⁸⁾ -in this series peritonitis was present in 13 patients-. Hypovolemia, full stomach, hydroelectrolyte and acid-base balance disorders and trauma to vital areas determine a greater perioperative risk due to the lack of preparation and adequate control of underlying diseases. In hospital ICUs around the world, mortality is the best measure of performance and performance evaluation. Overall mortality rates of patients admitted to Intensive Care Units are between fifteen and twenty percent; however, this apparent "low mortality" includes a large number of patients in subpopulations with extremely low mortality, such as postoperative "risk surgery" patients.⁽¹⁹⁾ Despite all the efforts in medical development and science, we must work tirelessly to decrease mortality in critically ill patients, as well as to achieve better comfort in their care.

CONCLUSIONS

Physicians and nurses demanded the highest number of admissions in the series studied and arterial hypertension was the most frequent comorbidity. In the hospitalization wards, the majority of patients were female, aged between 30 and 39 years, admitted for surgery and stayed between one and three days. In Intensive Care, male sex, age between 50 and 59 years, decompensated chronic arterial hypertension and a stay of four to six days predominated. One death was reported in the study.

BIBLIOGRAPHIC REFERENCES

1. Bueno H, Ross JS, Wang Y, Chen J, Vidán MT, Normand SL, et al. Trends in length of stay and short-term outcomes among Medicare patients hospitalized for heart failure: 1993-2008. JAMA [Internet]. 2010 [cited 12/12/2020];303(21):2141-

2147. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3020983/>.
<https://doi.org/10.1001/jama.2010.748>
2. Santana Cabrera L, Lorenzo Torrent R, Sánchez Palacios M, Martín Santana JD, Hernández Hernández JR. Pronóstico de los pacientes médicos según la duración de su estancia en la unidad de cuidados intensivos. *Med Intensiva* [Internet]. 2014 [cited 12/12/2020];38(2):126-127. Available at: <https://www.medintensiva.org/es/pronostico-los-pacientes-medicos-segun/articulo/S0210569113001381/>.
<https://doi.org/10.1016/j.medin.2013.06.004>
 3. Iraola Ferrer MD, Nieto Prendes P, Álvarez Li FC, Pons Moscoso F, Cruz de los Santos H. Síndrome de respuesta inflamatoria sistémica: morbilidad y mortalidad en pacientes quirúrgicos ingresados en la Unidad de Cuidados Intensivos. *Rev Cub Med Int Emerg* [Internet]. 2003 [cited 12/12/2020];2(2):35-43. Available at: http://bvs.sld.cu/revistas/mie/vol2_2_03/mie07104.pdf
 4. National Center for Health Statistics (US). Health, United States, 2013: with special feature on prescription drugs [Internet]. Hyattsville (MD): NCHS; 2014 [cited 12/12/2020]. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK209224/>
 5. Rubio Lorente AM, González López AB, González Mirasol E, González de Merlo G. Morbimortalidad materna y fetal en pacientes con preeclampsia grave. *Prog Obstet Ginecol* [Internet]. 2011 [cited 12/12/2020];54(1):4-8. Available at: <http://www.elsevier.es/es-revista-progresos-obstetricia-ginecologia-151-articulo-morbimortalidad-materna-fetal-pacientes-con-S0304501310004784>.
<https://doi.org/10.1016/j.pog.2010.11.002>
 6. Curiel Balsera E, Prieto Palomino MA, Muñoz Bono J, Ruiz de Elvira MJ, Galeas JL, Quesada García G. Análisis de la morbilidad materna de las pacientes con preeclampsia grave, eclampsia y síndrome HELLP que ingresan en una Unidad de Cuidados Intensivos gineco-obstétrica. *Med Intensiva* [Internet]. 2011 [cited 12/12/2020];35(8):478-83. Available at: https://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S0210-56912011000800005
 7. Dellinger RP, Levy MM, Carlet JM, Bion J, Parker MM, Jaeschke R, et al. Surviving Sepsis Campaign: International guidelines for management of severe sepsis and septic shock: 2008. *Intensive Care Med* [Internet]. 2008 [cited 12/12/2020];34:17-60. Available at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2249616/pdf/134_2007_Article_934.pdf. <https://doi.org/10.1007/s00134-007-0934-2>
 8. Inzucchi SE, Sherwin RS. Diabetes mellitus tipo1. In: Goldman L. *Goldman's Cecil Medicine*. 23th ed. Madrid: Elsevier; 2008. p. 1479-85.
 9. Mas N, Olaechea P, Palomar M, Álvarez-Lerma F, Rivas R, Nuvials X, et al. Análisis comparativo de pacientes ingresados en Unidades de Cuidados Intensivos españolas por causa médica y quirúrgica. *Med Intensiva* [Internet]. 2015 [cited 12/12/2020];39(5):279-89. Available at: <https://www.medintensiva.org/es/analisis-comparativo-pacientes-ingresados-unidades/articulo/S0210569114001818/>.
<https://doi.org/10.1016/j.medin.2014.07.006>
 10. Álvarez Aliaga A, González Aguilera J, Rodríguez Blanco L, Peña González E, Berdú Saumell J, Hernández Galano ME. Sepsis extrahospitalaria severa en la Unidad de Cuidados Intensivos. *MAPFRE Med* [Internet]. 2006 [cited 12/12/2020];17(3):159-165. Available at: <https://sid-inico.usal.es/idocs/F8/ART9359/sepsis.pdf>
 11. Cerda Cortaza JL, López Reyna MA. Resultados de la reanimación preoperatoria en sepsis grave y choque séptico en pacientes con infección intraabdominal. *Cir Gen* [Internet]. 2014 [cited 12/12/2020];36(4):199-204. Available at:

- <https://www.elsevier.es/es-revista-cirujano-general-218-pdf-X1405009914739699>
12. Hernández Palazón J, Fuentes García D, Burguillos López S, Domenech Asensi P, Sansano Sánchez TV, Acosta Villegas F. Análisis de la insuficiencia de órganos y mortalidad en la sepsis por peritonitis secundaria. *Med Intensiva* [Internet]. 2013 [cited 12/12/2020];37(7):461-467. Available at: <https://www.medintensiva.org/es/analisis-insuficiencia-organos-mortalidad-sepsis/articulo/S0210569112002501/>.
<https://doi.org/10.1016/j.medin.2012.07.010>
 13. Llompart Pou JA, Talayero M, Homar J, Royo C, grupo de trabajo de Trauma y Neurointensivismo de SEMICYUC. Fallo multiorgánico en el paciente con trauma grave. *Med Intensiva* [Internet]. 2014 [cited 12/12/2020];38(7):455-462. Available at: <https://www.medintensiva.org/es/fallo-multiorganico-el-paciente-con/articulo/S0210569114001442/>. <https://doi.org/10.1016/j.medin.2014.05.004>
 14. Giner Soriano M, Díaz Baena D, Ouchi D, Gomez Lumbreras A, Morros R. Tratamiento farmacológico de la insuficiencia cardíaca según la fracción de eyección ventricular en atención primaria. *Atención Primaria* [Internet]. 2022 [cited 09/21/2022];54(8):102362. Available at: <https://www.sciencedirect.com/science/article/pii/S0212656722000828>.
<https://doi.org/10.1016/j.aprim.2022.102362>
 15. Sociedad Europea de Cardiología, European Society of Hypertension. Guía ESC/ESH 2018 sobre el diagnóstico y tratamiento de la hipertensión arterial. *Rev Esp Cardiol* [Internet]. 2019 [cited 12/12/2020];72(2):160.e1-160.e78. Available at: <https://www.revespcardiol.org/es-guia-esc-esh-2018-sobre-el-articulo-S0300893218306791>. <https://www.revespcardiol.org/es-pdf-S0300893218306791>. <https://doi.org/10.1016/j.recesp.2018.12.005>
 16. Vincent JL, Sakr Y, Sprung CL, Ranieri VM, Reinhart K, Gerlach H, et al. Sepsis in European intensive care units: results of the SOAP study. *Crit Care Med* [Internet]. 2006 [cited 12/12/2020];34(2):344-53. Available at: <https://pubmed.ncbi.nlm.nih.gov/16424713/>.
<https://doi.org/10.1097/01.ccm.0000194725.48928.3a>
 17. Barie PS, Hydo LJ, Fischer E. Comparison of APACHE II and III scoring systems for mortality prediction in critical surgical illness. *Arch Surg* [Internet]. 1995 [cited 12/12/2020];130(1):77-82. Available at: <https://pubmed.ncbi.nlm.nih.gov/7802581/>.
<https://doi.org/10.1001/archsurg.1995.01430010079016>
 18. Jiménez Guerra SD. Morbilidad, mortalidad y letalidad en una unidad de cuidados intensivos polivalente. *Rev Cub Med Int Emerg* [Internet]. 2003 [cited 12/12/2020];2(4):45-50. Available at: http://www.bvs.sld.cu/revistas/mie/vol2_4_03/mie08403.pdf
 19. Rojas Borroto C, Martínez Rodríguez I, Morales García JC. Mortalidad en pacientes ventilados en la Unidad de Cuidados Intensivos del hospital de Morón. *Mediciego* [Internet]. 2012 [cited 12/12/2020];18(Supl. 1):[aprox. 8 p.]. Available at: <https://revmediciego.sld.cu/index.php/mediciego/article/view/348/2197>

CONFLICT OF INTEREST

The author declares no conflict of interest.