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GESTATIONAL AND PUERPERAL COMPLICATIONS IN ICU: AN INTEGRATIVE LITERATURE REVIEW

Guilherme Henrique Cardodo Riedel da Costa
https://orcid.org/0000-0002-3926-2011

Helânia do Prado Cruz
https://orcid.org/0000-0003-2487-2869

Abstract: Given the complexity of clinical pregnancy situations that require more intensive care, there are several indications for the hospitalization of pregnant women in the Intensive Care Unit. Thus, the role of intensive obstetric care is of fundamental importance in reducing maternal morbidity and mortality. For this, it is important to have a detailed knowledge of the main serious conditions that affect women during this period of life, in order to provide a better approach by intensive care professionals. Thus, this study aimed to review the gestational and puerperal complications in the ICU, describing the main serious conditions that affect these patients. This is an integrative literature review study in which the LILACS and SciELO online databases were used, using the descriptors present in the Descriptors in Health Science/ Medical Subject Headings (DeSC/MeSH): Complications in Pregnancy ("Pregnancy Complications"); Intensive Care Units ("Intensive Care Units"); Maternal Mortality. The controlled descriptor "Intensive Care Units" associated with the Boolean operator AND to the aforementioned descriptors was used. Data collection, reading and analysis took place between November/2021 and April/2022 and was performed by the study authors. The electronic search in databases resulted in the identification of 734 studies, of which 23 had titles or abstracts that mentioned the presentation of original data on gestational and puerperal complications in intensive care, or were deemed relevant to the topic under study. Of these, 10 studies did not allow the determination of the profile of pregnant and postpartum women and the main serious conditions that affect these patients, being therefore considered ineligible for inclusion in this integrative review, totaling, in the end, 13 studies to be analyzed. 12 articles were cross-sectional and descriptive studies and only one cohort. All researches were documentary, carried out in medical records, except for one in which secondary data from the waiting list for ICU beds, provided by the Bed Regulation Center, were used. The sample size ranged from 26 to 500 women, with an average of 19 to 35 years, all hospitalized in Brazilian ICUs. The main causes of ICU admission were: pregnancy-specific hypertensive disease, infectious and hemorrhagic conditions of any etiology. Other causes described were: premature labor; intrapartum shock; premature rupture of amniotic membrane; edema; Hellp syndrome. Among the non-obstetric causes, the following were cited: heart disease, deep vein thrombosis, urinary tract infection, asthma, acute pulmonary edema and community pneumonia. The study provided an overview of the situation of hospitalization of obstetric patients in an ICU.

Keywords: Pregnancy Complications; Intensive Care Units; maternal mortality.

INTRODUCTION

Pregnancy, childbirth and the puerperium are considered natural, inherent and proper processes in the life of any woman. [1,2], however, like any physiological process, the pregnancy-puerperal cycle causes physical, hormonal and psychological changes in the mother's body that, when not well monitored and managed, can worsen previous morbid conditions or produce symptoms that, even physiologically, are harmful. [3], and in some cases, more unfavorable outcomes, such as death [4].

Maternal mortality involves multiple factors – cultural, professional and institutional [5]. The death of women resulting from complications in pregnancy, childbirth and the puerperium is part of the field of health and sexual and reproductive rights [6] and it is considered as a

waste of lives in a reality that does not change, because they are healthy women, at the height of their reproductive lives, with life potentials to be lived and who were abruptly lost with the premature death of cause, almost always, avoidable [7].

Obstetric care has been marked in recent years by a considerable advance [8]. However, studies carried out in several countries reveal that maternal morbidity and mortality still accompany pregnancy and childbirth. In addition, the deleterious effects of maternal morbidity are serious and this has shown a greater magnitude than the crude mortality rates. [9].

It is a fact that some of the factors that are considered as potential risks for gestational complications may be present even before the occurrence of pregnancy, such as those related to maternal age (under 15 years and over 35 years old); the existence of structural abnormalities in Organs reproductive organs; insecure marital status; family conflicts; low education level; dependence on licit or illicit drugs and; exposure to occupational hazards [10,11].

There are also other pre-existing clinical conditions that pose risks during pregnancy, such as: arterial hypertension, heart disease, pneumopathies, nephropathies, endocrinopathies, epilepsies, infectious diseases, hemorrhages, gestational diabetes, previous premature birth, neoplasms, among others. [10,11].

Given the complexity of clinical pregnancy situations that require more intensive care, there are several indications for the hospitalization of pregnant women in the Intensive Care Unit (ICU).

The risk of a woman during the pregnant-puerperal cycle being admitted to an ICU is much higher than that of a young, non-pregnant woman. [12]. It is estimated that 0.1% to 0.9% of pregnant women develop complications requiring ICU admission. [13]. The prognosis of these patients is generally good, requiring in many cases only small interventions, with low mortality rates, generally less than 3%. [14].

ICUs are hospital units intended for the care of critically ill or at risk patients, but who have the potential for life. It has uninterrupted assistance and nursing, with its own specific equipment, specialized human resources, and has access to other technologies intended for diagnosis and therapy. [15].

These hospital units aim to welcome and treat critically ill and recoverable patients who have compromised vital function and therefore require highly qualified assistance, which can predict and act quickly and effectively in an emergency, in addition to offering full support to the patient. and provide clarification to family members [16].

The professionals of the ICU health team play an important role in the hospitalization of pregnant and postpartum women in this treatment unit. Because they are supporting this process and must put their knowledge at the service of the well-being of the woman and the baby, recognizing the critical moments in which their interventions are necessary to ensure the health of both, being able to minimize the pain, stay by the side, give comfort, clarify, guide, help to give birth and to be born[17].

It is understood that within the context of health institutions, ICUs, as a space for the treatment of patients in critical condition, but with possibilities of recovery, require continuous surveillance due to possible changes in clinical parameters and needs for immediate decisions.

Currently, hospitalizations of pregnant and postpartum women in the ICU are not rare, which confronts data from 15 years ago [16], therefore, it is believed to be essential to study how maternal health care processes develop

in intensive care spaces, so that from the results it is possible to propose improvement measures [9].

In view of this, the need arose to carry out a search in the literature of scientific publications on the most prevalent gestational and puerperal complications in ICU, since it is understood that obstetric intensive care has a fundamental role in reducing maternal morbidity and mortality. For this, it is important to have a detailed knowledge of the main serious conditions that affect women during this period of life, in order to provide a better approach by intensive care professionals. Thus, the following questions were raised: What is the profile of pregnant and postpartum women treated in the ICU and What are the main serious conditions that affect these patients?

Thus, the present article aims to: review, in the scientific literature, the gestational and puerperal complications in the Intensive Care Unit, describing the main serious conditions that affect these patients.

METHODOLOGY

This is an integrative review (IR) study of the literature, in which the online databases LILACS (Latin American and Caribbean Literature on Health Sciences) and SciELO (Scientific Electronic Library Online) were used. results of previous research, that is, already carried out and shows above all the conclusions of the literature corpus on a specific phenomenon, it comprises all studies related to the guiding question that guides the search for this literature18.

This review followed the following steps: 1. Elaboration of the guiding question; 2. Search the literature; 3. Data collection; 4. Critical analysis of included studies; 5. Discussion of results; 6. Presentation of RI19.

In the initial search, the titles and abstracts of the articles were considered for the broad selection of likely works of interest, using the descriptors present in the Descriptors in Health Science/Medical Subject Headings (DeSC/MeSH): Complications in Pregnancy ("Pregnancy Complications"); Intensive Care Units ("Intensive Care Units"); Maternal Mortality. The controlled descriptor "Intensive Care Units" associated with the Boolean operator AND to the aforementioned descriptors was used.

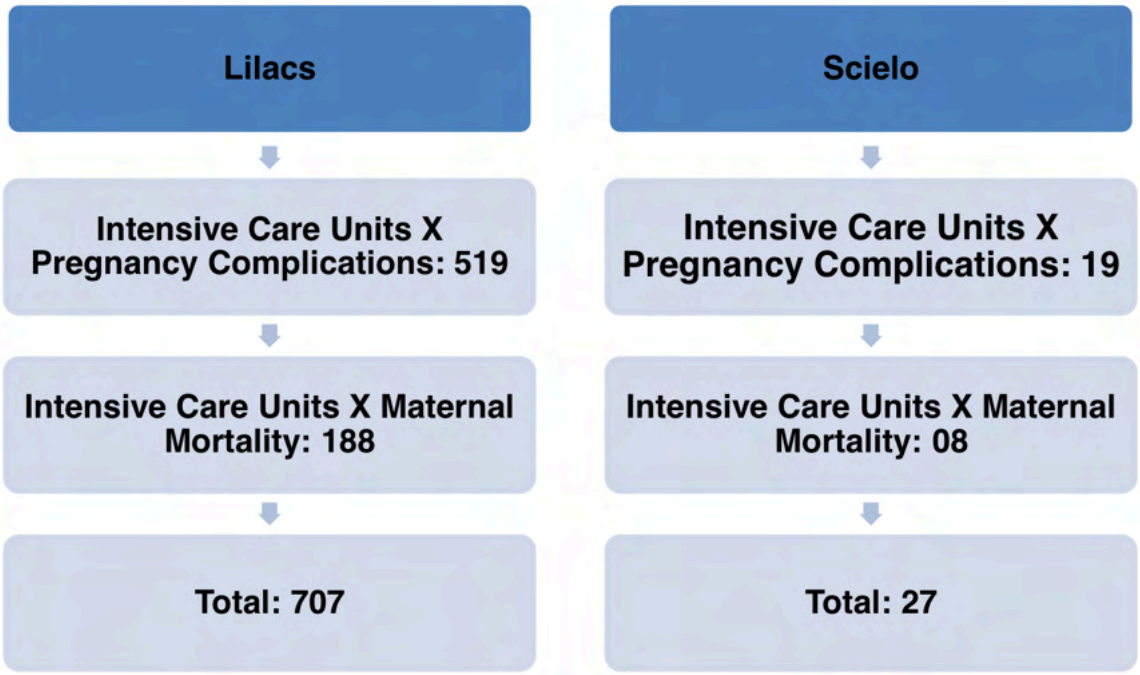
To select the articles, firstly, the abstracts of the selected publications were read with the objective of refining the sample through inclusion and exclusion criteria, aiming to describe the profile of these pregnant and postpartum women and the main serious conditions that affect them. these patients, referred to in national and international journals, through a systematic review of the literature on the subject.

Inclusion criteria were texts (scientific articles only) that addressed gestational and puerperal complications in the ICU and texts published between 2000 and April 2020 (in the last 20 years), in order to compare the profile of these complications in the period time mentioned above. All types of methodological design were accepted.

Exclusion criteria were book texts; theses and dissertations, proceedings of international conferences, proceedings of national conferences and repeated articles. Data collection, reading and analysis took place between November/2021 and April/2022 and was performed by the study authors.

Below is a flowchart of the search for articles.

All the studies analyzed in their entirety had their lists of bibliographic references reviewed, in order to identify other studies related to the theme. The included studies were evaluated in terms of: study period, design, population studied, objectives, location and



methodological design, and factors associated with admission to an intensive care unit.

The articles were categorized in chronological order by year of publication and a form was created in Excel to compile the findings and facilitate the analysis. After the collection, analysis, selection and compilation of all the material, a descriptive analysis of the main information on the knowledge of the researched topic was carried out.

RESULTS AND DISCUSSION

The electronic search in databases resulted in the identification of 734 studies, of which 23 had titles or abstracts that mentioned the presentation of original data on gestational and puerperal complications in intensive care, or were deemed relevant to the topic under study. Of these, 10 studies did not allow the determination of the profile of pregnant and postpartum women and the main serious conditions that affect these patients, being therefore considered ineligible for inclusion in the present IR.

Regarding the type, 12 articles were cross-sectional and descriptive studies and only one cohort. All researches were documentary, carried out in medical records, except for one in which secondary data from the waiting list for ICU beds, provided by the Bed Regulation Center, were used.

In general, the articles had as main objective to trace the clinical and epidemiological profile of pregnant and postpartum women admitted to the Intensive Care Unit. Only one article differed from the others in terms of objectives, seeking to characterize patients admitted during the pregnancy-puerperal cycle for non-obstetric causes.

The sample size ranged from 26 to 500 women, with a mean age of 19 to 35 years, all hospitalized in Brazilian ICUs.

The main causes of admission were: pregnancy-specific hypertensive disease (DHEG), infectious and hemorrhagic conditions of any etiology. Other causes described were: premature labor (PPS); intrapartum shock; premature rupture of

Study	Title - Year	Place	Goal
Viggiano; Viggiano; Souza; Camano[21]	Need for intensive care in tertiary public maternity - 2004	Goiânia	To evaluate the epidemiological aspects and those related to the delivery of pregnant and postpartum women transferred to intensive care units and the frequency with which these patients need intensive care.
Vieira et al.	2005	Pará	To research, search and describe the complications and show the morbidity and mortality profile of obstetric and puerperal patients hospitalized in the Intensive Care Unit.
Amorim et al.[20]	Profile of admissions in a unit of obstetric intensive care of a brazilian maternity - 2006	Recife	To describe the three-year experience with intensive care in obstetrics in an Intensive Care Unit in a sector that allows obstetricians to continue managing critically ill obstetric patients.
Amorim; Katz; Valença; Araújo[12]	Severe maternal morbidity in an obstetric ICU in Recife, northeast region of Brazil - 2008	Recife	Evaluate patients admitted to the obstetric ICU of the service with near miss criteria or severe maternal morbidity.
Ceconnello; Ferraz[16]	The socio-demographic and pathological profile of pregnant and postpartum women admitted to the ICU of a hospital in western Santa Catarina -2010	Chapecó-RS	To know the sociodemographic profile of pregnant and postpartum women in the general ICU of a regional hospital in the city of Chapecó.
Coelho et al.[13]	Profile of women admitted to an obstetric ICU for non-obstetric causes - 2012	Recife	To characterize patients admitted during the pregnancy-puerperal cycle for non-obstetric causes in the obstetric intensive care unit of a Tertiary Hospital in Northeast Brazil.
Reisdorfer et al.[23]	Clinical characteristics of obstetric patients admitted to a Tertiary Intensive Care Unit: a ten-year review - 2013	Caxias do Sul-RS	To assess maternal and perinatal outcomes related to obstetric patients admitted to an intensive care unit.
Tonin; Oliveira; Fernandes; Sanches[17]	ICU admission for obstetric causes: study in a public teaching hospital - 2013	Paraná	To identify sociodemographic and clinical characteristics of obstetric patients admitted to the Intensive Care Unit of a university hospital.
Yamaguchi et al.[24]	Maternal and neonatal complications in the waiting list at the Bed Regulation Center in the macro-region of Maringá - 2014	Maringá	Identify the main maternal and neonatal complications that led to requests for ICU beds.
Souza; Souza; Gonçalves[25]	Determining factors of maternal near miss in an obstetric intensive care unit - 2015	Natal	To evaluate the determinants of morbidity and mortality in an obstetric intensive care unit of a university hospital.
Oliveira; Costa[28]	*Near miss* mother in intensive care unit: clinical and epidemiological aspects - 2015	Recife	To analyze the epidemiological clinical profile of women with maternal near miss according to the new criteria of the World Health Organization.
Souza et al.[26]	Clinical-demographic profile of pregnant-puerperal patients admitted to an ICU in Fortaleza - 2015	Fortaleza	To describe the clinical-demographic profile of patients in a pregnant-puerperal cycle admitted to an Intensive Care Unit in the city of Fortaleza.
Saintrain, et al.[27]	Factors associated with maternal death in an intensive care unit – 2016	Fortaleza	To identify factors associated with maternal death in patients admitted to an intensive care unit.

Table 1. Description of selected studies. Fortaleza-CE-2022.

amniotic membrane; edema; Hellp syndrome. Among the non-obstetric causes, the following were cited: heart disease, deep vein thrombosis (DVT), urinary tract infection (UTI), asthma, acute pulmonary edema (APE) and community-acquired pneumonia.

Deaths were described in 04 studies: "Factors associated with maternal death in an intensive care unit, 2016"; "Clinical characteristics of obstetric patients admitted to a Tertiary Intensive Care Unit: ten-year review, 2013"; "Intensive care unit admission for obstetric causes: study in a public teaching hospital, 2013"; "Profile of admissions to an obstetric intensive care unit of a Brazilian maternity hospital, 2006".

The average maternal mortality was 20% in the ICUs studied and the main reasons described were: hemorrhagic shock, multiple organ failure, respiratory failure, sepsis, eclampsia, intravascular coagulation and Hellp syndrome.

The need to transfer the obstetric patient to the Intensive Care Unit has been considered an important indicator of maternal morbidity. [9].

Gestational hypertension has been described as one of the most frequent complications of pregnancy, in this review, in some studies, DHEG was the cause of up to 70% of admissions to intensive care. [12,13,16,17,20,21,23,24,27].

It is an obstetric pathology that appears after the 20th week of pregnancy and although there is a favorable prognosis in mild cases, its more severe forms are the main causes of maternal and perinatal morbidity and mortality, being responsible for high rates of maternal deaths in developing countries. development[9].

According to the World Health Organization (WHO), in Latin America and the Caribbean, hypertensive complications are the main cause of most maternal deaths, making up 25.7%, thus being considered the main complications for pregnant women in this region[4,11].

In addition to causing maternal death, it can cause several perinatal complications such as prematurity, fetal growth restriction and perinatal death. In addition, it may present with hypoxic-ischemic encephalopathy in the conceptus, leading to subsequent neurological manifestations[9].

The use of vasodilating antihypertensives is necessary in critically ill patients, especially in the presence of pregnancy-specific hypertensive disease (DHEG). In the ICU, there is a frequent need for parenteral use of antihypertensive drugs to control acute hypertensive crises and prevent maternal vascular damage; in this situation, most experience is with intravenous hydralazine, but intravenous labetalol and sublingual or oral nifedipine are also safe and effective[9].

During the gravido-puerperal cycle, situations such as: prolonged amniorrhexis, placental retention, urinary instrumentation and induced abortion may occur, which can lead to serious infections, including septic shock. Management of septic shock follows general principles, remembering that initial antibiotic therapy must cover gram-positive, gram-negative, and anaerobic bacteria[21].

Patients with deteriorating general status despite antibiotic therapy must be investigated for the presence of resistant microorganisms, pelvic thrombophlebitis, myometritis, and localized abscesses. In the last two situations, surgical intervention may be necessary. It is essential that the indication of surgical intervention is not delayed and the monitoring of parameters, such as platelet count, renal function and respiratory parameters, can be useful in defining the best time for such an indication[9].

Obstetric hemorrhages, triggered both by factors prior to delivery, such as placental

abruption (PPD) and uterine rupture, and after delivery, such as uterine atony, are an important cause of maternal morbidity and mortality. Optimal management implies supportive measures and measures to contain hemorrhage. It is necessary to provide for dilutional coagulopathy by providing prompt blood supply and by instituting urgent measures to contain hemorrhage[9].

CONCLUSION

The study provided an overview of the situation of hospitalization of obstetric patients in an ICU. It is important to note that the causes of these hospitalizations were represented, in order of greater frequency, by hypertension associated with pregnancy, followed by bleeding syndromes and infectious problems, and that ICU admission occurred predominantly in the postpartum period.

The mortality rate found in the studies is considerable compared to the literature on this type of patient. It is hoped that this data will serve as a subsidy for planning the allocation of physical and financial resources, as well as providing training for health professionals not only in the ICU, but also for initiatives that involve changes in the pregnancy care process (primary care), childbirth and puerperium, which may present some deficit in the management of such diseases.

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