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ORIGINAL ARTICLE

POTENTIALLY LIFE-THREATENING CONDITIONS DETERMINANTS IN PREGNANCY-PUERPERAL CYCLE

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ABSTRACT

Objective: To describe the main conditions potentially threatening the lives of women during the pregnancy and puerperal cycle and variables related to these diseases. **Method:** Documentary, descriptive and quantitative study, conducted with medical records of pregnant women, women giving birth and puerperal women hospitalized in a hospital of medium complexity, who presented Potentially Life Threatening Conditions (PLTC). Those with access unable to be *sob judice* were excluded. The sample was temporal and the analysis was univariate. **Results:** This includes 181 medical records. Most conditions occurred in women aged 16 to 34 years (61.3%), stable union (60.8%), brown (31.5%), without occupational income (29.2%), multiparous (28.87%), with complications in the first gestational trimester (32.6%). There was an insufficient number of consultations (13.8%), data regarding prenatal care ignored (68%). The main CPAV were hemorrhagic syndromes (28.2%), hypertensive (25.4%) and infection (13.3%). As an outcome, we observed a prevalence of unspecified miscarriage (22.1%), perinatal death from infectious and parasitic disease of the mother (2.2%). **Conclusion:** The main CPAV were hemorrhagic, hypertensive and infections syndromes. As an outcome, hospital discharge, miscarriage, ICU referral, perinatal death and maternal death were observed.

Keywords: Maternal Mortality. Maternal Health. Maternal Death. Pregnancy Complications. Obstetric Nursing.

INTRODUCTION

Maternal morbidity and mortality is an indicator of health that expresses the social, economic and quality of life conditions of people living in a given place, reflecting the social inequalities of a country[1]. The reduction in maternal mortality rates to 70 deaths per 100,000 live births (LB) by the year 2030 is one of the world's priorities and is among the goals of the Sustainable Development Goals (SDGs) and the 2030 Agenda of the United Nations (UN)[2].

Brazil has better numbers than those scaled by the SDGs targets, 50.1/100,000 LB, in 2018[3]. However, the problem is compounded in the country by issues of ethnic and regional disparity. In this sense, it is verified that the southern region has rates of 38.2/100 thousand LB while the north region has 80.8/100,000 LB in 2018.

This disparity persists in the historical series and, since 2009, the North region has shown numbers above 70/100,000 LB, with the highest percentage of maternal death in the country, where the highest rate was 93.6/100,000 LB, verified in 2014[3]. The World Health Organization (WHO) warns of parameters above 50/100,000 LB of maternal death; which inserts the northern region in alarming classification[2].

Although the rates are high, maternal death is rare when compared to individualized rates of service care, and morbid events precede death are more frequent. It is estimated that, for each maternal death, there are about 20 cases per 1,000 live births of severe maternal morbidity (SMM)[1,4].

Women who survive these morbid events have many aspects common to those who died of such complications[1]. Based on this observation, classifications were formulated to the maternal population in an evolutionary line of severe maternal morbidities (SMM)[4].

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Among the most severe conditions, some were classified with the nomenclature Potentially Life-Threatening Conditions (PLTC). These PLTC are associated with a higher risk of progression to severity and risk of life and were subdivided into hemorrhagic disorders, hypertensive disorders, other systemic disorders and management indicators[5,6].

Understanding the factors related to PLTC becomes an important data for understanding the evolution of a healthy pregnancy to maternal death, since this group of women is greater in absolute terms when compared to women who are victims of maternal mortality and surviving women can be sources of information[1,4-6]. This knowledge may help the effective decision-making in the care and guidelines of reproductive health policies and programs.

Due to these factors, this study is justified, since it is essential to the formulation of public policies to know the characteristics of morbid events that precede maternal death in the North region. Thus, the present study aimed to describe the main PLTC in the pregnancy-puerperal cycle and the variables related to these diseases in a hospital located in the extreme north of Brazil.

METHOD

This is a documentary, descriptive study with quantitative design. The study population consisted of all pregnant women, parturients and puerperal women hospitalized at the State Hospital of Oiapoque, located in the extreme north of the state of Amapá, during the period January 2015 to December 2016, who presented PLTC, according to the criteria established by the WHO[5]. This medium complexity hospital is the only institution that provides high-risk prenatal care and performs vaginal and surgical deliveries in the Brazilian border strip with French Guiana.

The sample was probabilistic for convenience, in which a total of 181 medical records from January 2015 to December 2016 were included in the study. It is believed that the collection period of two years represents the population attended in the institution over time and the conditions aggravated by diseases that present seasonality in the region.

Secondary data obtained from the medical records of pregnant women, parturients and puerperal women with up to 42 days postpartum were analyzed. Ineligible medical records were excluded, with access impossible because they were under the *sob judice*, in which the time limit would go beyond those established by this study.

A data collection instrument was developed by researchers containing variables based on WHO definitions of PLTC:

Sociodemographic data: Age, marital status, education, race/color, origin. Obstetric data: number of pregnancies, parity, history of miscarriage, history of cesarean section, number of living children, resolution of current pregnancy, number of prenatal visits, gestational age, perinatal outcome. PLTC: Severe preeclampsia, eclampsia, HELLP syndrome, sepsis, hemorrhagic syndromes during pregnancy, use of magnesium sulfate and transfusion of blood products, according to WHO criteria[5-6].

The data were analyzed descriptively and the analysis was univariate. The qualitative variables were presented in the form of distribution of absolute (n) and relative (%) frequencies; and for the quantitative variables, mean and median values, standard deviations, maximum and minimum values and confidence interval were calculated.

The project received the Guidelines and Research Standards Involving Human Beings of the National Health Council (CNS) and the Resolution of Conep 466/12, obtaining a favorable opinion of number (2,248,814) and CAAE 69868617.3.0000.0003, in 2017. The information collected in this study is guaranteed to be confidential of patients and professionals working at the institution, used solely and exclusively for scientific purposes.

RESULTS

During the period studied, there were 927 hospitalizations of women for obstetric motivation. Nine medical records were taken from the study composition because they were ineligible, totaling a sample of 918 medical records. Of the total number of visits, 181 hospitalizations were maternal PLTC, of which 59 corresponded to THE PLTC in the first

gestational trimester, 16 in the second trimester, 46 in the third trimester and 9 women in the puerperium.

Table 1 shows that most women were between 16 and 34 years of age (111/61.3%), the predominant marital status was stable union (110/60.8%). Regarding the color item, it is important to highlight the number of information deleted from medical records, in which the ignored information obtained the highest percentage (78/43.1%). Regarding their origin, most women did not live in the urban headquarters of the municipality of Oiapoque (109/60.3%). However, the high number of indigenous women (36/19.9%) who presented PLTC is highlighted. Women with a level of elementary education (97/53.6%) with no occupational income (53/29.2%) prevailed.

Table 1. Characterization of women who presented PLTC, according to HEO records (2015-2016).

Variables	Total Frequency (n=181)	% Total PLTC
Age grouup		
Under or aged 15	09	5%
16 - 34 years	111	61.3%
>35	60	33.1%
Ignored	1	0.6%
Marital status		
Married	5	2.8%
Single	30	16.5%
Stable union	110	60.8%
Ignored	36	19.9%
Color		
White	4	2.2%
Black	6	3.3%
Brown	57	31.5%
Indigenous	36	19.9%
Ignored	78	43.1%
Origin		
City headquarters	72	39.7%
Rural Settlement	9	5%
Indigenous Village	36	19.9%
Mining	9	5%
Passage	1	0.6%
Ignored	54	29.8%
Education		
None	6	3.3%
Elementary school	97	53.6%
High school	24	13.2%
Complete college	0	-
Incomplete college	4	2.2%
Ignored	50	27.6%
Occupation		
Paid	45	24.9%
Not paid	53	29.2%
Ignored	83	45.9%

Regarding obstetric data, PLTC were prevalent in the first trimester of pregnancy (59/32.6%), in poly-pregnant women (70/40.9%), without a history of miscarriage (58/32%), who did not have prenatal care (16/8.8%). Of those who underwent prenatal care, women who attended fewer than six consultations (25/13.8) prevailed. However, it is important to highlight that the number of prenatal consultations was the indicator that presented the highest amount of ignored data (123/68%). Regarding the type of delivery, it was found that the majority was vaginal delivery (75/60%), and in relation to the number, it was ignored data (76/42%), followed by primiparous women (41/22.7%).

Table 2. Characterization of obstetric data from women with PLTC (2015-2016).

Variable	Frequency	%
PLTC Moment		
1st trimester	59	32.6%
2nd trimester	16	8.8%
3rd trimester	46	25.4%
Puerperium	9	5%
Ignored	51	28.2%
Type of delivery (n=125)		
Vaginal	75	60%
Cesarean	50	40%
Ignored	-	-
Pregnancies		
None	31	17.1%
>1	74	40.9%
Ignored	76	42%
Deliveries		
None	12	6.6%
One	41	22.7%
Many	38	21%
Hugh many	14	7.7%
Ignored	76	42%
Miscarriage		
None	58	32%
>1	12	6.6%
>2	02	1.1%
>3	01	0.6%
Ignored	108	59.7%
Prenatal		
Not attended	16	8.8%
<6	25	13.8%
>6	17	9.4%
Ignored	123	68%

The predominant PLTC were hemorrhagic syndromes (51/28.2%) followed by hypertensive syndromes (46/25.4%). Also in this context, among the outcomes of PLTC, there were nine fetal deaths in the cohort period and one maternal death (1/0.6%) related to puerperal infection.

Regarding the outcome of PLTC, it is observed that puerperal infection was the only determining condition for maternal death (1/0.6%). Among the perinatal deaths, there was a relationship with maternal infections (4/2.2%). In this study, a considerable percentage of miscarriages was identified. However, most configure it as unspecified source (40/22.2%).

Table 3. Distribution of PLTC by obstetric causes (ICD 10) and their outcomes by type, in HEO (2015-2016). Oiapoque-AP.

Cause - ICD 10	**Frequency**	**%**
PLTC due to indirect obstetric causes		
Preexisting hypertension (O10)	11	6%
Complications in the puerperium (O98-O99)	9	5%
Malaria (O98.8)	3	1.7%
PLTC for direct obstetric causes		
Hypertensive syndromes in pregnancy (O11-O12-O13-O14-O15-O16)	46	25.4%
Infection in pregnancy and puerperium (O23-O85-O86-O90)	24	13.3%
Hemorrhagic Syndromes (O20-O06-O43-O44-O45-O72-O73-O75)	51	28.2%
Other causes (O41-O64-O65-P08-P95)	37	20.4%
TOTAL	181	100%
Outcomes by type		
Outcome Maternal Death		
PLTC due to indirect obstetric causes	1	0.6%
Preexisting hypertension (O10)		
Complications in the puerperium (O98-O99)	4	2.2%
Malaria (O98.8)	1	0.6%
PLTC for direct obstetric causes	2	1.1%
Hypertensive syndromes in pregnancy (O11-O12-O13-O14-O15-O16)	2	1.1%
Outcome Miscarriage		
Other maternal infectious and parasitic diseases complicating pregnancy, childbirth and the puerperium (O98.8)	2	1.1%
Unspecified miscarriage (O06.4)	40	22.1%
Abortion for medical and legal reasons - incomplete, complicated by infection of the genital tract or pelvic organs (O04.4)	2	1.1%
Outcome Referral to Intensive Care Unit		
Placenta previa (O44.1)	1	1.1%
Unspecified preeclampsia (O14)	1	1.1%
Outome	125	69%
Total	181	101*

* The outcome of perinatal death does not exclude other maternal outcomes, thus, data regarding outcomes may present a percentage above 100.

DISCUSSION

Sociodemographic factors can directly influence maternal and neonatal diseases, evaluating these data together with obstetric and epidemiological factors is necessary for the analysis of conditions potentially threatening life in the pregnancy-puerperal cycle.

The extremes of age are related to maternal risks, having as consequences neonatal complications, highlighting preterm delivery and low birth weight. Associations between the sociodemographic profile with pre-existing clinical conditions, obstetric history and clinical complications in high-risk pregnancy are also identified[7-8].

In addition, it is noteworthy that the prevalence of SMM is high among women who experience contexts of vulnerability and inversely proportional to the Human Development Index (HDI)[1,9-10].

Recent evidence regarding race/color inequities present in the labor and birth processes has shown that indigenous women are more likely to develop SMM than white and black women in the pregnancy-puerperal cycle[9-10]. The place of residence or origin and the pilgrimage in search of hospital care are associated with the development of SMM in women living in the Legal Amazon and in the Northeast of Brazil[10].

In this sense, there is a precarious dimension of access to health services, especially in places far from the urban area. Moreover, it is worth noting that in many municipalities in the northern region considered an urban area, such as Oiapoque, they are far from the nearest Intensive Care Unit, which is located 590 km away, in the capital Macapá-AP[11], with scarcity of ambulances and restricted air access.

In Brazil, one of the main components related to delays is the delay for referral to a health service of greater complexity[1,12]. The Stork Network approaches this component as a priority, the intention is for women to be quickly referred to avoiding their pilgrimage through the network[13].

It is known that the interval between the onset of severe obstetric complications and death is estimated to be two to six hours for postpartum hemorrhages. Thus, the literature shows that obstetric facilities should not be located more than 20 km from ICU centers and that smaller maternity hospitals should be avoided because they have worse perinatal outcomes[1]. Thus, the territorial strip and the extensive Amazon hydrographic basin, added to the low demographic density of the region, become possible barriers to adequate access to services, requiring strategies that allow rapid access to timely treatment.

Another component of these delays and complications observed in the literature is the difficulty of identification and decision-making for appropriate treatment by health professionals when these women are able to reach the level of service complexity compatible with the morbid event[1,6,11-12].

In this respect, the literature has found a lower adequacy and worse performance of prenatal coverage and care in the Amazon Region, visualized by late compliance, absence of tests and the number of consultations lower than the six recommended by the Ministry of Health[11,14]. In addition, precarious health service structures, inadequate human resources and other barriers to access are observed, either due to environmental, financial conditions or the disorganization of health services[11,14].

In the present study, there were also flaws and inadequacies in filling out medical records, with many data ignored. Data on prenatal care, history of miscarriages and work occupation of women were alarmingly ignored. Thus, it is urgent to identify the factors associated with the proper non-completion of research forms, medical records and other documents related to patient data, since information about the social and epidemiological antecedents of these women is of fundamental importance to generate evidence and support the processes of formulation of guidelines and evaluation of reproductive health policies.

Local committees for the investigation of maternal deaths are important initiatives to identify determinant factors of these deaths[1]. The analytical teams of the committees perform preventive work, focusing on the continuing education of professionals, management and integration between services[15]. However, the state of Amapá does not have a maternal death investigation committee in place.

In the present study, it was also verified that the PLTC occurred mainly in the first gestational trimester and the main cause was miscarriage. Unsafe miscarriage is one of the main causes of maternal mortality in Brazil[3]. The reduction in the number of unsafe miscarriages could occur through improved access to reproductive planning that meets personal demands, respecting cultural and religious differences, increasing the use of methods of prolonged action[1], a decline in the fertility rate and a expansion of jurisprudence in cases of legal miscarriages provided for by law[1].

It was also found that the percentage of cesarean surgeries was higher than that recommended by the WHO. Since 1985, the WHO recommends that cesarean sections above 10 to 15% of all deliveries performed have no evidence of benefits[16]. However, in this study, a high number of cesarean sections may have been visualized, as well as women who presented PLTC, as well as the PLTC may be related to the high number of cesarean sections performed. The study of indications of cesarean sections in the region should be further studied for further evidence on this aspect.

Hemorrhagic and hypertensive syndromes were the main PLTC identified. These disorders are the main conditions that contribute to SMM in low- and middle-income countries[1]. These trends converge with the trend of causes of maternal mortality[1,12], emphasizing the importance of studies on SMM.

Regarding the outcomes, it was observed that, both for maternal mortality and perinatal mortality, direct obstetric causes prevailed, with diagnoses related to hypertensive syndromes, hemorrhagic syndromes and infection during the pregnancy-puerperal cycle[17-20]. In a recent systematic review of the literature, it was observed that women in cesarean section are three times more likely to die maternally and to acquire postpartum infection[17].

Maternal deaths from infection occur on average within six days and premature amniorrexis is largely related to postpartum infection and neonatal infection[21-22]. Hypertensive, hemorrhagic diseases and infections have been listed as risk factors for fetal mortality and can lead to premature birth and neonatal mortality[17-20].

In a recent study in the United Kingdom, it is also verified that the analyses of stillborn and neonatal deaths found that about 80% of these deaths could have been prevented if there were improvements in maternal care[22]. Thus, the decrease in avoidable SMM contributes not only to the decrease in maternal death, but can also contribute to the improvement of quality of life and to the reduction of perinatal mortality[6,23].

It is noteworthy that maternal safety is also influenced by factors related to the physical structure of maternity hospitals, training of human resources, as well as care protocols, thus reinforcing the importance of new studies evaluating these aspects[24,25].

Limitations: Data were ignored in several aspects of the study about women who experienced PLTC, which hinder analyses with reasonable margin of safety and compromise the accuracy of the results found, especially data regarding prenatal performance, history of miscarriage and occupation of these women. It is note that retrospective studies have limitations regarding the evidence on cause-effect.

Regarding contributions to nursing, it is noteworthy that the data indicate conditions that should be managed during prenatal care in order to ensure good maternal and perinatal outcomes in the context of the Franco-Brazilian Amazon and in the north. Thus, new studies that seek to evaluate the quality of prenatal care in this specific region are essential.

CONCLUSION

The present study showed that the women who presented PLTC in the referred hospital were young, most of them with stable, brown and indigenous union, without occupational income. Multiparous were prevalent, in addition to complications in the first trimester of pregnancy.

Access to prenatal care was precarious, some women did not have prenatal care, others had insufficient consultations. Data on prenatal care, history of miscarriages and work occupation of women were alarmingly ignored. The importance of the implementation of local committees for the investigation of maternal death and the training of professionals is emphasized.

Vaginal delivery was prevalent; however, the cesarean route had a higher incidence than that recommended by the WHO. The main PLTC were hemorrhagic, hypertensive and infection syndromes. As an outcome of The PLTC, hospital discharge, miscarriage, ICU referral, perinatal death and maternal death were observed.

CONDIÇÕES POTENCIALMENTE AMEAÇADORAS À VIDA NO CICLO GRAVÍDICO-PUERPERAL

RESUMO

Objetivo: Descrever as principais condições potencialmente ameaçadoras à vida de mulheres durante o ciclo gravídico e puerperal e variáveis relacionadas a esses agravos. **Método:** Estudo do tipo documental, descritivo e quantitativo, realizado com prontuários de gestantes, parturientes e puérperas internadas em hospital de média complexidade, que apresentaram Condições Potencialmente Ameaçadoras à Vida (CPAV). Foram excluídos os de acesso impossibilitado por estarem sob judice. A amostra foi temporal e a análise univariada. **Resultados:** Inclui-se 181 prontuários. A maioria das condições ocorreu em mulheres de 16 a 34 anos de idade (61,3%), união estável (60,8%), pardas (31,5%), sem renda ocupacional (29,2%), multíparas (28,87%), com complicações no primeiro trimestre gestacional (32,6%). Verificaram-se a realização de um número insuficiente de consultas (13,8%), dados referentes ao pré-natal ignorados (68%). As principais CPAV foram as síndromes hemorrágicas (28,2%), hipertensivas (25,4%) e infecção (13,3%). Como desfecho, foram observados prevalência de aborto não especificado (22,1%), morte perinatal por doença infecciosa e parasitária da mãe (2,2%). **Conclusão:** As principais CPAV foram as síndromes hemorrágicas, hipertensivas e infecções. Como desfecho, foram observados alta hospitalar, aborto, referenciamento à UTI, morte perinatal e morte materna.

Palavras-chave: Mortalidade materna. Saúde materna. Morte materna. Complicações na gravidez. Enfermagem Obstétrica.

CONDICIONES POTENCIALMENTE AMENAZANTES PARA LA VIDA EN EL CICLO GRAVÍDICO PUERPERAL

RESUMEN

Objetivo: describir las principales condiciones potencialmente amenazantes para la vida de las mujeres durante el ciclo gravídico y puerperal, además de las variables relacionadas con estos agravios. **Método**: estudio del tipo documental, descriptivo y cuantitativo, realizado con registros médicos de gestantes, parturientes y puérperas internadas en hospital de mediana complejidad, que presentaron Condiciones Potencialmente Amenazantes a la Vida (CPAV). Se excluyeron los de acceso imposibilitado por estar bajo juicio. La muestra fue temporal y el análisis univariado. **Resultados**: se incluyen 181 registros médicos. La mayoría de las condiciones ocurrió en mujeres de 16 a 34 años de edad (61,3%), unión estable (60,8%), pardas (31,5%), sin ingreso ocupacional (29,2%), multíparas (28,87%), con complicaciones en el primer trimestre gestacional (32,6%). Se constató un número insuficiente de consultas (13,8 %), datos relativos al prenatal ignorados (68 %). Las principales CPAV fueron los trastornos hemorrágicos (28,2%), hipertensivos (25,4%) e infecciosos (13,3%). Como resultado, se observaron: prevalencia de aborto no especificado (22,1%), muerte perinatal por enfermedad infecciosa y parasitaria de la madre (2,2%). **Conclusión**: las principales CPAV fueron los trastornos hemorrágicos, hipertensivos e infecciones. Como resultado, se observó alta hospitalaria, aborto, referencia a la UCI, muerte perinatal y muerte materna.

Palabras clave: Mortalidad materna. Salud materna. Muerte materna. Complicaciones en el embarazo. Enfermería Obstétrica.

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