



MATERNAL-PERINATAL COMPLICATIONS IN HIGH RISK PREGNANCY
COMPLICAÇÕES MATERNO-PERINATAIS EM GESTAÇÃO DE ALTO RISCO
COMPLICACIONES MATERNO-PERINATALES EN GESTACIÓN DE ALTO RIESGO

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ABSTRACT

Objective: to identify the prevalence of maternal-perinatal complications during high-risk pregnancy. **Method:** this is an exploratory-descriptive study with a quantitative, prospective, cross-sectional approach performed through the analysis of the data of records of pregnant women and their NBs assisted at two reference centers for high-risk prenatal care. **Results:** there were 43 medical records analyzed. It was found that overweight/obesity (20.9%) was the most prevalent maternal complication, related to excess weight gain in pregnancy and directly associated with fetal macrosomia (18.6%). **Conclusion:** the study allowed to identify the most prevalent maternal-perinatal complication, as well as the associated factors, showing the need for more efficient nutritional monitoring in pregnancy to minimize unfavorable future outcomes. **Descriptors:** High-Risk Pregnancy; Pregnancy Complications; Perinatal Care.

RESUMO

Objetivo: identificar a prevalência das complicações materno-perinatais em gestação de alto risco. **Método:** estudo exploratório-descritivo, com abordagem quantitativa, prospectivo, transversal, realizado por meio da análise dos dados de prontuários de gestantes e seus respectivos recém-nascidos, atendidos em dois centros de referência para pré-natal de alto risco. **Resultados:** foram analisados 43 prontuários. Constatou-se que o sobrepeso/obesidade (20,9%) foi a complicação materna mais prevalente, estando relacionada com o ganho ponderal excessivo na gravidez e diretamente associada com macrosomia fetal (18,6%). **Conclusão:** o estudo permitiu identificar a complicação materno-perinatal mais prevalente, assim como os fatores associados, a qual mostra a necessidade de acompanhamento nutricional mais eficiente na gestação a fim de minimizar futuros desfechos desfavoráveis. **Descritores:** Gravidez de Alto Risco; Complicações na Gravidez; Assistência Perinatal.

RESUMEN

Objetivo: identificar la prevalencia de las complicaciones materno-perinatales en gestación de alto riesgo. **Método:** estudio exploratorio-descriptivo, con enfoque cuantitativo, prospectivo, transversal, realizado por medio del análisis de los datos de prontuarios de gestantes y sus respectivos RNs, atendidos en dos centros de referencia para prenatal de alto riesgo. **Resultados:** fueron analizados 43 prontuarios. Se constató que el sobrepeso/obesidad (20,9%) fue la complicación materna más prevalente, está relacionada con el gano ponderal exceso en el embarazo y directamente asociado con macrosomia fetal (18,6%). **Conclusión:** el estudio permitió identificar la complicación maternas-perinatales más prevalentes, así como los factores asociados, en la cual muestra la necesidad de acompañamiento nutricional más eficiente en la gestación, con o intuito de minimizar futuros desfechos desfavorables. **Descriptores:** Embarazo de Alto Riesgo; Complicaciones en el Embarazo; Asistencia Perinatal.

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INTRODUCTION

Gestation is a physiological process. In some situations, there are problems during the pregnancy period putting at risk the health of the mother and the fetus, the so-called high-risk pregnancy. It often results in maternal death, and maternal death is considered one of the indicators of human development in a country.¹

High-risk pregnancies can be diagnosed early in prenatal consultations, considering the various risk factors categorized in individual characteristics and unfavorable sociodemographic conditions, previous reproductive history, obstetric illness in the current pregnancy, and clinical intercurrents, requiring more specialized techniques.² This classification is important so these risks, and direct adequate assistance capable of obtaining satisfactory results for the mother-child binomial can be identified early.

Maternal and perinatal morbidity and mortality rates are still very high in Brazil and are directly associated with maternal complications during pregnancy, childbirth and the puerperium. The access to good quality, humanized health care would prevent many women from losing their lives for reproductive reasons.³ The World Health Organization estimates that 1,000 women worldwide die of complications from pregnancy or childbirth every day.⁴ Currently, in the country, 70 to 150 women die every 100,000 for some related causes of gestation and delivery, and its main causes are complications during pregnancy, delivery and puerperium, such as gestational hypertension, complications of labor, puerperal infection, abortion and others due to indirect obstetric causes.²

In Maranhão (MA), Brazil, the maternal mortality ratio was 74.31 per 100,000 live births, with a predominance of causes grouped into a single group: edema, proteinuria and hypertensive disorders in pregnancy, childbirth, and puerperium. The complications of labor and delivery come in second place with a percentage of 13.8%.⁵ The city of Caxias - MA, according to data from the Department of Informatics of the National Health System (DATASUS), registered, in absolute numbers, ten maternal deaths in the period of 2009 to 2013.⁶

It is essential to guarantee women the right to follow-up from the beginning of pregnancy to the birth of the child, through prenatal and puerperium, and to receive and provide quality assistance both in care Outpatient

care and high-risk hospital care to improve obstetric care in the country.³

In this sense, public policies have been implemented in Brazil to improve prenatal care and access to pregnant women to childbirth and quality care.⁷ Currently, prenatal care has historically occupied a relevant space in maternal health care, organized in a hierarchical way and integrating all levels of care, comprising a set of activities to promote the health of pregnant women and their newborns, which is concerned with the monitoring and control of gestational risk factors.

In this context, with the understanding that complications can occur during pregnancy that affects the mother and the fetus drastically, the early identification of risk factors and prevention of these diseases can reduce the high rates of maternal mortality, and it is still a health challenge throughout the country. Thus, the objective was:

- To identify the prevalence of maternal-perinatal complications during high-risk pregnancies.

METHOD

This is a prospective, cross-sectional, exploratory-descriptive study with a quantitative approach carried out in the city of Caxias (MA), located in the mesoregion of eastern Maranhão, about 354 km from the capital city of São Luís, Brazil. The municipality consists of two reference institutions for high-risk gestation follow-up, the Center for Maternal and Child Care Specialties (CEAMI) and Carmosina Coutinho Maternity (MCC).

The sample consisted of 43 high-risk pregnant women followed by reference centers from May to November 2014, according to inclusion and exclusion criteria. The inclusion criteria were pregnant from the 20th week of gestation, in any age group, living in the city of Caxias - MA in which they were accompanied by high-risk prenatal care by MCC and CEAMI. Pregnant women with low risk and normal risk, less than 20 weeks of gestation, from other municipalities, who were not followed up by the MCC and CEAMI, with unexplained deliveries at the MCC (birth at home or in transit) and/or lack of records were excluded.

The data collection was performed by filling two forms previously constructed applied in the medical records. The first instrument was used to record the prenatal care and the woman's medical records, and the second was applied to the NB medical

record. Maternal data were sociodemographic characteristics (age, education, occupation, marital status, and race), history of personal and reproductive antecedents, current obstetric conditions and complications of labor and birth. Regarding NB conditions, birth weight, adequate for GA and NB interurrences were evaluated. NBs with birth weight>4,000g or GAG (> P90 Weight curve/gestational age) were considered as fetal macrosomia.

The data were entered in a database in the program Epi-Info version 3.5.3 (Centers for Disease Control and Prevention, Atlanta, GA, USA). The SPSS program, version 20.0 (SPSS Inc, using descriptive statistics, using of tables and graphs, being the data resulting from the quantitative variables presented as

percentages. This study was approved by the Research Ethics Committee of the University Hospital of the Federal University of Maranhão (HUUFMA), in the city of São Luís - MA receiving approval opinion with the number 566,348 and CAAE number: 26415914.3.0000.5086.

RESULTS

As shown in Table 1, most pregnant women were between 21 and 30 years old (60.5%) and 27.6% were in advanced age (31-40 years). Regarding color, 86% are brown. Women without partners (unmarried) totaled 39.5%. Analyzing the level of education, it was verified that 48.8% finished high school. Regarding the occupation, 62.8% are domestic servant.

Table 1. Socio-demographic characteristics of high-risk pregnant women attended at MCC and CEAMI. Caxias (MA), Brazil, 2014.

Socio-demographic characteristics	N	%
Age		
Younger than 15 years old	2	4.7
15 to 17 years old	2	4.7
18 to 20 years old	1	2.3
21 to 30 years old	26	60.5
31 to 40 years old	12	27.9
Skin Color		
White	5	11.6
Brown	37	86
Black	1	2.3
Level of education		
Incomplete Elementary School	8	18.6
Complete Elementary School	5	11.6
Incomplete High School	2	4.7
Complete High School	23	53.5
Higher Education	4	9.3
Illiterate	1	2.3
Marital Status		
Married	15	34.9
Single	17	39.5
Stable Union	11	25.6
Occupation		
Housewife	27	62.8
Working outside the home	16	37.2
Total	43	100%

As for the personal history, 6 (14%) had Rh factor, 3 (7%) had arterial hypertension, 3 (7%) had gynecopathies (uterine myomatosa, septate uterus), 2 (4.7%) had mental disorder, and the other had STDs, nephropathies, obesity, epilepsy, umbilical hernia, hypothyroidism, SLE, anemia, and bartholinitis, 1 case (2.3%) for each complication.

Regarding gestational history, 26 (60.5%) were multiparous, and 17 (39.5%) were nulliparous. The history of abortion was verified in 11 (25.6%) of the women, while 8 (18.6) had a previous cesarean section, 4 (9.3%) had a history of stillbirth and specific hypertensive syndrome of gestation, each.

The number of pregnancies ranged from 2 to 4 gestations among 27 (62.8%) of the women, 4 (9.3) over five pregnancies, while 12 (27.9%) were primigravidae. At prenatal follow-up, 69.8% (30) of the mothers performed prenatal care effectively, that is, equal or above six visits.

The main complications during pregnancy are shown in Table 2 since they were not mutually exclusive pathologies, there was a pregnant woman who had more than one complication classified as high risk. The most prevalent maternal complication was overweight/obesity (18.6%), followed by the threat of abortion and bacterial vaginosis, with 16.3% each.

Table 2. Complications in the current gestation of high-risk pregnant women assisted at the Carmosina Coutinho Maternity. Caxias (MA), Brazil, 2014.

Complications in the current gestation	n	%
Overweight / Obesity	9	20.9
Threat of abortion	7	16.3
Bacterial vaginosis	7	16.3
Hypertensive gestation syndrome	5	11.6
STD infection (syphilis; HPV)	5	11.6
Urinary infection	4	9.3
Severe anemia	2	4.7
Premature placental abruption	2	4.7
Placenta previa	1	2.3
Gestational diabetes	1	2.3
Cytomegalovirus	1	2.3
Depression	1	2.3
Hepatic steatosis	1	2.3
Polyhydramnios	1	2.3
Sub coronial hematoma	1	2.3
Sexual violence	1	2.3

In the analysis of the type of delivery, it is worth noting the high prevalence of cesarean delivery 29 (67.4%) while 14 (32.6%) were vaginal. There was an association between a high rate of cesarean section in primiparous women (p=0.01). The main intercurrentence in labor and delivery was interactivity with 6 (14%), oligohydramnios with 6 (14%), DCP with

3 (7%), dystocia with 3 (7%), premature amniorrhexis with 2 (4.7%), postpartum haemorrhage with 1 (2.3%), fetal death with 1 (2.3%), pelvic presentation with 1 (2.3%), eclampsia with 1 (2.3%), preterm delivery with 1 (2.3%) (figure 1). Among these intercurrentences, an ICU hospitalization occurred due to eclampsia.

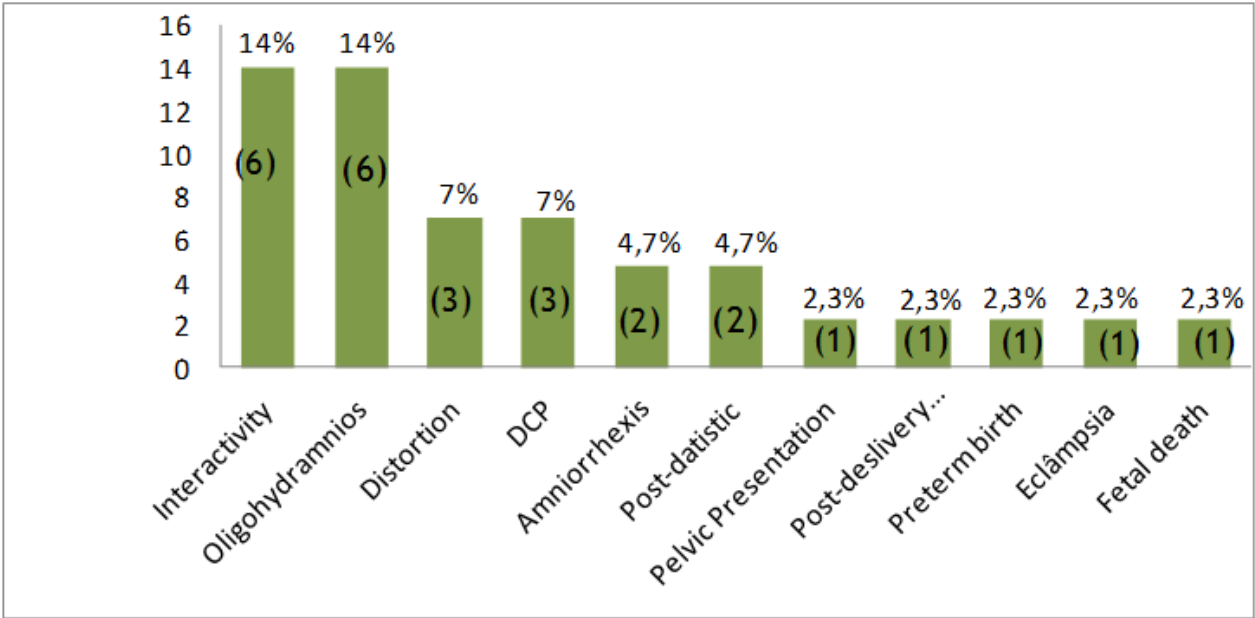


Figure 1. Distribution between the intercurrentences of labor and birth. Caxias (MA), Brazil, 2014.

As for newborns, 15 had complications (Figure 2), in which the prevalence of fetal macrosomia was observed in 6 (18.6%) of the newborns, IUGR with 4 (9.3%), fetal maturity with 2 (4.7%), fetal death with 1 (2.3%).

Among the perinatal complications found, it was observed that 4.7% of infants needed hospitalatón in neonatal ICU, due to respiratory insufficiency and neonatal infection.

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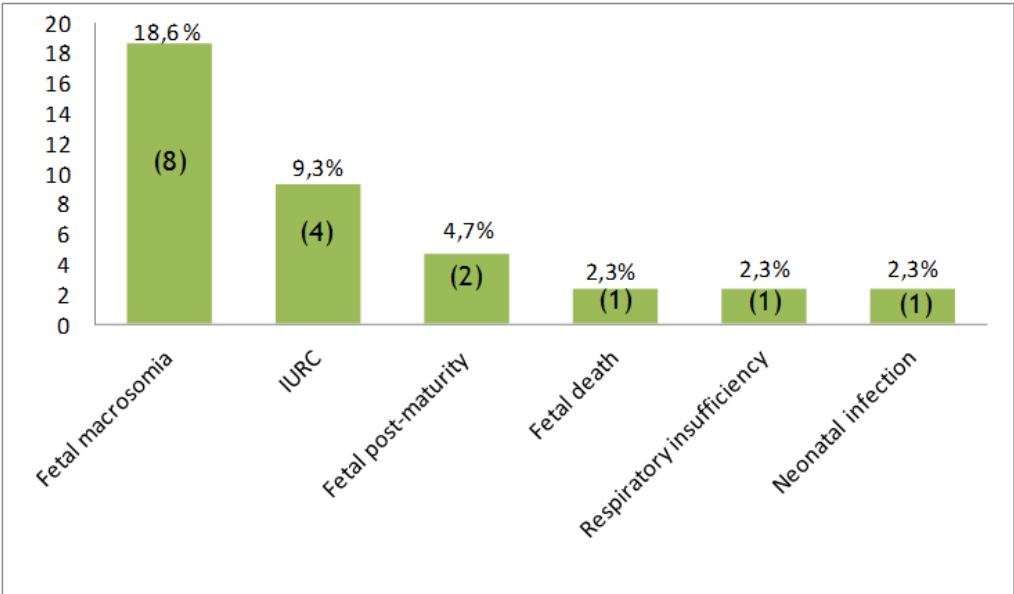


Figure 2. Distribuição quanto à prevalência de complicações perinatais. Caxias (MA), Brasil, 2014.

Confronting the maternal complications in the current gestation with the perinatal complications, it was not possible to verify an association between them. However, the pregnant women considered to be overweight/obese were more likely to have macrosomic infants, as shown in Table 3.

Table 3. Frequency of maternal complication according to fetal macrosomia. Caxias (MA), Brazil, 2014.

Variable	Fetal Macrosomia				p-value
	Yes		No		
	n	%	n	%	
Overweight/Obesity	3	33.3	6	66.7	0.34
Urinary infection	2	50	2	50	0.22
STD infection	2	40	3	60	0.37
Hypertensive syndrome	1	20	4	80	0.80
Gestational diabetes	1	100	0	-	0.10

DISCUSSION

This study identified the most frequent maternal-perinatal complications in high-risk gestation in the city of Caxias (MA), Brazil. Regarding the age of these women, a higher occurrence of high-risk pregnancies was observed in young women (21 to 30 years old), compatible with reproductive age. It is worth mentioning the incidence of pregnant women in advanced age (27.9%). The Ministry of Health considers maternal age greater than 35 years old as a risk factor for gestational age.² Women with advanced age, compared to adult women and adolescents, had a higher risk of cesarean delivery, pre-eclampsia, diabetes and premature rupture of membranes and with fetus prognosis with an Apgar score lower than 7 in the fifth minute, stillbirth and congenital anomalies.⁸

Concerning the marital situation, a significant number of pregnant women who did not have partners (39.5%) were identified. It is taken into consideration that the insecure marital situation is an aggravating maternal health and according to the Ministry of Health is considered with the gestational risk factor. Even more important, if there are high-risk pregnant women who are more susceptible to

emotional imbalance, in the absence of the paternal figure, it can trigger emotional crises and a pathological outcome. In a study carried out with 100 pregnant women about the perception and feelings of the experience of risk pregnancy, it was verified that the involvement of the paternal figure in the high-risk pregnancy in which, among the so-called single women, the feelings of concern were observed and anxiety about motherhood.⁹

Among the personal history, the Rh factor was found in 6 (14%) women. It is known that maternal-fetal incompatibility is responsible for causing perinatal hemolytic disease. If the pregnant woman in negative Rh- and indirect Coombs (CI), they should be informed about the blood incompatibility with their partners by requesting the ABO-Rh examination of these individuals. If the partner is Rh+ or unknown, it is necessary to perform the CI monthly, and if the partner maintains negative, they should be immunized with anti-Rh D immunoglobulin intramuscularly at the 28th week and the first 72h postpartum or up to 28 days.¹⁰

The fact that aroused attention was the women not sensitized in this study received the immunization only in the postpartum period. This implies a lack of knowledge by

health professionals about the administration of immunoglobulin in prenatal care, as seen in the study carried out in Rio Grande do Norte on the knowledge of doctors and nurses about the importance of using the anti-Rh vaccine during prenatal care in pregnant women with Rh negative, showed that these professionals do not have knowledge about the administration of the anti-Rh vaccine during the prenatal period.¹¹ Antenatal prophylaxis reduces the rate of sensitization during pregnancy to 0.2%.¹²

Regarding the obstetric profile, 69.8% (30) of the mothers performed prenatal care effectively, that is, equal or above six visits. Similar data were found in a study that sought to trace the profile of women from a high-risk public maternity hospital in the city of Curitiba, whose most of women performed 7 or more prenatal consultations.¹³ It is known that adequate prenatal care has an important role in the perinatal outcome, reflecting the decrease in the perinatal morbidity and mortality index.

Regarding the number of pregnancies, 27 (62.8%) were in the second to fourth gestation. It is relevant to know this characteristic since women with high numbers of pregnancies present a high risk of maternal morbidity and mortality due to the number of pregnancies. Regarding parity, 26 (60.5%) were multiparous, and 17 (39.5%) were nulliparous. Data like those found in socio-demographic and obstetrical profile studies of high-risk pregnant women, where nulliparity predominated among women.¹⁴⁻⁵ It is important to consider the parity factor, since they may be associated with gestational complications. The incidence of SHG is more common in nulliparous women.¹⁶

It was found that the prevalence of the complication of the women in this study with overweight/obesity, is similar to other studies. In the study carried out in Rio de Janeiro on the obstetric results of overweight and obese pregnant women in a maternity hospital, the prevalence of obesity/overweight was 24.5% (n=106).¹⁷

According to WHO criteria, adequate weight is when BMI is between 18.5 to 24.9, overweight between 25 and 29.9 and obesity when BMI is >30 kg/m².¹⁸ Obesity is related to numerous complications in pregnancy. For this, the weight gain in pregnancy in round numbers is 11 to 16 kg for normal women, 7 to 11 kg for those overweight and less than 7 kg for obese women.¹²

An important aspect is that the overweight/obesity found in the study is related to excessive weight gain. Studies with

a nutritional assessment design for high-risk pregnant women found that the overweight/obese group presented a higher proportion of excessive weight gain (p<0.001), which also reinforces the alert of excessive gain of maternal weight as a result of the risk of complications in the pre-eclampsia, DG, and cesarean section, which increase according to the BMI level, especially to women who reach the range that characterizes obesity.¹⁹

Maternal obesity predisposes women to complications in the pregnancy-puerperal cycle and increases the need for obstetric interventions. The nutritional monitoring and evaluation of weight gain in pregnancy contribute to the reduction of this impact, positively, in the gestational repercussion and its outcome. Groups with higher BMI (overweight and obesity) are more likely to have complications at delivery (cesarean section and large bleeding) and maternal complications (gestational diabetes and hypertensive syndrome). Higher odds of perinatal complications (low Apgar score at the first minute and macrosomia).²⁰ The finding of a study carried out in São Paulo, which verified the association of overweight/obesity as clinical complications such as hypertension, diabetes and heart disease, besides unfavorable fetal outcome and infectious processes in the puerperium.¹⁹

Regarding the type of delivery, it is worth mentioning the high prevalence of cesarean section (64.7%). Based on the rate of cesarean sections advocated by the WHO (up to 15% of the general population and 30% of pregnancies with complications), the rates recorded in this study are quite high. In a study carried out in Minas Gerais, the rate of cesarean section (38.3%) had a significant influence on gestational risk, with 57.8% in high-risk and 23.7% in low-risk pregnancies.²¹ The increase in cesarean rates in the country is an important aspect in the management of high-risk pregnancies, but high-risk pregnancy is not synonymous with cesarean section. In obstetrical practice, the use of partograph is used to monitor the evolution of labor providing subsidies for the choice of the way of delivery. In the study institution, the document is little used, triggered the high unnecessary numbers of cesarean delivery.

Several strategies are directed at health professionals to reduce unnecessary caesarean sections, including the use of evidence-based protocols and flowchart, but even if the Ministry of Health, WHO or federal societies produce updated materials to guide this clinical practice, the problem is health

professionals do not have the time for reading and even lack of interest in updating.²²

There was an association between a high cesarean rate in primiparous women ($p=0.01$), and they are particularly worrying because they imply a high probability of future cesarean sections, since, in practice, a previous cesarean section is an almost absolute indication for a new cesarean section, justifying the saying “once cesarean section, always cesarean section.”

Among the intercurrents in labor and birth, interactivity was predominant. It refers to interactivity when the woman has a GA at term but has little or no uterine contraction sufficient for labor, which is the most common indication for cesarean delivery in the institution. Only one of the women was referred to the ICU with an initial diagnosis of eclampsia. The finding corroborates the authors’ statement when mentioning that the most frequent causes of hospitalization of an obstetric patient in the ICU are related to hypertensive syndrome during pregnancy.²³⁻⁴ There was no significant association between maternal complications in the current gestation and the more prevalent perinatal complications. However, pregnant women considered to be overweight/obese were more likely to have macrosomic infants, as shown in Table 3. In a cross-sectional cohort study performed in the state of Paraíba, a frequency of macrosomia of 5.4% was found, and the associated risk factors were overweight/obesity, excessive weight gain, hypertension, impaired glucose in the case of gestational diabetes, and cesarean section.²⁵

The weight of the newborn is influenced by BMI and gestational weight gain, and the higher the BMI at the beginning of gestation and the gestational weight gain, the greater the risk of macrosomia.²⁶ Therefore, it is evident that fetal macrosomia is directly associated with maternal weight, that is, the higher the maternal BMI, the lower the risk of low birth weight and the greater the risk of macrosomia.

Among the perinatal complications found, it was observed that 4.7% of infants needed hospitalization in neonatal ICU, due to respiratory insufficiency and neonatal infection.

CONCLUSION

The study allowed to identify the most prevalent maternal-perinatal complication, as well as the associated factors. It was found that among the maternal complications most involved in high-risk pregnancy, overweight/obesity was more prevalent, and these women had a higher risk of having newborns with fetal macrosomia. The

prevalence of obesity is increasing in our country, regardless of age, socioeconomic factors, or race, reflected in the rates of overweight/maternal obesity found in our study, related to excess weight in pregnancy. This shows the need for more efficient nutritional monitoring with weight gain in high-risk pregnancies to minimize negative consequences for the maternal-fetal binomial.

There was a predominance of the type of cesarean delivery, with indices higher than recommended. Currently, with the concern of high cesarean rates in the country, the Ministry of Health has been adopting strategies to encourage normal birth and reduce unnecessary cesarean section. The study identified that the main intercurrent in labor and delivery was interactivity, which is also the most common cause of cesarean indication in the institution, this information was not found in the literature. The reduction of cesarean delivery is a potential indicator of quality improvement, not bringing additional health benefits and can further increase maternal risks, generating implications for future pregnancies, and cost health services. The results found in this study may provide subsidies for the improvement of criteria for indication of cesarean section. Careful monitoring of the fetal condition during labor, especially in pregnancies older than 40 weeks, may decrease the likelihood of cesarean delivery.

It is expected that the study will lead to improved diabetes in the case of gestational diabetes, to these patients who receive more attention to enable qualified and appropriate assistance to women with high gestational risk. It is indispensable to use obstetrical protocols and procedures recommended by the institution to systematize care, enabling the screening and early diagnosis of pregnancy complications, allowing early and effective therapy to be established earlier.

Also, it is necessary that studies be carried out periodically, so other diseases can be identified in isolation and their associated risk factors, allowing health professionals, especially nurses, to adopt strategies to minimize these complications experienced by the mother during pregnancy and direct preventive actions, resulting in the reduction of the complications to which these patients are submitted.

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