Research Article

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Obstetric complications in gestants with pregestational obesity treated at the Sergio e. Bernales Hospital, Comas, August 2017 - February 2018

Summary

Objective: To determine the obstetric complications in pregnant women with pregestational obesity treated at the Sergio E. Bernales Hospital, August 2017 - February 2018.

Material and methods: A descriptive, comparative, cross-sectional and retrospective study was carried out. The population consisted of 3016 pregnant women attended delivery, the sample consisting of 340 pregnant women within which 22.1% (35) were pregnant women who began pregnancy with obesity were compared with 77.9% (123) pregnant women who did not start pregnancy with obesity. The data of all pregnant women attended were taken from the review of Clinical Histories and from the birth record book of the Sergio E. Bernales Hospital.

Results: In this research work the main results in the case of weight gain the category of excessive we found that 65.7% (23) of pregnant women presented pre-pregnancy obesity and on the other hand the category of adequate represented 39.8% (49) of the pregnant women who did not present pregestational obesity, the other categories of this group being below 30%; being thus associated with pre-pregnancy obesity (p = 0.00). Pregestational obesity and obstetric complications do not have a relationship as in the cases of Preeclampsia (p = 0.944), Fetal Macrosomia (p = 0.805), Perineal tear (p = 0.255), Oligohydramnios (p = 0.906), Caesarean section (p = 0.119)).

Conclusion: A statistically significant association was found in an obstetric factor of maternal weight gain and pre-pregnancy obesity (p <0.05).

Keywords: obstetric complications, pre-pregnancy obesity, maternal weight

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Introduction

The number of women with obesity has been increasing in a large percentage worldwide in recent years, generating a higher incidence of cases that increases morbidity and mortality in patients, affecting the family and community; Every day there are a number of women who start their pregnancy with excessive nutritional disorders, affecting maternal and perinatal health.[1]

Overweight according to the WHO is defined as "abnormal or excessive accumulation of fat that can be harmful to health".[2] The body mass index (BMI) is an indicator obtained from the relationship between weight and height squared that is used to identify overweight in adults. It is considered overweight with a BMI between 25 - 29.9 kg/m²; on the other hand, the WHO defines obesity "energy imbalance between calories consumed and expended causing excessive accumulation of fat harmful to health". This is divided into three types: type I obesity: 30 - 34.9kg/m2, type II obesity: 35 - 39.9kg/m2 and type III obesity: ≥ 40 kg/m².[3]

In Peru, according to the Ministry of Health (MINSA), women with obesity of childbearing age went from 43% in 1996 to 51% in 2011, this figure is important since before pregnancy the weight gain of women is seen in childbearing age, reaching pregnancy with obesity and obstetric complications may occur.[1] ENDES 2015 announced

that people aged 15 and over have an average BMI = 26.2, that is, an overweight population; this index is higher in women than in men.[4]

INEI In 2016 it indicated that 38.6% of the population aged 15 and over is overweight and 22.4% obese in urban areas. According to ENDES 2016, 29.7% of the population aged 15 and over is overweight and 10.8% obese in rural areas. Overweight affects the population of the Coast more, finding a higher percentage of overweight in the departments of said region such as Tacna (42.2), Arequipa (37.5), Constitutional Province of Callao (37.5), Piura (38.1), La Libertad (38.6) , Lambayeque (39), Moquegua (39), Lima (42.3) obtaining a national average of 35.5% of the population aged 15 and over is overweight and a percentage of obesity in the departments of said region such as Lima (24.1), Tumbes (25.6), Constitutional Province of Callao (28), Tacna (29.1) and Ica (29.4)) obtaining a national average of 18. 3% of the population aged 15 and over with obesity.[4,5]

The National Institute of Health (INS) made a technical report "Nutritional status in Peru by life stages; 2012 - 2013 "obtaining at the national level that 0.5% started pregnancy with low weight, 30.3% with normal or adequate weight, 69.2% excess weight at the beginning of pregnancy.[1] The National Institute of Health in 2014 obtained that 1.4% of pregnant women started their pregnancy with low weight, 34.9% started with normal weight and 16.8% started with obesity.[6] Preconception obesity is a risk factor for the development of

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preeclampsia, since it predisposes women to multiple humoral events mentioned in the fundamentals and / or theories about the origin of hypertensive diseases in pregnancy.[7]

In 2013 Olórtegui carried out a study in Lima, Peru, in which he found a significant association between obesity and obstetric complications.[5] Perea in his study "Pregestational Obesity as a Factor Associated with Obstetric Complications at the Regional Hospital of Loreto" in 2016 in which he concluded that pregnant women with obesity have a high risk of suffering from hypertensive disease of pregnancy with a percentage of 23.8% of the total of cases and a significant association (p-value = 0.01), fetal macrosomia with a percentage of 12.5% of all cases and a significant association (p-value = 0.00).[8]

It is necessary that during the preconception period, women with obesity receive guidance on a suitable diet and exercise routine, especially in some districts of our city such as Comas, in which we can find the Sergio E. Bernales National Hospital, which is presented as one of the venues with the highest incidence of pregnant women with obesity, That is why the purpose of this study is to be able to guide, according to our conclusions, and carry out preventive and promotional actions, helping to reduce the rate of morbidity that occurs in the mother and the newborn.

Pre-pregnancy weight is prioritized, because in this factor there is greater potential for prevention in order to provide care not only during childbirth, but also during the pre-pregnancy period and prenatal control, guiding on the appropriate weight of the woman who wishes to start satisfactory reproductive life and weight gain during pregnancy, using clinical knowledge to detect early the mechanisms that can cause fetal complications and for the newborn.

It can be assumed that by timely identifying pregnant women with excessive pre-pregnancy weight, such as obesity, we will be able to identify patients with a higher risk of presenting complications during pregnancy and postpartum, thus avoiding maternal and fetal consequences, guiding interventions that can reduce and allow the prevention of obstetric complications such as Preeclampsia, Fetal Macrosomia, Perineal Tear, Oligohydramnios and Caesarean section or morbidity and mortality caused by maternal weight gain and contributing with the reference literature in the identification of risk factors during prenatal control to improve quality of care.

Problem formulation

Which are the Obstetric complications in attended pregnant women with pregestational obesity at the Sergio E. Bernales Hospital, August 2017 - February 2018?

General objective

I.   Determine the Obstetric complications in attended pregnant women with pregestational obesity at the Sergio E. Bernales Hospital, August 2017 - February 2018.

Specific objectives

I.   Estimate the frequency of cases of pre-pregnancy obesity in pregnant women treated at the Sergio E. Bernales Hospital, August 2017 - February 2018.

II. Identify the sociodemographic factors of pregnant women with pre-pregnancy obesity treated at the Sergio E. Bernales Hospital, August 2017 - February 2018.

III. Identify the obstetric factors of pregnant women with pre-pregnancy obesity treated at the Sergio E. Bernales Hospital,

August 2017 - February 2018.

IV. Identify obstetric complications in pregnant women with pre-pregnancy obesity treated at the Sergio E. Bernales Hospital, August 2017 - February 2018.

V.   Establish the relationship between obstetric complications and pre-pregnancy obesity.

Material and method

Methodological design

A descriptive, comparative, cross-sectional and retrospective study was carried out.

Population and sample

Population

The population was made up of all the medical records of pregnant women seen in Sergio E. Bernales Hospital during the period of August 2017 - February 2018, which were a total of 3016 pregnant women.

Sample size

For the sample estimate The statistical equation was applied for population proportions, knowing that the population for the cases is 3016 pregnant women attended at the Sergio E. Bernales Hospital during the period from August 2017 to February 2018 and having a confidence level of 95% and a margin of error of 5% and that is detailed below:

$$n = \frac{z^{\wedge}2(p*q)}{e^2 + (z^{\wedge}2(p*q)/N)}$$

Where: **N,** sample size; Z, desired confidence level; p, proportion of the population with the desired characteristic; q, proportion of the population without the desired characteristic; e, level of error willing to commit; N, population size

*According to research data at the national level (6), the proportion of pregnant women with pre-pregnancy obesity in Peru is 16.8%. The sample size consisted of 340 pregnant women.

Sampling type

Non-probabilistic, intentional, cases that met the inclusion criteria were selected.

Selection criteria

Inclusion criteria

a. Medical records of pregnant women found between the ages of 20 and 35 years

b. Medical records of pregnant women who were ≥20 or ≤41 weeks of gestation.

c. Clinical histories of pregnant women with pre-pregnancy obesity.

Exclusion criteria

a. Clinical histories of pregnant women with a history of added pathologies.

b. Multiple pregnancies.

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Data collection technique

To collect the data, a collection card was used in which the information from the medical records and the birth record book of the Gynecology and Obstetrics service of the Sergio E. Bernales Hospital from August 2017 to February of the 2018, hospital from which authorization was requested from the head of archives to have access to the sources of information, a process that took 1 month.

The instrument consisted of the following parts:

a. Data on Personal Factors such as maternal age, maternal height, educational level, marital status and occupation.

b. Data on Obstetric Factors such as gestational age, parity and maternal weight gain.

For the validation of the instrument, previous studies that validated the data collection format and expert judgment of 3 Obstetricians of the institution where the present research work was carried out, who have experience in handling high-risk cases, were taken as a reference.

Instrument

University of san martin de porres faculty of bstetrics and nursing data collection sheet

Campus: Sergio E. Bernales Hospital.

Instructions: The filling in of the data collection sheets will be based on the records found in the perinatal medical records of each patient, the filling must be correctly as it is, it is not allowed to delete, change or modify data.

Statistical technique for information processing

Once the data recording was concluded, the different variables followed the following procedure:

I. Data ordering according to the categories of each factor to be studied and that could be associated with the pathologies.

II. Data were tabulated in the Excel program.

III. The data obtained were recorded with the help of the computer and statistical programs using the SPSS 25 STATICS program.

IV. The frequency and crosstabulations of the obstetric factors and complications were obtained.

V. The Chi square statistical test was applied and the P values were found, which indicated the degree of association between the variables.

VI. For the analysis, the distribution of tables and figures was used.

Ethical aspects

The following study was carried out taking into account the bioethical principles, by which it is ensured that the data obtained from the medical records, of people with autonomy before making decisions about necessary procedures, were used only for research work, respecting their privacy and anonymity; on the other hand, we evaluate the results obtained from the research and what could be the potential benefits for patients and society that this research would provide according to the principle of Beneficence; the integrity of the patients was respected as indicated by the principle of non-Maleficence, prioritizing not exposing them to harm;Each medical record that had the same possibility of risk or benefit, regardless of their social, ethnic or gender status was equitably selected as established by the principle of Justice.

Table 1 shows the frequency of pre-pregnancy obesity in the pregnant women participating in the study, it was found that 123 (77.8%) did not initiate pregnancy with obesity, finding on the other hand that 35 (22.2 %) started pregnancy with obesity.

Table I Frequency of pregestational obesity

Frequency of pregestational obesity	No.	%
Not Obese	123	77.8
Obese	35	22.2
Total	158	100

Results

In Table 2 it can be observed that in terms of maternal age, the highest percentage is found in the group between 20 and 24 years of age, which represents 36.6% (45) of the pregnant women who did not present pre-pregnancy obesity, the other categories being found by above 25%, on the other hand, the 25 to 29 year-old group represents 42.9% (15) of pregnant women with pre-pregnancy obesity, the other categories being above 25% in the studied population; resulting in that maternal age was not associated with pre-pregnancy weight (p = 0.485); Regarding maternal height, the group of 1.51 - 1.59 cm represents 51.2% (63) of the pregnant women who did not present pre-pregnancy obesity, the other groups were below 35%; on the other hand in the same category we find 54, 3% (19) represent pregnant women with pre-pregnancy obesity, the other categories being below 30% in the studied population; finding that this factor is not associated with pre-pregnancy obesity (p = 0.927); Regarding the educational level, the secondary level group represents 69.9% (86) of the pregnant women who did not present pre-pregnancy obesity, the other categories being below 15%, on the other hand in the same category we found 74.3% (26) represents pregnant women with pre-

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pregnancy obesity, the other categories being below 20% in the studied population: result that this factor is not associated with pre-pregnancy obesity (p = 0.304); Regarding marital status, the cohabiting group represents 77, 2% (95) of the pregnant women who did not present pre-pregnancy obesity, the other categories being below 15%, on the other hand, in the same category, we found 74.3% (26) representing pregnant women with pre-pregnancy obesity, the other categories being found by below 20% in the studied population; resulting in that this factor is not associated with pre-pregnancy obesity (p = 0.410); Regarding the occupation of Housewife, they are within 80.5% (90) of the pregnant women who did not present pre-pregnancy obesity, the other categories being below 20%, on the other hand in the same category we found 82.9% (29) represents pregnant women with pre-pregnancy obesity, the other categories being below 15% in the studied population; resulting in that this factor is not associated with pre-pregnancy obesity (p = 0).

Table 2 Personal factors of pregestional obesity pregnant

Personal Factors	Not obese		Obese		X² *
	No.	%	No.	%	
Maternal age					
20 - 24 years	Four. Five	36.6	9	25.7	
25 - 29 years	44	35.8	fifteen	42.9	
30 - 35 years	3.4	27.6	eleven	31.4	p = 0.485
Total	123	100	35	100	
Maternal size					
≤ 1.50 cm	41	33.3	10	28.6	
1.51 - 1.59 cm	63	51.2	19	54.3	
1.60 - 1.69 cm	17	13.9	5	14.3	p = 0.927
≥ 1.70 cm	2	1.6	1	2.9	
TOTAL	123	100	35	100	
Education level					
Primary	10	8.1	0	0	
Secondary	86	69.9	26	74.3	
Institute	10	8.1	2	5.7	p = 0.282
academic	17	13.9	7	twenty	
Total	123	100	35	100	
Marital status					
Single	16	13	3	8.6	
Cohabiting	95	77.2	26	74.3	
Married	12	9.8	6	17.1	p = 0.410
Total	123	100	35	100	
Occupation					
Housewife	99	80.5	29	82.9	
Employee	1	0.8	0	0	
Independent	2	1.6	1	2.9	p = 0.885
Others	Twenty-one	17.1	5	14.2	
Total	123	100	35	100	

In Table 3 it can be observed that in terms of gestational age at the time of delivery 37 - 39 ss represents 51.2% (63) of the pregnant women who did not present pre-pregnancy obesity, the other categories being below 30%, for On the other hand, in the same category, we find a higher percentage, 57.2% (20) representing pregnant women with pre-pregnancy obesity, the other categories being below 30% in the studied population; resulting in that this factor is not associated with pre-pregnancy obesity (p = 0.541); Regarding parity, multiparity is 64.2% (79) did not present pre-pregnancy obesity, the other categories being below 35%, on the other hand, in the same category, we found a higher percentage, 77, 2% (27) represent pregnant women with pre-pregnancy obesity, the other categories being below 20% in the studied population; finding that this factor is not associated with pre-pregnancy obesity (p = 0.079) and in terms of maternal weight gain, the adequate group represented 39.8% (49) of the pregnant women who did not present pre-pregnancy obesity, finding the other categories by below 30%, on the other the excessive category, we find that 65.7% (23) that represents pregnant women with pre-pregnancy obesity, the other categories being below 25% in the studied population; finding that this factor is associated with pre-pregnancy obesity (p = 0.000). 079) and in terms of maternal weight gain, the adequate group represented 39.8% (49) of the pregnant women who did not present pre-pregnancy obesity, the other categories being below 30%, on the other the excessive category we found that 65, 7% (23) representing pregnant women with pre-pregnancy obesity, the other categories being below 25% in the studied population; finding that this factor is associated with pre-pregnancy obesity (p = 0.000). 079) and in terms of maternal weight gain, the adequate group represented 39.8% (49) of the pregnant women who did not present pre-pregnancy obesity, the other categories being below 30%, on the other the excessive category we found that 65, 7% (23) representing pregnant women with pre-pregnancy obesity, the other categories being below 25% in the studied population; finding that this factor is associated with pre-pregnancy obesity (p = 0.000).

Table 3 Obstetric factors of pregestational obesity pregnant

Obstetric factors	Not obese		Obese		X² *
	No.	%	No.	%	
Gestational age delivery					
<of 37ss	24	19.5	4	11.4	
37 - 39 ss	63	51.2	twenty	57.2	
40 - 41 H.H	36	29.3	eleven	31.4	p = 0.541
Total	123	100	35	100	
parity					
Primipara	42	34.2	6	17.1	
Multiparous	79	64.2	27	77.2	
Great Multiparous	2	1.6	2	5.7	p = 0.079
Total	123	100	35	100	
Weight gain					
Deficient	36	29.3	8	22.9	
Suitable	49	39.8	4	11.4	p = 0.000
Excessive	38	30.9	2. 3	65.7	
TOTAL	123	100	35	100	

* Chi2 test. a: p <0.05 (Statistically significant)

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In Table 4 it can be seen that within obstetric complications, Preeclampsia appeared 13.8% of pregnant women who did not present pre-pregnancy obesity, on the other hand we found a higher percentage in pregnant women with pre-pregnancy obesity represented by 14.3%[5] in the population studied; In the case of Fetal Macrosomia, it was presented in less than 10% of the pregnant women who did not present pre-pregnancy obesity, on the other hand we found a difference of 1% in pregnant women with pre-pregnancy obesity represented by 8.6%[3] in the population studied; In the case of Perineal Tear, it was presented in more than 15% of the pregnant women who did not present pre-pregnancy obesity, on the other hand we found a difference of 8% less in the pregnant women with pre-pregnancy obesity represented by 8, 6% (3) in the studied population;

in the case of Oligohydramnios, it was presented in less than 5% of the pregnant women who did not present pre-pregnancy obesity, on the other hand we found less than 3% of the pregnant women with pre-pregnancy obesity represented by 2.9%[1] in the studied population; In the case of Cesarean section, it was presented in more than 50% of the pregnant women who did not present pre-pregnancy obesity, on the other hand we found a difference of 15% less than the pregnant women with pre-pregnancy obesity represented by 42.9% (15) in the population studied. Pearson's Chi2 test showed us that pre-pregnancy obesity and obstetric complications are not related, as in the following cases: Preeclampsia (p = 0.944), Fetal Macrosomia (p = 0.805), Perineal Tear (p = 0.255), Oligohydramnios (p = 0.906), Caesarean section (p = 0.119).

Table 4 Relationship between obstetric complications and pregestational obesity

Obstetric complications		Not obese		Obese		X²*
		No.	%	No.	%	
Preeclampsia	Yes	17	13.8	5	14.3	
	do not	106	86.2	30	85.7	p = 0.944
Fetal macrosomy	Yes	9	7.3	3	8.6	
	do not	114	92.7	32	91.4	p = 0.805
Perineal tear	Yes	twenty	16.3	3	8.6	
	do not	103	83.7	32	91.4	p = 0.255
Oligohydramns	Yes	4	3.3	1	2.9	
	do not	119	96.7	3. 4	97.1	p = 0.906
Caesarean section	Yes	71	57.7	fifteen	42.9	
	do not	52	42.3	twenty	57.1	p = 0.119
Total		123	100	35	100	

* Chi2 test. a: p <0.05 (Statistically significant)

Discussion

This study aimed to determine obstetric complications in pregnant women with pre-pregnancy obesity, analyzing 158 medical records from the Sergio E. Bernales National Hospital. Pregestational obesity is classified according to the Body Mass Index obtained from the division between weight and height squared.

The frequency of pre-pregnancy obesity that was obtained from the study during the period from August 2017 to February 2018 at the Sergio E. Bernales National Hospital out of a total of 3016 pregnant women who were cared for, having as a study sample 340 pregnant women within which 158 medical records complied with the selection criteria obtained that 123 (77.8%) did not start the pregnancy with obesity, on the other hand 35 (22.2%) started the pregnancy with obesity, However, we found a lower percentage of pre-pregnancy obesity in studies such as that of Ramsés Perea[8] in his study, Pre-pregnancy Obesity as a Factor Associated with Obstetric Complications in the Regional Hospital of Loreto "Felipe Santiago Arriola Iglesias, in 2016, revealed that the percentage of pre-pregnancy obesity was 14.7% (458) being this lower than our study in 7.5%; on the other hand ElsaBenllochpiquer,[9] in his study, Excessive pre-pregnancy weight vs. Maternal and neonatal complications at the National Maternal-Perinatal Institute, 2015 of 2017 reports that 49.9% present excess pre-pregnancy weight, while 50.1% maintained adequate pre-pregnancy weight this being approximately 27.7%

higher than that obtained in our study; saviorHernandez,[10] in their study in 2017 in Mexico, Maternal metabolic diseases associated with overweight and pre-pregnancy obesity in Mexican women with high-risk pregnancy, it is concluded that 75% of the women had a high-risk pregnancy became overweight or pregestationally obese this being approximately 52.8% higher than that obtained in our study and María Vassilaki,[11] in the year 2015 in Greece conducted the research, Pregestational overweight, maternal obstetric complications and mode of delivery in Rhea in Crete, the results on the amount of overweight and obesity before pregnancy were 20 and 11.5%, respectively, being 10.7% lower than our study.[12–24]

Within personal factors such as maternal age, the range from 25 to 29 years represents 42.9% (15) of pregnant women with pre-pregnancy obesity, maternal height, the 1.51 - 1.59 cm group represents 54.3% (19) of the pregnant women with pre-pregnancy obesity, educational level, the secondary level represents 74.3% (26) of the pregnant women with pre-pregnancy obesity; marital status, the cohabiting group represents 74.3% (26) of pregnant women with pre-pregnancy obesity; and occupation, Housewife is 82.9% (29) represents pregnant women with pre-pregnancy obesity, no association with pre-pregnancy obesity was found in this study, however, an association with pre-pregnancy obesity was found by measuring personal factors that are found more frequently in studies such as that of Ramsés Perea (8), Regarding age, unlike in our study, the range of

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30-35 years is the one with the highest percentage with 42.5% (34) of pregnant women with pre-pregnancy obesity, followed respectively by the range of 25-29 years, which represents 33.8 % (27) of pregnant women with pre-pregnancy obesity, with respect to educational level, secondary represents 86.3% (69) of pregnant women with pre-pregnancy obesity, marital status, cohabitants represent 91.3% (73) of pregnant women with pre-pregnancy obesity, in Regarding occupation, a higher percentage can be observed as domestic workers with 88.8%, both in maternal age, educational level and occupation coincide in frequency of cases with the results of our study; with the study by Elsa Benllochpiquer[9] which concludes that he 5% (34) of pregnant women with pre-pregnancy obesity, followed respectively by the range of 25 - 29 years that represents 33.8% (27) of pregnant women with pre-pregnancy obesity, with respect to educational level, secondary represents 86.3% (69) of pregnant women with pre-pregnancy obesity, marital status, cohabitants represent 91.3% (73) of pregnant women with pre-pregnancy obesity, in terms of occupation, a higher percentage can be observed as domestic workers with 88.8%, both in maternal age, educational level and occupation coincides in frequency of cases with the results of our study; with the study by Elsa Benllochpiquer[9] which concludes that he 5% (34) of pregnant women with pre-pregnancy obesity, followed respectively by the range of 25 - 29 years that represents 33.8% (27) of pregnant women with pre-pregnancy obesity, with respect to educational level, secondary represents 86.3% (69) of pregnant women with pre-pregnancy obesity, marital status, cohabitants represent 91.3% (73) of pregnant women with pre-pregnancy obesity, in terms of occupation, a higher percentage can be observed as domestic workers with 88.8%, both in maternal age, educational level and occupation coincides in frequency of cases with the results of our study; with the study by Elsa Benllochpiquer[9] which concludes that he Regarding the educational level, secondary school represents 86.3% (69) of pregnant women with pre-pregnancy obesity, marital status, cohabitants represent 91.3%(73) of pregnant women with pre-pregnancy obesity, in terms of occupation, a higher percentage can be observed as workers of the home with 88.8%, both in maternal age, educational level and occupation coincide in frequency of cases with the results of our study; with the study by Elsa Benllochpiquer[9] which concludes that he Regarding the educational level, secondary school represents 86.3% (69) of pregnant women with pre-pregnancy obesity, marital status, cohabitants represent 91.3% (73) of pregnant women with pre-pregnancy obesity, in terms of occupation, a higher percentage can be observed as workers of the home with 88.8%, both in maternal age, educational level and occupation coincide in frequency of cases with the results of our study; with the study by Elsa Benllochpiquer[9] which concludes that he educational level and occupation coincide in frequency of cases with the results of our study; with the study by Elsa Benllochpiquer (9) which concludes that he educational level and occupation coincide in frequency of cases with the results of our study; with the study by Elsa Benllochpiquer (9) which concludes that hethe average age was 26.8 years, being 40.7% between the ages of 25 to 30 years; 80.9% had a secondary education level, 78.8% marital status was cohabiting and occupation 81.2% were housewives; Similar results to ours were obtained.

Among the obstetric factors studied as Gestational age at delivery represents 57.2% (20) of pregnant women with pregestational obesity and in terms of parity, multiparity is 77.2% (27) which represents pregnant women with pregestational obesity, resulting in these factors not associated to pre-pregnancy obesity, however, maternal weight gain is associated with pre-pregnancy obesity, finding that 65.7% (23) represents pregnant women with pre-pregnancy obesity, in the study by Ramsés Perea,[8] in terms of parity It is observed that the highest percentage of pregnant women for both non-obese and obese women are multiparous with percentages of 75% (60) and 65.2%(105) respectively and in the study ofSalvador Hernandez[10] carried out in 2017, Maternal metabolic diseases associated with overweight and pre-pregnancy obesity in Mexican women with high-risk pregnancy, with results regarding the suggested weight gain according to the pre-pregnancy BMI was 2.31±1.03 kg, on the other hand, the weight gained by the group of obese women was on average 8.91±6.84 kg meeting association and Elsa Benllochpiquer,[9] concludes that 49.9% had excessive pre-pregnancy weight and that their weight gain was on average 12±4.2 kg.

Pearson's Chi2 test showed us that pre-pregnancy obesity and obstetric complications are not related, as in the following cases: Preeclampsia (p = 0.944), Fetal Macrosomia (p = 0.805), Perineal Tear (p = 0.255), Oligohydramnios (p = 0.906), Caesarean section (p = 0.119), however if an association is found in studies such as that of Ramesses Perea (8), in which Preeclampsia presented 28.8% (23) with a significant association (p = 0.00). Hypertensive disease of pregnancy with a percentage of 23.8% (19) of all cases and a significant association (p = 0.01), Fetal macrosomia with a percentage of 12.5% (10) of all cases and a significant association (p = 0.00) and Oligohydramnios with a percentage of 12.5% (10) of the total cases and a significant association (p = 0.02), as in the study by Elsa Benllochpiquer (9) wheregot49.9% of the pregnant women who had excessive pre-pregnancy weight, while 50.1% had an adequate pre-pregnancy weight. The main complication of women with excessive pre-pregnancy weight was vaginal tear with 23.3%, cesarean section in women with excessive pre-pregnancy weight was 41.7%. A significant relationship between pre-pregnancy weight and fetal macrosomia (p = 0.03) was also found in the study by María Vassilaki[(eleven)], of the 2015 in Greece, Pregestational overweight, maternal obstetric complications and mode of delivery in Rhea in Crete, obesity were associated with an increased risk of cesarean deliveries; and in the study of Juan Crisologo.[12] Made in in 2015 in Lima with the Title of Pregestational Obesity and Preeclampsia, at Hospital Belén de Trujillo, Results were obtained as a value of p = 0.01 with which it is concluded that there is a significant association between pre-pregnancy obesity and pre-eclampsia.

The association between obesity and obstetric complications can be explained since obesity is related to the accumulation of adipocytes or those that produce cytosines, inducing excessive growth of adipose tissue, leading to obesity, which can lead to chronic inflammation as a process, caused by groups of modified adipocytes that will be a source of inflammatory cytokines for the walls of vessels such as arteries since they reduce their lumen, resulting in increased pressure, fetal macrosomia, among other obstetric complications.

Conclusions

a. Pre-pregnancy obesity was represented by 35 pregnant women out of the total of the study population.

b. Personal factors (maternal age, maternal height, education level, marital status and occupation) They were not associated with the pre-pregnancy obesity in the study population.

c. Of the obstetric factors, maternal weight gain was found to be associated with pre-pregnancy obesity. Gestational age at delivery and parity were found to be associated.

d. The obstetric complications considered in this study (Preeclampsia, Fetal Macrosomia, Perineal Tear, Oligohydramnios and Caesarean section) were not found to be associated with pre-pregnancy obesity.

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Conflict of interest

The authors declare that they have no competing interests.

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