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Impact of Maternal Body Mass Index on Obstetric Outcome in Women Attending Labor in Al-Basra Hospitals

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***Abstract***

***Background****: Maternal obesity has been associated with adverse pregnancy outcomes, such as gestational diabetes, hypertensive disorders, pre- and post-term delivery, induction of labor, macrosomia, increased rate of caesarean section, and post-partum hemorrhage****.***

***The objective of this study*** *was to determine the effect of maternal Body Mass Index(BMI) on pregnancy outcomes.*

***Methods***: *This is a prospective observational study conducted in the department of obstruct and gynecology in* *A total of (400) pregnant women who presented in the labor ward (at-Basra General hospital and Basra hospital for maternity and children)from 1st February to 30th Jun 2013.and Cases were selected from the labor ward the target population for this study was400 pregnant woman .this patients were included, all of them had term, singleton pregnancy, with cephalic presentation and all underwent a trail of vaginal delivery. The patients were classified according to their BMI.*

*BMI was used to characterize women as lean(≤18.5underweight-18.5 – 24.9 Normal range-25.0 – 29.9Overweight-≥30.0Obese-30.0 – 34.9-grade I-35.0-.39.9grade II-≥40.0grade III)*

*Sociodemogaraphic characteristic and obstetric histories were taken for each of them and they were divided into four groups .*

**Results**

*Most of overweight and obese pregnant women were high age group and multiparous with less level education. There past obstetric history (regarding previous abortion, preterm delivery and stillbirth) was not different from normal pregnant women, but they had history of previous caesarean section. Meters squared (kg/m2.BMI are aligned with those of the World Health Organization and separated into fourcategories in according the study sample,* *they were divided into four groups . : (underweight 7, normal weigh 104, obese 163, over obese 126.)*

**Conclusion:**

*Delivery while having high BMI is considered a high risk condition, and requires special attention for early detection and appropriate management of complications and those ladies need more care during and after labor.*

**Key words:** *Maternal body mass index, perinatal outcome*

***Introduction***

What is Body Mass Index determined?

BMI: Is determine by weight in (Kg) divided by height (in meter squared). (1).

IT is designed for men and women between the ages of (18-65) years. A healthy BMI score is between (18.5 -26). A score below 18.5 indicate that may underweight, a value above (26) indicate that she may be overweight. (2).

There is an important relationship between body mass index and some fetomaternal complications and pregnancy outcomes. (3)

Certain types of deliveries are certainly affected by maternal BMI. In the facts those high cesarean birth rates are associated with maternal obesity (3)

Pregnancy outcomes and infant health is an important issue. When taking the existing contradictions about the impact of maternal body mass index (BMI) on these outcomes into consideration. (4).

International research has highlighted the fact that maternal obesity has implications for both the mother and her infant. There are increased risks to the mother throughout the pregnancy ,including gestational diabetes, hypertensive disorders and thromboembolic complications, and to the infant including macrosomia, shoulder dystocia, late fetal death, congenital abnormalities), and also in addition to increased complications during labor and the need for more frequent induced and operative deliveries. (5 )

**Amie of study**: the present has the following aims:

• To determine the of categories' BMI in pregnant women attending for Mode of labor.

• To detect the impact of BMI on:

\*pregnant Women’s health

\*Neonatal health

• To identify the types of categories' BMI among the study samples.

And Demographic variable: age, level of education, occupation and socioeconomic status.

Assess Reproductive variable: number of pregnancy, parity number of abortion, family history.

**1. Important or significance of study.**

Obesity Increased substantially over the past few decades. Economic, technologic, and lifestyle changes have created an abundance of cheap, high-calorie food coupled with decreased required physical activity. We are eating more and moving less. (6)

There is evidence for metabolic irregulation that have been linked with a number of possible environmental factors, including contaminants from modern industry among Obesity individual’s .obesity is a significant source of public health concern and is likely to remain so for the foreseeable future. Maternal obesity increases the risk of a number of pregnancy complications, including preeclampsia, gestational diabetes mellitus, and cesarean delivery .Excessive weight gain during pregnancy and postpartum retention of pregnancy weight gain are significant risk factors for later obesity in women. Additionally, maternal health can have a significant impact on the in utero environment and, thus, on fetal development and the health of the child later in life. ( 7)

1. Setting of the Study:

The study was held in delivery room at two hospitals in Basra (AL-Basra General hospital and Basra hospital for Maternity and Children). From 1st February to 30th Jun 2013. Cases were selected from the labor ward.

2. Sample of the Study:

1. The study sample was composed of (400) pregnant women attending the labor ward (delivery ward) for normal vaginal delivery.

2. The women were observed during the labor until delivery, some cases under went caesarean section by the decision that was taken by the senior obstetrician on duty.

3. Instrument Construction

1. Normal pregnancy with no pathological condition.

2. Prime gravid and multi gravid.

3. Single pregnancy.

4. Any gestational age.

4. Excluded criteria.

Women excluded from the study who were suffering from:

• Cardiac disease and respiratory diseases.

• Fetal with congenital malformation

• Ante partum hemorrhage

5. Instrument Construction:

.1 - An interview questioner was designed and used to collect the relevant data:

Part one: Demographic Characteristics.

Part Two: Reproductive History.

Part three: Pregnancy complication.

Four: Nutritional status of Mather during pregnancy.

Part five: Neonatal variables.

2-Tools:

Body mass index was measured with a calibrated mechanical seca scales seca Ltd ,(Brimingham ,UK)with the patient wearing the lightest possible clothes .The measurement were used to calculate Quetelet s index or the body mass index (BMI)using the formula weight (in gk) /(height in meters).According WHO ,BMI values are classified into four categories. Table (1)

6. Validity of the Instrument:

Content validity of the assessment tool was determined through correlation between body mass index and anther variable by means of the stander deviation, p .value and significant.

7. Statistical analysis:

Data are analyzed in four groups according to the BMI category of underweight, overweight, obese and normal weight using SPSS, version19 (SPSS) and Epi-Info (WHO).

The effect of BMI is analyzed by comparing the frequencies of various outcomes in the aforementioned groups. The variables were compared using c2 test and Fisher’s exact test. The Mantel-Haenszel c2 test is also applied to test for trends across BMI categories. The results from the logistic regression are expressed as relative risk (RR) and the corresponding 95% confidence interval and P. P < 0.05 was considered statistical significant.

**Results**

Most of overweight and obese pregnant women were high age group and multiparous with less level education. There past obstetric history (regarding previous abortion, preterm delivery and stillbirth) was not different from normal pregnant women, but they had history of previous caesarean section.

Maternal completion such as pregnancy included. (Anemia39.%.) , Hypertension 10.8%, Diabetes Mellitus 5% and Urinary tract infection(26.8%).

Regarding fetal and neonatal outcomes, the study found still birth (13.8%,) abortion 27.75%, and neonatal admission to neonatal intensive care unit 15.6% were more in obese pregnant women as compare to normal one.

Caesarean section was the mode of delivery for (86) cases total, included (69 cases) of obese pregnant women, while only (16 cases) of normal pregnant women .Therefore, maternal high body mass index associated with negative outcomes for both women and fetuses.

Table (1) Distribution of the Body Mass Index according to Study samples.

|  |  |
| --- | --- |
| BMI (Kg/m2) | WHO class |
| <18.5 | Underweight |
| 18.5 – 24.9 | Normal range |
| 25.0 – 29.9 | Overweight |
| ≥30.0 | Obese |

Table (2)Distribution of the Study Sample according to the Body Mass Index.

|  |  |  |
| --- | --- | --- |
| **BMI Groups** | **Variables** | |
| **F** | **%** |
| **< 18.5** | **7** | **1.8** |
| **18.5-24.9** | **104** | **26** |
| **25- 29.9** | **163** | **40.8** |
| 1. **>30** | **126** | **31.5** |
| **total** | **400** | **100.0** |
| **MeanSD :** | **3.02+ .804** | |

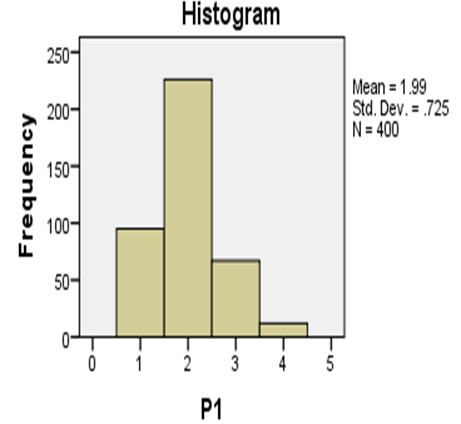
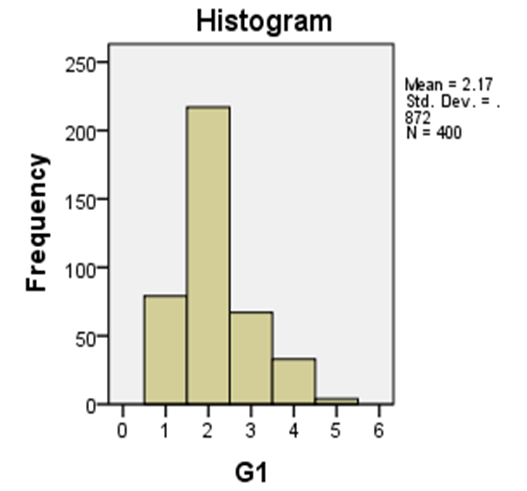
Table (3)Distribution of the Study Sample according to the AGE Characteristics: .according with BMI

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | BMI | | | |  |  |  |  |
| **Age** | **F** | **%** | **>18.5N=7** | **18.5-24.9.N=104** | **25-29.9.N=163** | **<30**  **N=126** |  | **df** | **o.o5** | **sig** |
| **1)10-20** | **98** | **24.5** | **3** | **44** | **35** | **16** | **34.846a** | **9** | **.000** | **HS** |
| **2)21-30** | **190** | **47.5** | **2** | **45** | **73** | **70** |
| **3)31-39** | **99** | **24.8** | **2** | **13** | **49** | **35** |
| **4)>40** | **13** | **3.3** | **0** | **2** | **6** | **5** |
| **Total** | **400** | **100.0** | **7** | **104** | **163** | **126** |
| **MEAN +SD =2.07 +.787** | | |  |  |  |  | **Grand Mean = 2.54** | | | |

Table (3) shows that the age of pregnant women range from (14 to 42) years with a mean age of (2.07 +.787), the highest percentage (47.5%) were within age group(21-30) years while the lowest (3.3%)respectively were within age groups (≤40) years

Figure (1) Histogram Distribution of the Study Sample according to Gravidity

Figure (1)shows the reproductive characteristics of the study sample which includes the following: Gravidity for study sample (range 0-11 0r more) with a mean of (5.19+1.275).Gravid( 2-4) range constitute most of the women (54.3%), while (1%) of them had (>11) gravid.

**

Figure

(2) show that the Parity of study sample was ranged from (0 to 7 or more) with a mean of (5.01+1.150). The highest percentage (56.5%) was for those with (1-3) deliveries and the lowest percentage (3%) for those with ( >7 ) deliveries

Table (4) Distribution of the Study Sample according to Mode of Deliveries .according with BMI

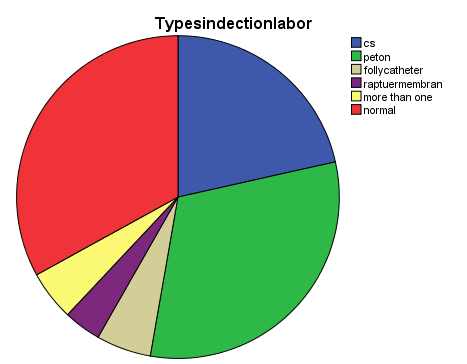
|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | BMI | | | |  |  |  |  |
| **Mode of labor** | **f** | **%** | **>18.5N=7** | **18.5-24.9**  **.N=104** | **25-29.9**  **N=163** | **<30**  **N=126** |  | **df** | **P≤0.05** | **sig** |
| **NVD** | 314 | 78.5% | 6 | 88 | 130 | 90 | 317.169 | 275 | .041 | S |
| **CS** | 86 | 21.5% | 1 | 16 | 33 | 36 |
| MEAN +SD =4.24+ .947 | | | 7 | 104 | 163 | 126 | Grand Mean = 2.12 | | | |

Table (4) flowing of mode deliver

Majeure of types delivery were normal vaginal delivery (78.5%), and on other hand the lowest (21.5 % ) had caesarean section , with mean (4.24+ .947).

**Table (5) Association of Body Mass Index with outcome of Labor for Study Sample**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | BMI | | | |  |  | |  |  | |  |  | |
| **Types of delivery** | | **<18.5** | **18.5-24.9** | **25-29.9** | **>30** | **total** | **%** | | **χ²** | df | | S. | P≤0.05 | |
| **Normal vaginal delivery** | **With episiotomy** | **2** | **56** | **67** | **47** | **172** | **54.7%** | | **119.37** | **3** | | **HS** | **.001** | |
| **Without episiotomy** | **4** | **32** | **63** | **43** | **142** | **45.3%** | |
| **Types of Cesarean section** | **Elective** | **0** | **11** | **14** | **26** | **51** | **59.3%** | | **14.774** | **3** | | **S** | **.022** | |
| **Urgent** | **1** | **5** | **19** | **10** | **35** | **40.7%** | |
| **Mean +SD= .30 +.622** | | | | | **400** |  | | **Grand Mean = 1.66** | | | | | |
| **Cause of Cesarean section** | **BMI** | **<18.5** | **18.5-24.9** | **25-29.9** | **>30** | **total** |  | | **χ²** | | **df** | **S.** | | **P≤0.05** |
| **Fetal distress** | **1** | **2** | **10** | **6** | **19** | **2.1%** | | **86** | | **30** | **HS** | | **.01** |
| **Breech presentation** | **0** | **5** | **7** | **9** | **21** | **24.418%** | |
| **Cephalopelvic disproportion** | **0** | **1** | **3** | **4** | **8** | **9.3%** | |
| **Twin** | **0** | **2** | **0** | **2** | **4** | **4.651%** | |
| **No progress** | **0** | **2** | **5** | **1** | **8** | **9.3%** | |
| **Both tubal lection** | **0** | **1** | **0** | **3** | **4** | **4.651%** | |
| **Hypertension** | **0** | **1** | **3** | **1** | **5** | **5.813%** | |
| **Diabetes Mellitus** | **0** | **0** | **0** | **1** | **1** | **1.162%** | |
| **Postdate** | **0** | **0** | **1** | **1** | **2** | **2.325%** | |
| **Previous scare** | **0** | **1** | **4** | **6** | **11** | **12.79%** | |
| **Infertility** | **0** | **1** | **0** | **2** | **3** | **3.49%** | |
| **TOTAL** |  |  |  |  |  | | **86+ NVD (314) =400** | | | | | |  |
| **Mean +SD= 3.95 +2.576** | | | | |  | | **Grand Mean = 1.97** | | | | | |  |



**Figure (3) Pie Chart of the Levels for Frequency Different of types od Deliverie**s .

Table (12) shows that there is no significant relationship between types of vaginal deliveries (spontaneous, induction labor).

Table (6) shows the findings about the incidence of pregnancy complications with BMI group

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Complication** |  | **BMI** | | | | **Total** | **χ²** | **df** | **S.** | **P0.05** |
|  | **< 18.5**  **N =7** | **18.5-24.9**  **N=104** | **25-29.9**  **N=163** | **>30**  **N=126** |
| **1.Anemia** | **YES** | **4** | **44** | **63** | **45** | **156** | **2.027** | **3** | **NS** | **.567** |
| **NO** | **3** | **60** | **100** | **81** | **244** |
| **2. Hypertension** | **YES** | **0** | **8** | **13** | **22** | **43** | **0.078** | **3** | **S** | **..028** |
| **NO** | **7** | **96** | **150** | **104** | **357** |
| **3.Diabetes Mellitus** | **YES** | **1** | **2** | **9** | **8** | **20** | **3.920** | **3** | **NS** | **.270** |
| **NO** | **6** | **102** | **154** | **118** | **380** |
| **4. Urinary tract infection** | **Yes** | **3** | **24** | **41** | **39** | **107** | **2.991** | **3** | **NS** | **.393** |
| **No** | **4** | **80** | **122** | **87** | **293** |

Table (6) shows the findings about the incidence of pregnancy complications among the study sample in BMI) as follows:

The statistical result has indicated that there has been a non-significant difference groups of BMI at P> 0.05 between result those compaction (Anemia ,Diabetes Mellitus,. Urinary tract infection) ,while significant difference groups of BMI and (Hypertension , obesity women heredity and Husband cigars smoker) at P<0.05.

**Table (7) Distribution of the Study Sample according to Data Related to the Current Pregnancy**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Weight** | **BMI** | | | | | **χ²** | **df** | **S.** | **p0.05** |
| <18.5 | 18.5-24.9 | 25-29.9 | <30 | |
| **1000-2500** | 1 | 11 | 8 | 7 | | 28.044 | 9 | S | .001 |
| **2600-3000** | 4 | 51 | 74 | 40 | |
| **3100-3900** | 2 | 37 | 56 | 45 | |
| **>4000** | 0 | 5 | 25 | 34 | |
|  | 7 | 104 | 163 | 126 | | TOTAL=400 | | | |
| ***Apgar score at 5 min of neonate life*** | **BMI** | | | | | **χ²** | **df** | **S.** | **p0.05** |
| <18.5 | 18.5-24.9 | 25-29.9 | | <30 |
| **0-3** | 0 | 1 | 5 | | 3 | 3.178 | 6 | NS | .786 |
| **4-6** | 2 | 12 | 22 | | 17 |
| **7-10** | 5 | 91 | 136 | | 106 |
| **Total** | 7 | 104 | 163 | | .786 |
| **Congenital AGE** | **BMI** | |  | | | **χ²** | **df** | **S.** | **p0.05** |
| **<18.5** | **18.5-24.9** | **25-29.9** | | **<30** |
| ≤36 | 0 | 4 | 6 | | 2 | 2.991 | 6 | NS | .810 |
| 37-39 | 6 | 79 | 124 | | 92 |
| >40 | 1 | 21 | 33 | | 32 |
| Total | 7 | 104 | 163 | | 126 | TOTAL =400 | | | |

Table (7) show highest recorded of Neonates body weight was (74 ) had (2600-3000) normal weight with group (25-29.9) for BMI ,and recorded significant difference p<0.05 between the different groups of BMI.

Discussion:

Maternal obesity carries significant risks for the mother and fetus. The risks increase with the degree of obesity and persists after accounting for other confounding demographic factors.(8)

More than half of all women of childbearing are overweight or obese. Which is one of the most common health problems for pregnant women.(9)

The rates of obesity in pregnancy are increased (10) the increase is also noticed that only in 24% of Iraqi women are of normal weight (11).

( 11).Few pregnant mother in Bare know their pre-pregnancy weight and obesity in the sample studied could be defined accurately in terms of weight to height ratio. (12).This increase could be attributed to improvement in socio-economic state after removed of sanction imposed on Iraqi by United Nations on Iraq. Of course, there are some other factors.

The prevalence of obesity among pregnant women in Basra is not covered in this study because the sample is very small, in addition to the imitated number the subjects of the study , one may refer to the limitation of time and space >Hence , further comprehensive study is needed.

**Age:**

In our study we found high significance between BMI with age groups. The( 47.5%) of pregnant was within age group of (21-30) years with a mean of (207+ .804%) , (2003) reported that the average age of the study group was( 25 years old ), which was a suitable age for reproduction.( 11 ,12), reported that numerous obstetrics complications have been independently associated with progressive maternal age. In addition, the age of the pregnant women ranged between (14and 39 years old) , and despite the predominance of young adult pregnant women (20-35 years old),

It is emphasized here that percentage of (43 (30%)) pregnant adolescents and Pregnant women with overweight / obesity presented with a higher age, When compared to pregnant women with normal weight (15).

On other hand the (16) Underweight women were of younger age and of lower gravidity compared to normal weight women, while obese women were of older age and of higher gravidity than normal weight women. A Gerry with (17)

**1 -Gravidity**:

The (83%) percent of gravid had (1- 30) pregnancies with (25-29.9) with BMI groups with mean (2.19 +.461) . this indicates a significant difference at P<0.05 between BMI and Gravidity show on Figure (1)

No significance was found in gravidity and parity. (17),The result agree with (18)

**.2-Parity:**

Nearly (56.6%) of multipara had at between (1-3) deliveries, with mean (1.99 + .725) while the majority (83) of multipara have been noticed in (25-29.9) groups.However , BMI has been recorded with significat a difference between BMI and Gravidity at P<0.05 as shown that in table (9). This result accords with (17)Hala Ibrahim(2011).&(19). Have Considered the high prevalence of obesity among women of childbearing age, however, this is a major public health issue. In 1995, it was found in a retrospective study that the cost of prenatal care in overweight women exceeded that in normal-weight control subject by 5.4- to 16.2- fold depending on the degree of obesity .(19)

The present study is in agreement with the one conducted by (20), who found that the mean maternal weight in the massively obese group was significantly greater than that in the normal group.

(20))Has found that weight is significantly related to obese pregnant women (0.001), while parity and age are not significantly related to obese pregnant women. This finding that of the present study have agreed . of course < this reveals that the maternal factors including weight and body mass index were significantly related to obese pregnant women, on the other hand. The results accords of this study seem to disagree with those accords of (21 ).

**Mode of delivery significantly differs between all groups**.

The Majeure of types delivery were normal vaginal delivery (78.5%), and the rest (21.5 % ) have caesarean section , with mean groups (4.24+ .947).

(130) cases present were normal vaginal delivery with ( 25-29.9) group (36) Cases present had caesarean section with (>30)group.

Results of the present study show much higher rates of cesarean section in obese women pregnant as compared to those with all groups (see table No.5). Most studies have reported increased cesarean section rates mainly due to macrosomia . Rates in obese women have been greater than 30%.

(20) Thinner women who have preterm delivery tend to deliver at early gestational age than women who were obese. (23)

(28.26) ..The reason why obese pregnant women are more likely to end up with a cesarean delivery is not known, but a theory is that obese women are more likely to experience dysfunctional labor. For example, (18) found that the rate of cervical dilation in nulliparous women in spontaneous labor decreasing as maternal BMI increased. In this study, normal weight women (BMI 19.8–26.0 kg/m2) took a median duration of ( 5.43) hours to dilate from( 4 to 10) cm, whereas obese women (BMI > 29.0 kg/m2) took (6.98 )hours. This appears to be true also in women undergoing induction of labor at term.

(21and 23) demonstrated that, although multiparous women progressed faster during induced labor than nulliparous women, in all groups an increase in maternal weight quartile was associated with a decreased rate of cervical dilation and an increase in the duration of labor. (Denison and colleagues2008) showed that there was a higher maternal BMI in the first trimester and a greater increase in BMI throughout pregnancy were associated with a reduced likelihood of spontaneous labor at term, an increased risk of post-term pregnancy, and an increased rate of intrapartum complications. (24) .

This study witnessed a significant association between high BMI and risk of emergency cesarean section during a trail of labor which increased linearly with the maternal BMI with odds ratio raised from (2.13) for overweight women, to (6.67) for severely obese women.

The present study , shows that caesarean section increased(see table (11))A significant with two types( (Elective ,Urgent )CS with groups obese pregnant women for many causes ,it was present (24.418%) the highest percentage cause breech presentation .( 18& 27)

In addition to an increased rate of operative delivery,

Table (12)present a distribution of sample subjects according types of vaginal deliveries in terms of BMI obese women are also at increased risk of intraoperative complications(130) cases present for induction lobar with group obese women from total (314) (20 & 23).

A number of specific recommendations have been proposed to minimize intraoperative complications in obese pregnant women These are (summarized in Table 12).Comparison of induction of labor incases and reference groups showed that lower BMI was associated with lower induction of labor. This is similar to results of (4,6.1)

investigate the relationship between classification during pre pregnancy as overweight (BMI 25–29.9)or obese (BMI ≤30) on pregnancy outcomes. The rates of spontaneous preterm delivery were similar between groups of obese and overweight women and women in the normal weight group, and preterm delivery appeared to ‘‘independent of the presence of overweight or obesity’’,( 22).

Pregnancy complications

Table (15) shows the findings of the incidence of pregnancy complications among the study sample members in BMI) as follows:

The statistical result has indicated that there has been a non-significant difference groups of BMI at P> 0.05 namly (Diabetes Mellitus and Urinary tract infection), on other hand a significant difference groups of BMI and (Hypertension, Anemia, obesity women heredity and Husband cigars smoker) at P<0.05.

**1. Hypertension:**

Pregnancy induced Hypertension was more prevalent in obese pregnant women than in their lean counterparts was (22) cases from total (43). (This is finding was also noticed in other authors, (16.3.28.26).

2. Diabetes Mellitus:

Although 2% of case group had GDM compared to all control group, this increase was not found to be statistically significant. This may be due to the small sample size Previous studies have reported in concordant results, (24) have reported the risk of developing GDM to be 17% in obese pregnant mothers compared with 1.3% in normal weigh

3. **Anemia:**

The correlation between maternal obesity and Anemia was found to be high significant although this condition (Anemia) was emergent in case group more than obese (63cases). From total (156) (6)

4. **Urinary tract infection**

In this study, there was no statistical difference in the prevalence of urinary tract infection in all groups. However, other studies showed that this is associated with slightly risk of urinary tract infection, (15)

**Apgar score**

The highest recorded of study sample (136) their neonates Apgar score were ranged between (7-10), while score of (0-3) were for (2.3%) of the neonates ranges from( 0-3) ,with the mean ( 37 + .438). and no recorded significant between recorded between the difference groups of BMI at p<0.05 .

The risk for low (0-3) Apgar score has been recorded among neonates of obese women as compared to the babies born to mothers of normal weight; this is slightly more than the relative risk of reported in a previous study (25).

On the other hand, one study reported no difference in Apgar score between neonates of obese and normal weight women. In our study, the neonates of obese women were more likely to be admitted to intensive care units than those of normal weight women, which agree with the findings of one earlier study. (24). A much higher risk was reported by Callaway et al, while Rode et al,(24).reported no difference,.

**Neonate’s sex**

The highest percent of (study sample for mal baby (88)with groups (25- 29.9) (and recorded NO significant difference p<0.05 between the different groups of BMI.

Obese pregnant women delivered more male neonate than normal BMI pregnant women.

This is also illustrated by (16 & 22).but (5) found. Male babies occurrence among all groups was similar, Among all groups was similar, with no significant difference.

To continue :

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **SEX OF BABY** | **BMI** | |  | | **χ²** | **df** | **S.** | **p0.05** |
| <18.5 | 18.5-24.9 | 25-29.9 | <30 |
| **MAL** | 2 | 70 | 88 | 77 | 7.576 | 3 | S | 056. |
| **FEMAL** | 5 | 34 | 75 | 49 |
| **TOTAL** | 7 | 104 | 163 | 126 |

**Nursing Role**

Nurses caring for women of reproductive age in Community and inpatient settings should use ever possible opportunity for teaching about pre- and inter conception health and the impact that optimizing one’s own health can have on pregnancy and birth outcomes. This is also a time to encourage or provide

Referrals for nutritional counseling to help women achieve appropriate weight/BMI goals. The positive Impact that exercise can also have on diabetes and Hypertension should be emphasized. Even short Amounts of activity and walking can help with these Comorbid conditions. Nurses in public health and Community settings typically have multiple opportunities to interact with women of childbearing age during this important time in their lives. Nurses never know when that one contact they made with a client during their day may have the potential to make a difference in their pregnancy and birth outcomes.

**Delivery of advice and care**

Two studies (29,30) reported views About who might advise women about weight management during pregnancy Midwives in one study were reported to consider advice to be better delivered by specialists, or that midwives ought to receive specialist training so that they could be more effective

.This high lights a division in opinion as to whether specialist advice is the domain of specialists with which maternity services need to have better links, or whether midwives themselves need to have specialist training in addressing obesity issues .(29)

In contrast some women stated that lay people with experiences similar to their own would be better able to explain difficult concepts, with the support of health professionals (30).

Three studies (31.30) reported views about the mode of care provided during pregnancy and the facilitation that this could provide for discussion of potentially sensitive topics such as weight management.

**Recommendations:**

1. periodic health examinations and gynaecology care prior to pregnancy to enter pregnancy with a BMI <30 kg/m^2 ,and ideally <25 kg/m2..

2. Obesity is also associated with high rates of fetal distress during labor and higher rates of LGA babies .

3. Preconception-counseling for obese women should include encouragement of weight loss, and explanation of the risks associated with obesity during pregnancy.

4. conside high –does folic acid ( 5 mg /day ) during pregnancy

5. Obese pregnant women should receive counseling about weight gain ,nutrition ,and good choices

6. Obese women should be advised that regular exercise may decrease medical complications associated with pregnancy .

7. Dieting during pregnancy usually is not recommended as well as the use of appetite suppressant as it folic acid and vitamins deficiency.

8. Explain to pregnant women the recommended weight during pregnancy, (7-11.5kg) for overweight and obese women and (11.5-16 kg) for normal weight women.

**References**

1 - Institute of medicine .Nutrition during pregnancy . part I. weight gain .Washington ,DC: National Academy press.1990.

2- Alexander GR, Himes JH .Kanfman RB ,et al .united states national reference for fetal growth .Obstetric and Gynecology 1996

3-Meher-un-nisa, Muhammad Aslam, Salah Rosdy Ahmed, Maamon Rajab, and Lina Kattea ,Impact of Obesity on Fetomaternal Outcome in Pregnant Saudi Females Department of Obstetrics & Gynecology, Qassim University, College of Medicine, Buraida, Saudi Arabia,Email: drmehersajawal@gmail.com (. 2009.

4-Shiva Alizadeh. Relationship of pre-pregnancy maternal body mass index and neonatal outcomes .Journal ;Koomesh ISSN;16087046 year;2012

5-Heslehurst, N. et al. (2007) 'Obesity in pregnancy: a study of the impact of maternal obesity on NHS maternity services', BJOG An International Journal of Obstetrics and Gynaecology.

6-Meenakshi T. Sahu, Anjoo Agarwal, Vinita Das and Amita Pandey Impact of maternal body mass index on obstetric outcome Department of Obstetrics and Gynecology, King George’s Medical University, Lucknow, Indi

7- Mokdad AH, Serdula MK, Dietz WH, Bowman BA, Marks JS, Koplan JP. The spread of the obesity epidemic in the United States, 1991-1998. JAMA 1999;282:1519-22.

8 -Jensen, D. M., Damm, P., Sorensen, B., Molsted-Pedersen, L., Westergaard, J. G., Ovesen, P.,et al. (2003). Pregnancy outcome and prepregnancy body mass index in 2459 glucosetolerant Danish

9-WHO, 2004. World Health Organization. Stopping the Invisible Epidemic of maternal Death: 29 Sept. 2004

10-SOGC clinical practice guideline .2010 NO239 ,February . obesity in pregnancy .

11-Taweel NG… etal 2007(Al- Taweel NG.Abdulla M M amd Abdul Ameer AJ. Prevalence of and factors associated with overweight and obesity among a group of Iraqi women .Eastern Mediterranean Health Journal .2007

12-Asseel TARIK (OBESITY IN PREGNANCY )1998. submitted to the department of obstetric and Gynenology ,college Medicine ,University of Basra.

13-Seligman LC, Duncan BB, Branchtein L, Laio DS, Mengue SS, Schmidt MI:Obesity and gestational. Weight gain: Cesarean delivery and labor

complications. Rev Saude Publica 2006,.

14-Nehal 2012(Mahmud S D) the of Increased Maternal Body Mass Index on Primary Post-partum hemorrhage athesis of diploma in gynecology and obstetric 2012

15- Arar.M,Shaymaa 2011 the impact of body mass index on pregnancy outcomes,aaissertation submitted to the department of obstetric and Gynenology ,college Medicine ,University of Basra

16-Abdel-Hady El-Gilanya and Sabry Hammadb(Body mass index and obstetric outcomes in Saudi Arabia:) a 15-Aslam Aliya. Complections of Raised BMI in Pregnancy .Professor Med Sep 2010 rospective cohort study 2010.

17-Hala Ibrahim Zaiton\*1, and Eman elsayed mohammed elsabagh2 Medical Surgical Nursing Dept.\*1, 2Obstetrics and Gynecology Nursing Dept., Faculty of Nursing, Zagazig University, Zagazig, Egypt Journal of American Science, Risk Factors of Obesity on Maternal and Perinatal Outcomes among Pregnant Women 2011

18-Tosson M M. Hussain TK. The Impact of Maternal Obstetric on Pregnancy outcome at Assiut University Hospital (2005

19- Perlow JH. obesity in obstetric .Foley MR,Strong TH.Garite TJ.(eds)obstetric intensive care manual .Third edition 2011

20-WIESŁAW MACIEJ KANADYS. 2007,Maternal underweight and pregnancy outcome: prospective cohort studywww.great dad. Com / labor and birth choosing- where- to- deliver- html, 2010

21- Sohinee Bhattacharya1\*, Doris M Campbell2, William A Liston3 and Siladitya Bhattacharya2 Health( Effect of Body Mass Index on pregnancy outcomes in nulliparous women delivering singleton babies 2007 )

22-Hussain ,Dr.Ragad Nasir. Influence of body mass index on the incidence of preterm labor . Athesis submitted to the college of medicine university of Basra for the degree of diploma in gynecology and obstetrics.2008.

23- Meaghan A Leddy,\*,† Michael L Power, PhD,\* and Jay Schulkin, PhD Department of Research, The American College of Obstetricians and Gynecologists, Washington, DC Department of Psychology, American University, Washington, DC This article has been cited by other articles in PMC. The Impact of Maternal Obesity on Maternal and Fetal Health 2009.

24-Bhattacharya S, Campbell DM, Listion WA, Bhattacharya S: Effect of bodyMass index On Pregnancy outcomes in Nulliparous women deliveringsingleton babies. BMC public Health 2007,

25-Lina Kattea. Impact of Obesity on Fetomaternal Outcome in Pregnant Saudi FemalesDepartment of Obstetrics & Gynecology, Qassim University, College of Medicine, Buraida, Saudi Arabia Email: drmehersajawal@gmail.com.2009 July;

26- Burke G, Robinson K, Refsum H, Stuart B, Drumm J, Graham I. Intrauterine growth retardation, perinatal death, and maternal homocysteine levels. N Engl J Med. 1992

27-( Cnattingius R, cnattingus S, Notzon FC. Obstacles to reducing cesarean rates in alow- cesarean setting: the effect of maternal age, height, and weight obstetric Gynecol. 1998; 42: 501-6.

28- Aslam Aliya. Complections of Raised BMI in Pregnancy .Professor Med Sep 2010 17(3):498-504 . Military Hospital, Rawalpindi

29- Heslehurst, N.,Moore,H.,Rankin,J.,Ellis,L.J.,Wilkinson,J.R.,Summerbell,C.D., 2011. How can maternity services be developed to effective ladders maternal obesity? A qualitative study.

Midwifery,e170–e177.(included

30- Khazaezadeh, N., Pheasant, H., Bewley, S., Mohiddin, A., Oteng-Ntim, E., 2011. Using service- users’ views to design a maternal obesity intervention. British Journal of Midwifery .

31- Baker, J., 2011. Developing a care pathway for obese women in pregnancy and beyond.

British Journal of Midwifery.

**Impact of Maternal Body Mass Index on Obstetric Outcome in Women Attending Labor in Al-Basra Hospitals**

**Sundess Baqer Dawood**

**Dr. Izz AL-Deen Fakhr AL-Deen Baha AL-Deen**

**الخلفية:**

**ترتبط بدانة الحامل بنتائجِ الحملِ مثل ( الولادة العسرة المبكرة او المطولة، او الولادة المتأخرة ) ، أو إرتفاع ضغط الدمِ، فقر دم، السكري,و تداخل الغير طبيعي للولادة ، أو ولادة أطفال قليل الاوزان او بحجم كبير وزيادة نسبةَ اجراء العملية القيصريةِ.**

**الأهداف:**

**تهدف هذه الدراسةِ لمعرفة تأثيرَ دليلِ كتلةِ جسم الام الحاملِ على نتائجِ الحملِ والولادة. على ( الام والطفل)**

**الطرق:**

**العينة تتكون من (اربع مئة امراة) حامل دخلوا صالة الولادة قد سُجّلنَ في هذه الدراسةِ. لأستكشافَ العلاقةَ بين دليلِ كتلةِ الجسم الأم الحامل ونتائجِ الحملِ، صُنّفوا إلى أربع مجموعات ِ تم حساب كتلة الجسم لهن وتمت متابعهتم لمعرفة نتائج الحمل وتأثيرها على الام والطفل .**

**والمربع الكامل باستخدام العلاقة ,SPSS 19. بأستخدام التحليل الاحصائي**

**الإختلافات إعتبرتْ هامّة .p <0.05**

**النَتائِج**

**وقد بينت الدراسة ان مضاعفات الحمل والولادة مثل ارتفاع ضغط الدم وفقر الدم وولادة مواليد قليلي الاوزان او كبيرة الاوزان , كذلك ازيادة نسبة الولادة القيصرية والولادة الغير طبيعية حظت عند النساء التي تعاني السمنة والسمنة المفرطة ,ولكن لم تسجل زيادة ملحوظة في حالات التهاب المجاري البولية والسكري في كل المجاميع .**

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