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OBESITY RELATED COMPLICATIONS IN CONCEPTION AND PREGNANCY

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ABSTRACT

Obesity is the major health concern all around the globe. The aim of this study was determine the complications that are most commonly associated with the obesity during conception and pregnancy and to find out their treatments. Retrospective study was performed on 100 patients by collecting the data from respective patients from Lady Willingdon hospital Lahore and results were recorded in graphical manner. Results exhibited that obese women were less likely to conceive per cycle. Menstrual cycle disturbance were frequent and they were up to three times more likely to undergo oligo-anovulation, disturbances in hormonal levels and altered response to different pharmacological treatment. PCOS was another major complication in obese women that was leading infertility. In pregnancy, many adverse outcomes were associated with obesity including gestational diabetes, pregnancy induced hypertension, preeclampsia, cesarean section, infections, post partum hemorrhage, delivery of large babies in some still-birth and difficulty in assessing fetal presentations and growth in conventional way. Obese women of reproductive age should be counseled by health care provider about diet and physical activity in reproductive health prior to pregnancy, during pregnancy, and in the interconceptional period to avoid these complications.

KEYWORDS: Body Mass Index, Pregnancy Complications, Infertility, Patient Counseling.

INTRODUCTION

Obesity have been associated with exhibiting profound effects on the pathophysiology and clinical findings of PCOS, different mechanisms are involved which includes excessive production of endrogen production and its availability and other is changes in functioning of granulosa cells and process of follicles development.[1] Hyper androgen was more abundantly seen in the obese women in comparison with the women with normal body weight.[2]

Different studies conducted revealed that obesity is the root cause to menstrual disorders, poor pregnancy outcomes and miscarriages and well-being of fetus is also affected.[3]

Obesity escorts poor impact on fertility of women, obesity I early age leads to irregularities in menstrual cycle and ovulation.[4]

Pregnancy is condition when the egg is fertilized and gets implanted in the wall of the uterus. Placenta and embryo goes on developing and form fetus.[5]

Normal weight gain during gestational period is 11.5–16.0 kg (Institute of Medicine recommendation).[6] For women pre-pregnant normal weight is related to the least risk of complications during pregnancy and delivery.[7] In the population studied, the upper limit might be higher (up to 18 kg), and low weight gain should be avoided to optimize birth outcome.[8]

Much of the medical literature discusses obesity in relation to body mass Prevention classifies BMI as: Morbidly obese: ≥35 kg/m2. Normal: >18.5 kg/ssm2-24.9 kg/m2. Overweight: 25 kg/m2-29.9 kg/m2. Obese: ≥30 kg/m2.[9]

During pregnancy, obesity is associated with an increased risk of complications, including gestational diabetes, preeclampsia, and delivery complications such as macrosomia, shoulder dystocia and higher rates of cesarean sections and infections. Maternal obesity may also be an independent risk factor for neural tube defects and fetal mortality. This review focuses on the consequences of maternal obesity during pregnancy.[10]

The major diseases associated with obesity are hypertension, atherosclerosis, and diabetes, as well as certain types of cancer. Less well-known complications include hepatic steatosis, gallbladder disease, pulmonary function impairment, endocrine abnormalities, obstetric complications, trauma to the weight-bearing joints, gout, cutaneous disease, proteinuria, increased hemoglobin concentration, and possibly immunologic impairment.[11]

Obese women have BMI ≥30 kg/m^2 and 50.3 (95% CI 47.0–53.7) in normal weight women with BMI 18.5–

24.9 kg/m^2. Obesity was associated with an increased risk of early pregnancy loss occurring before 6 weeks gestation. Positive correlation between BMI and gonadotrophin requirement during stimulation and negative correlation between BMI and number of collected oocytes were observed.[12]

Obesity, particularly the abdominal phenotype, is associated with several reproductive disturbances. In women with the polycystic ovary syndrome, abdominal obesity may be co-responsible for the development of hyperandrogenism and associated chronic anovulation, through mechanisms primarily involving the insulin-mediated overstimulation of ovarian steroidogenesis and decreased sex hormone-binding globulin blood concentrations. By these mechanisms, obesity may also favors resistance to clomiphene and gonadotrophin-induced ovulation and reduce outcomes of IVF/ICSI procedures physiological delivery and healthy babies.[13]

Pregravid overweight increases maternal and fetal morbidity. Even moderate overweight is a risk factor for gestational diabetes and hypertensive disorders of pregnancy, and the risk is higher in subjects with overt obesity. Compared with normal weight, maternal overweight is related to a higher risk of cesarean deliveries and a higher incidence of anesthetic and postoperative complications in these deliveries. Low Apgar scores, macrosomia, and neural tube defects are more frequent in infants of obese mothers than in infants of normal-weight mothers.[14]

Early onset of obesity, particularly during adolescence, favours the development of menses irregularities, chronic oligo-anovulation and infertility in adulthood. Moreover, obesity in women can increase the risk of miscarriage and impair the outcome of assisted reproductive technologies. Obesity-associated hyperleptinaemia may represent an additional factor involved in anovulation, not only through the induction of insulin resistance, but also through a direct impairment of ovarian function.[15]

Obesity in women has a broad, negative impact upon human reproduction. Specific risks through pregnancy are real and may be addressed by lifestyle modification leading to weight loss and improved insulin sensitivity. Obese women undergoing fertility treatment should be advised of the increased and absolute increased risks they are undertaking, and fertility centers should adopt appropriate strategies.[16]

Obese women who had vaginal delivery also had excessive blood loss over 500mL when compared with those with a BMI of 20–30. Hence, increased rate of caesarean section might not be the only factor influencing the blood loss in this group. When women undergo vaginal delivery with a big baby, shoulder dystocia, maternal and neonatal trauma and thus increased admission to neonatal unit are more likely. Others have reported an increased risk of postpartum hemorrhage.[17]

Compared with non obese women, women who are obese before pregnancy are at increased risk for cesarean delivery. Preconception counseling regarding dietary and life-style modifications may alter this pattern.[18]

Those in the obese group were at increased ante partum risk and had increased frequencies of chronic hypertension, inadequate pregnancy weight gain, twin gestation, and diabetes mellitus. Oxytocin induction and repeat cesarean sections were performed more frequently for the obese patients, with no increase in complications during the current labor.[19]

Plentiful evidence now links low birth weight due to intrauterine growth restriction and increased risk of vascular disease in later adult life. This is considered to be partly the result of programming through fetal nutrition. In contrast, much less attention has been focused on the relation between adverse pregnancy outcomes, such as pre-eclampsia, gestational diabetes, preterm delivery, and intrauterine growth restriction, and the mother's subsequent health, and interesting data are now increasingly linking the maternal vascular, metabolic, and inflammatory complications of pregnancy with an increased risk of vascular disease in later life.[20]

Maternal morbid obesity in early pregnancy is strongly associated with number of pregnancy complications.[21]

Diet modification and aerobic exercise are very important. Even modest weight modification results in an increase in pregnancy rates. Patients should choose surgical assistance to weight loss; gastric bypass surgery involves new metabolic needs and changes. Other weight-loss options include nutritional counseling and holistic approaches to health. Environment, exercise, and lifestyle changes are keys to success. This will also reduce the risk of diabetes and heart problems later in life.[22]

Obese women should try to lose weight before becoming pregnant. But it warned women not to diet during pregnancy, noting that "adequate nutrition is important for pregnant women and women planning pregnancy.[23]

MATERIALS AND METHODS

1. Patients/ Subjects

Inclusion criteria

- Age limits are 18-35years
- BMI 28-35
- Height more than 4 feet and 10 inches

Exclusion criteria

- Placenta previa
- BMI less than 28
- Chronic diabetic patients
- Chronic diabetic patients

2. Sample Size: We gathered data of almost 100 patients 60 among them were those who had complications in conception and 40 were having complication in pregnancy.

3. Study Setting
Data was collected from
- Lady Willindon Hospital
- Services hospital

4. Study Tool: A data collection form was developed that evaluate sociodemographic details of patients such as age, gender, education etc. Questions related to patient present complaint about disease, disease history, recent medications, past medical history, family history treatment and life style modification were also mentioned.

5. Study Plan
A comparative study design has been followed. The study on asthmatic patients was done retrospectively. During a period of 15 days we interviewed different patients at different times of the day. The complications of the patients were observed by taking history of the patient and the treatment plan given to them was noted.

RESULTS

Table. 1. Medical history.

Medical History N=60					
Sr. No.	**Medical history**	**yes**	**No**	**yes**	**No**
1	Regularity of menstrual cycle	32	28	53	47
2	Miscarriage history	8	42	13.3	69.7

Table 2. Body Mass Index.

Body Mass Index Total n=100%	
28-29	41
30-31	37
32-33	19
34-35	3

Table. 3: Complications in pregnancy in obese patients.

Complications in pregnancy in obese patients		
Number	**N=40**	**%**
Pregnancy induced hypertension	**15**	**37.5**
Gestational diabetes	**10**	**25**
Caesarian deliveries	**7**	**17.5**
Infection	**6**	**15**
Macrosomia	**8**	**20**
Postpartum hemorrhage	**3**	**7.5**
Pelvic pain	**31**	**77.5**

Table. 4. Complications in conception in obese patients.

Sr no	Complications in conception in obese patients n=60 Number		%
1	Hirsutism	7	11.6
2	Polycystic ovarian disease	15	25
3	Diabetes	6	10
4	Hormonal disturbances	14	23.3
5	Hypertension	75	8.3
6	Vaginal infections	10	16.6
7	Regularity of menstrual cycle	32	53

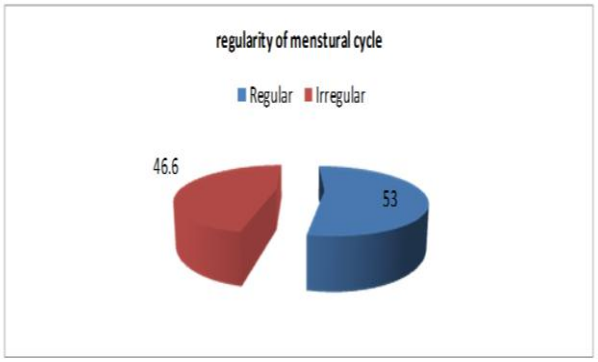

Figure. 1: Showing %age of obese patients having irregularity of menstrual cycle and complications in conception.

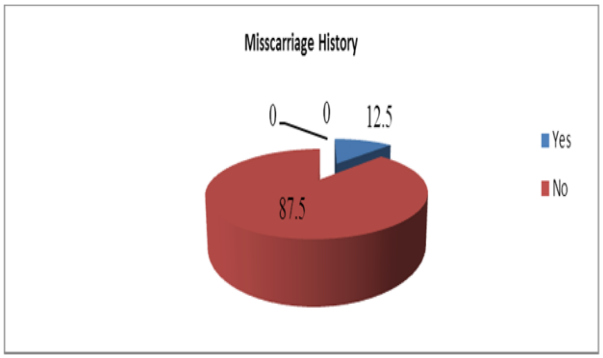

Figure. 2: Showing %age of patients with any previous miscarriage having complication in pregnancy.

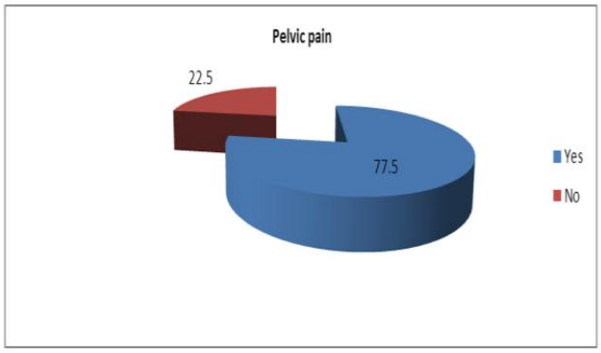

Figure. 3: Showing percentage of obese patients suffering from pelvic pain during pregnancy.

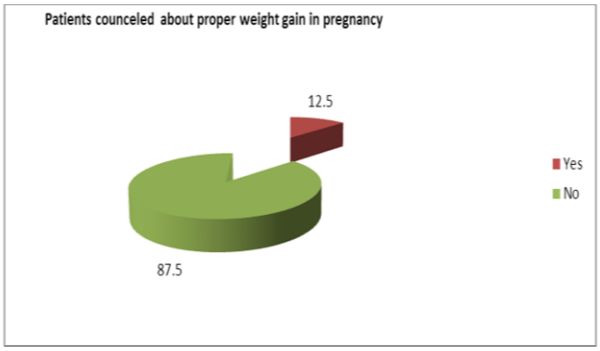

Figure. 4: Showing %age of the patients counseled by physician about proper weight gain in pregnancy.

DISCUSSION

Obesity is increasing rapidly among women all over the world, and more women in fertile ages become overweight and obese. Among all other problems, women who are obese have higher rates of amenorrhoea and infertility. Obese women have a higher risk of complications during pregnancy such as hypertensive diagnoses and gestational diabetes, and delivery complications such as higher rates of caesarean sections and prolonged time of delivery. A hospital based study was conducted where the women having complications used to come. To assess the complications in reproduction and pregnancy due to obesity retrospective and questionnaire study was conducted. For this purpose 100 patients from Lady Willingdon hospital Lahore are taken randomly and their case histories are studied. It has been seen that 40% women are pregnant and 60% women do not conceive. Among 60% of those women who are not pregnant, 53.3% women are those who have their menstrual cycle regular and the remaining 46.7% women have irregular menstrual cycle as shown in Fig 1. 41% women have BMI from 28-29, 37% women are found among BMI from 30-31, 19% women have BMI from 32-33 and 3% women were found among BMI from 34-35. As depicted in table 3 obesity related complications during pregnancy are hypertension, gestational diabetes, caesarian deliveries, infection, macrosomia and postpartum hemorrhage with a %age of 37.5, 25, 17.5, 15, 20 and 7.5 respectively. Complications associated with conception due to obesity are hirsutism, polycystic ovarian disease, diabetes, hormonal disturbances, hypertensions and vaginal infections with a %age of 11.6, 25, 10, 23.3, 8.3 and 16.6 respectively as shown in table 4. Among pregnant women 87.5% are those women having pelvic pain and other 12.5% are not having pelvic pain. %age of patients counseled by physician about proper weight gain are found to be 12.5% and remaining 87.5% patients are not counseled by physician about proper weight gain. The goal of patient education is to improve relations between the patient and her family on one hand and the health team on the other. The quality of this relationship strongly determines treatment adherence, and the ability of the patient (or the patient's partner) to participate in the management and control of the condition. To attain these goals, health education should be ongoing, evaluated regularly, repeated, and above all adapted to the patient's social and cultural level.

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