Maternal obesity and its effect on pregnancy outcome

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Abstract
Obesity during pregnancy is considered a high risk state because it is associated with many serious complications jeopardizing maternal and fetal well being. When consulted pre-conceptionaly the patients should be informed about the possible complications during pregnancy associated with obesity and strongly encouraged to lose weight prior to conceiving.

Key words: obesity, pregnancy, fetal malformations, maternal complications

Obesity is a global, pandemic health problem with a higher prevalence in females than males. Since the frequency with which we have to take care of pregnant patients with obesity is constantly increasing it is mandatory that we be familiar with the specific array of complications associated with pregnancy in the obese patient.

Obesity is defined as a BMI (body mass index) of 30 or more and subdivided into 3 categories: class I – 30-34.9 kg/m, class II – 35-39.9 kg/m and class III – more than 40 kg/m [1].

Obese women have a high rate of infertility and once they conceive they suffer from frequent early miscarriage (odds ratio 1.67). This increased risk for miscarriage may stem from the existence of polycystic ovarian syndrome with resultant insulin resistance, which is often found in these women [2].

Obese women often deliver prematurely. This most probably it is not an independent effect of obesity and may result from a genetic susceptibility and gene – environment interaction or underlying type 2 diabetes rather than obesity per se.

Obesity during pregnancy carries an increased risk for congenital fetal anomalies such as neural tube defects (odds ratio 1.87), heart defects (odds ratio 1.30), omphalocele (odds ratio 3.3), cleft lip and palate (odds ratio 1.20), anal atresia (odds ratio 1.48) and spina bifida (odds ratio 2.24) [3].

During late pregnancy they have an increased incidence of hypertension both chronic and gestational, pre-eclampsia, pre-gestational and gestational diabetes, urinary tract infections, tromboembolism and intra uterine fetal death.

The rate of unexplained stillbirth associated with obesity is significantly higher than in the non-obese women. In a meta-analysis of 9 studies the odds of stillbirth were 2.07 higher among the obese women compared with those of normal weight [4].

The obese parturient is at high risk for many peripartum complications, these include post term onset of labor, abnormal fetal presentation, cervical dystocia, shoulder dystocia, increased cesarean delivery rate with increased rate of post operative infection, difficulty in anesthesia both epidural and endo-tracheal.

An anesthesia consultation is therefore advisable during pregnancy with a pre-delivery planning for the appropriate mode of analgesia and if needed anesthesia preferable, patient tailored.

The child of the obese parturient is often macrosomic, and at a increased risk to suffer from hypoglycemia and early neonatal demise.

Because pregnancy is not the best time to lose weight women with high BMI should be advised to do so prior to conceiving. This is undouthfully the best way to decrease the incidence of complications associated with obesity in pregnancy.

In cases in which weight reduction by diet is unsuccessful one may consider recommending bariatric surgery – particularly to patients with class II and III obesity and co morbid conditions.

It is imperative that the obstetrician following the obese pregnant patient consider her as a high risk patient and manage accordingly.

Already on her first visit a detailed medical history should be obtained and then a thorough physical examination performed to screen for hypertension and other underlain diseases (diabetes, thyroid dysfunction etc.). Folic acid supplementation should be started particularly to women that did not take folate pre-conceptionaly.

It is a good practice as soon as possible to refer the patient to a dietitian and if possible seek their advice periodically through out the whole pregnancy.
Performing an early first trimester ultrasound is important for exact dating of pregnancy as well as for early evaluation of fetal anatomy.

Test to exclude diabetes should be done already in the first trimester and then repeated at 24 and 32 week of pregnancy if the previous ones were normal.

Ultrasonic evaluation should be repeated at 18-20 weeks gestation particularly screening for neural tube and heart defects. One should remember that in obese women the serum markers (Triple Test) may be false negative due to changes in volume distribution in obesity [5].

In spite of the new and sophisticated equipment obesity may make evaluation of fetal anatomy extremely difficult by limiting the visibility of fetal structures in general and that of the 4 chamber view of the heart in particular.

With the progress of pregnancy the obese patient stands an increasing risk to develop hypertension, diabetes, urinary tract infection, gall stone disease, asthma and thromboembolism [6].

During pregnancy we should encourage these patients to exercise for about 30 minutes a day as an "adjunctive therapy" particularly in these with gestational and pregestational diabetes, provided that there are no medical or obstetric complications which preclude physical activity.

The obese patient is told to control her weight gain during pregnancy. According to the recommendations of the ACOG she should gain no more then 6.8 kg during pregnancy if her BMI is more then 30 and up to 11.4 kg if less then that [7].

Controlling weight gain is supposed to allow for adequate intrauterine fetal growth as well as decrease the risk of fetal growth abnormalities (LGA, IUGR).

Patient after bariatric surgery should be advised to delay pregnancy for 12 to 24 months after the procedure to accommodate the rapid weight loss and allow to reach the desired weight.

Once pregnant, these women should be monitored for adequate nutrition, maternal weight gain and fetal growth. There diet should include supplementation of iron, vitamin B12, folic acid and calcium.

There glycemic status may have to be followed by assessment of postprandial glucose level rather then the usually used tests due to the increased risk of dumping syndrome after oral loading test.

Since there have been several case reports of serious complications during pregnancy following bariatric surgery including bowel obstruction, gastric ulcers, band slippage and even maternal or fetal deaths, when pregnant these patients with abdominal symptoms should be managed with a high index of suspicion [8].

In conclusion: maternal obesity carries significant risks for the mother and fetus. The risk increases with the degree of obesity.

Interventions directed toward weight loss must begin in the preconception period. Obstetricians must counsel their obese patients regarding the risks and complications conferred by obesity.

Maternal and fetal surveillance need to be very strict during pregnancy and an multidisciplinary treatment approach is highly recommended in order to decrease the rate of severe life threatening complications during pregnancy, delivery and post partum.

References


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