

CARE OF THE OBESE GRAVIDA (2009)

YNHH OB GUIDELINE

The prevalence of obesity, defined as pre-pregnancy BMI $>30 \text{ kg/m}^2$, has doubled in the last 25 years, to a frequency of over 30% in the adult population. Obesity contributes to many complications of pregnancy, including miscarriage, hypertension and preeclampsia, diabetes, fetal macrosomia, anomalies, stillbirth, cesarean delivery, and complications of cesarean delivery (excessive blood loss, infection, wound separation). Given the scope of the problem, this guideline is designed to serve as an aid to improving care of this group of patients.

1. ANTENATAL SURVEILLANCE

Multiple prospective, cohort studies suggest that prepregnancy obesity increases the risk for stillbirth, though the etiology of this increased risk is not known. This risk is elevated across the entire pregnancy, though is not thought to be greater than two-fold higher until after 36 weeks. Given this, consideration should be made for weekly antepartum fetal testing in obese patients with NST and/or BPP beginning at 38 weeks, particularly in patients with BMI $\geq 40 \text{ kg/m}^2$.

2. DIABETES SCREENING

ACOG suggests screening for gestational diabetes in obese women at 16-20 weeks and repeat screening at 24-28 weeks of pregnancy if the initial result is negative.

3. PREGNANCY AFTER BARIATRIC SURGERY

Case reports have identified complications in pregnancy after gastric bypass surgery, particularly in relation to intestinal obstruction and postoperative adhesions. Care should be taken in managing these patients when presenting with abdominal pain. Patients experiencing emesis or inappropriate weight loss following gastric banding may need referral to a bariatric surgeon for adjustment of the bands. Furthermore, ACOG suggests assessment and possible supplementation of vitamin B12, folate, iron, and calcium for women who have undergone bariatric surgery. If nutritional deficits are suspected, serial ultrasounds for fetal growth may be indicated.

4. INTRAPARTUM CARE

Given the difficulties of maternal and fetal assessment of obese patients, adherence to existing departmental policies for electronic fetal monitoring and maternal assessment is critical. Palpation, external tocometry, and external fetal monitoring are limited in obese patients because of positioning and the distance between the skin and uterus/fetus. Thus, in the absence of contraindications, there should be a low threshold for using internal monitoring with intrauterine pressure catheters and/or fetal scalp electrodes.

5. PREDICTING SHOULDER DYSTOCIA

The assessment of estimated fetal weight at term in the obese gravida can be difficult and obesity itself is a risk factor for shoulder dystocia. In obese patients with diabetes and those with large weight gain, the physician or midwife may consider sonographic evaluation near term to estimate fetal weight. Moreover, assessment and documentation of EFW, as per the "Guidelines for Assessing Risk of Shoulder Dystocia", should be followed. Per these recommendations, cesarean delivery should be discussed when bimanual maneuvers or ultrasonographic evaluation

of the fetal weight suggest an EFW of $\geq 4000\text{g}$ for diabetic and $\geq 4500\text{g}$ for non-diabetic women. Cesarean delivery should be recommended for suspected fetal macrosomia with estimated fetal weights exceeding 4500g in patients with diabetes or 5000g in women without diabetes.

6. DVT PROPHYLAXIS

“Thromboembolic Disease in Pregnancy and the Puerperium: Prophylactic Strategies” reviews in detail the risks and preventative measures for avoiding DVT. They are summarized as follows:

- At Yale-New Haven Hospital, all patients undergoing cesarean should have compression boots applied prior to surgery and maintained until ambulatory to decrease the risk of venous thromboembolism (VTE). (currently, equipment is being obtained to allow us to extend our current practice of using compression boots in elective cases)
- In consideration of other modes for preventing VTE, physicians evaluating patients should understand that obesity ($\text{BMI} > 30 \text{ kg/m}^2$) is a risk factor for VTE in pregnancy, and that a woman with one other current or persisting risk factor should be considered for prophylactic LMWH for the duration of her postpartum stay after vaginal delivery or cesarean section. The typical prophylactic dosage is Fragmin (dalteparin) 5000 units once daily. Following cesarean or vaginal delivery, the first dose should be given approximately 12 hours following delivery.
- Extremely obese women ($\text{BMI} > 40 \text{ kg/m}^2$), even in the absence of additional risk factors, should be considered for prophylactic LMWH for the duration of her postpartum stay after vaginal delivery or cesarean section, or daily dosing for the duration of prolonged immobilization. This is in addition to the use of sequential compression devices for the first 12-24 hours following surgery. The dosage in this group should be Fragmin (dalteparin) 7500 units once daily. Following cesarean or vaginal delivery, the first dose should be given approximately 12 hours following delivery.

- **Summary of Dosing:**

BMI	Dose of Lovenox	Frequency
$>30 \text{ kg/m}^2$	5000 units	Daily to begin 12 hours after delivery
$>40 \text{ kg/m}^2$	7500 units	Daily to begin 12 hours after delivery

7. ANESTHESIA CONSULTATION

ACOG recommends a pre-labor or intrapartum anesthesia consultation for women with $\text{BMI} > 40 \text{ kg/m}^2$.

8. WOUND CARE POST-CESAREAN DELIVERY

Obesity is associated with a higher risk of wound complications following surgery. Closure of the subcutaneous adipose tissue is recommended in patients with an adipose layer ≥ 2 cm thick. There is no evidence to support subcutaneous surgical drains in the absence of other indications than obesity. Postoperative wound care should include daily wound checks with cleaning of the incision, semi-occlusive wound dressings, and instructions to the patient for care and cleaning of the wound.

Further reading:

“Guidelines for Assessing Risk of Shoulder Dystocia”

“Thromboembolic Disease in Pregnancy and the Puerperium: Prophylactic Strategies”

ACOG Committee Opinion Number 315. Obesity in Pregnancy. *Obstet Gynecol* 2005;106:671-5.

Nohr EA, et al. Prepregnancy obesity and fetal death. *Obstet Gynecol* 2005;106:250-9.

Cnattingius S, et al. Prepregnancy weight and the risk of adverse pregnancy outcomes. *N Engl J Med* 1998;339:147-52.