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« EN PASSANT, LA PATIENTE EST ENCEINTE! »

Auteure : Joan Porteous, infirmière autorisée, baccalauréat en sciences infirmières, CPN(C), est formatrice en soins périopératoires au Health Sciences Centre à Winnipeg au Manitoba.

RÉSUMÉ :

Environ 1 à 3 pour cent des femmes enceintes subissent une chirurgie non liée à leur grossesse.¹ Au Canada, cela représente environ 5000 patientes chaque année posant des défis particuliers pour le personnel infirmier périopératoire, ainsi que toute l'équipe chirurgicale.² De 5 à 10 pour cent de ces patientes sont victimes de trauma, ce dernier étant la cause de 46,3 % des décès maternels.^{2,3,4}

Un pourcentage réduit d'interventions chirurgicales non urgentes a lieu pendant le premier trimestre, avant que la patiente elle-même ne sache qu'elle est enceinte. La majorité de procédures est requise en raison de conditions urgentes et très urgentes nécessitant la chirurgie malgré les risques pour la mère et le fœtus.²

Cet article examinera les soins périopératoires de patientes enceintes non obstétriques et présentera des lignes directrices de soins infirmiers à utiliser comme outil de référence rapide. Les soins discutés dans les lignes directrices en annexe visent les patientes enceintes et est à utiliser en conjonction avec les pratiques de soins périopératoires routinières.

Les interventions chirurgicales semi-électives et urgentes ne sont pas contre-indiquées par la grossesse, bien que l'anesthésique et l'approche chirurgicale doivent être modifiés afin de protéger la mère et son fœtus. Lorsque possible, l'intervention devrait être reportée au deuxième trimestre.⁴ Rendu au deuxième trimestre, les systèmes principaux du fœtus sont formés et l'utérus n'empiète pas encore sur les structures abdominales; la manipulation peut donc se limiter. Pendant le premier trimestre, le plus grand risque est celui de l'avortement spontané à 12 %. Ce risque descend jusqu'à moins de 5 % pendant les deuxième et troisième trimestres. L'accouchement précoce est le plus grand risque pendant les deuxième et troisième trimestres.

Les conditions nécessitant le plus souvent une intervention chirurgicale pendant la grossesse sont l'appendicite, les maladies de voies biliaires, un blocage intestinal, le calcul urinaire et le trauma.

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“OH, BY THE WAY, THE PATIENT IS PREGNANT!”

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ABSTRACT:

Approximately one to three per cent of pregnant women undergo surgery that is unrelated to their pregnancy.¹ In Canada this represents about 5,000 patients each year that present unique challenges to the perioperative nurse and the entire surgical team.²

Approximately five to ten per cent of these patients are involved in trauma, which causes 46.3% of maternal deaths.^{2,3,4}

A small percentage of elective procedures are carried out in the first trimester, before the patient herself is aware of the procedure. The majority of procedures are required for urgent and emergent conditions that require surgery despite the risks to the mother and fetus.²

This article will discuss perioperative care of the non-obstetric pregnant patient and to introduce a nursing care guideline that can be used as a

Perioperative Care FOR THE NON-OBSTETRICAL PREGNANT PATIENT

FIRST TRIMESTER 1-12 Weeks
Risk for teratogenicity and abortion

Assessment:

- Gestation?
- Maternal/fetal condition?
- Obstetrics consult?
- Anxieties?

Plan For:

- Increase Theatre temperature to approximately 24° C
- Offer explanations to decrease anxiety
- Regional or local anesthesia
- Closely monitor patient
- Warming blankets
- Pre-op epidural for post-op pain control
- Sequential compression stockings and/or TEDS
- Second IV site/arterial line
- Foley catheter for surgery > 1 hour or laparoscopy
- Good pre-oxygenation
- Cricoid pressure during endotracheal intubation

X-Rays Required:

- Consult with radiology tech to use lowest dose possible (< 5-10 rads is recommended)
- Lead protection under patient's uterus, if using fluoroscopy
- Lead protection over patient's uterus

Laparoscopic Procedure:

- Primary trocar inserted using an open technique?
- Trendelenburg position as indicated
- Prepare for fast switch to laparotomy if necessary
- Lowest possible intra-abdominal inflation pressure of at least < 15mmHg

Electrosurgery:

- Follow standard safety measures

Cardiac Arrest:

- Resuscitating mother will resuscitate the fetus
- Use standard resuscitation measures
- Defibrillate as indicated
- Use standard drug therapy

SECOND TRIMESTER 13-27 Weeks
*Lowest risk period
Risk for abortion and pre-term labor*

In addition to first trimester care:

- Wedge under right hip on transport stretcher to OR after 18-20 weeks gestation
- Wedge under right hip on OR bed and for supine surgical position after 18-20 weeks gestation
- Arm-board on left for balance
- Fetal heart rate monitoring after fetus is viable at 20-24 weeks gestation, but may be considered before viability
- Fetal heart rate < 100 or > 160 indicates a cause for concern
- Prep and drape patient before general anesthetic induction? (consult with surgeon & anesthetist)

THIRD TRIMESTER 28-40 Weeks
Risk for pre-term labor and fetal distress

In addition to first and second trimester care:

- Plan for potential C-Section and neonatal care when indicated
- Neonatal team and obstetrician notified and available if required
- Monitor for contractions likely. Decelerations in heart rate in conjunction with uterine contractions is a cause for concern for the fetus
- Who will monitor fetus?
- Anesthetist or obstetrical nurse?

This document is to be used in combination with routine perioperative care practices

quick-reference tool. The care discussed in the appended Guideline focuses on the pregnant condition and is to be used in conjunction with routine perioperative care practices.

Semi-elective and urgent surgery is not contraindicated by pregnancy, although anesthetic and surgical approaches must be modified to promote the safety of mother and her fetus. If possible, the surgery should be postponed to the second trimester.⁴ By this time major systems of the fetus are formed and the uterus does not yet infringe on abdominal structures and manipulation may be kept to a minimum. In the first trimester, spontaneous abortion is the greatest risk at 12%. This decreases to less than five per cent in the second and third trimesters. Pre-term labor presents the greatest risk in the second and third trimesters.^{2,3,4}

The most common need for surgery in pregnancy is associated with appendicitis, biliary tract disease, intestinal obstruction, urinary calculi and trauma.⁴

Appendicitis:

Appendicitis is the most common surgical problem in pregnancy and it causes the most fetal loss.³ One case of appendicitis is reported for every 550 pregnancies. Appendicitis, treated immediately, has a two to eight per cent incidence of fetal loss that rises as high as 35% with rupture and peritonitis.⁴ This is because of the varied presentation of symptoms, the greater chance of delayed diagnosis and the significant risk that surgery presents to the fetus. The symptoms of appendicitis mimic symptoms of normal pregnancy, i.e. anorexia, nausea, vomiting and abdominal discomfort. To complicate matters, an elevated temperature is not consistent in pregnant women with appendicitis. The appendectomy should be carried out in the usual timely fashion.

Biliary Tract Disease:

Acute cholecystitis is the second most common emergency in pregnant women.⁵ Increased progesterone levels associated with pregnancy decrease motility of the gallbladder resulting in bile stasis that promotes stone formation.

Surgery during pregnancy is reserved for

complications such as choledocholithiasis, pancreatitis, cholecystitis and biliary colic.

Intestinal Obstruction:

Most bowel obstructions during pregnancy are caused by adhesions from previous surgery (80%) or volvulus.⁴ A small bowel obstruction is often presumed for any patient presenting with nausea, vomiting and a history of abdominal surgery, until it is proven otherwise. If x-rays are required, the risk of radiation exposure to the fetus is weighed against the potential morbidity and mortality of a missed diagnosis.

Urinary Calculi:

The pregnant patient with an untreated urinary obstruction combined with an infection has a high risk for abortion and premature labor. Ureteral stones may be treated with ureteroscopy and stone removal by basket or laser lithotripsy. Ultrasonic lithotripsy is contraindicated because the effect of shock waves on the fetus is unknown. Ultrasound may be used for stent placement to relieve hydronephrosis associated with kidney stones, which can be removed later after delivery.²

Trauma:

Trauma occurs in five to 10 per cent of all pregnancies.⁶ Motor vehicle accidents account for up to 60% of trauma in pregnant women, followed by falls (22%) and domestic violence (21%).⁴

The pregnant trauma patient is managed in essentially the same way as a non-pregnant patient. The mother is the first priority. Stabilization of the mother improves both maternal and fetal survival.

In hypovolemic shock, blood is shunted away from the uterus and the expense of the fetus. The fetus becomes hypoxic very quickly because the pregnant uterus is viewed as a non-essential organ in this situation. Fetal demise is 80% in maternal hypovolemic shock. The usual indicators of hypovolemic shock are unreliable in the pregnant trauma patient due to an increased heart rate and increased oxygen requirements of pregnancy.⁷ It is assumed the pregnant trauma victim is in shock until proven otherwise.

PATIENT IS PREGNANT (cont.)

In the event of a ruptured uterus, a caesarean section and hysterectomy may be required with preparation for neonatal resuscitation. If the maternal condition is critical, the primary concern is to save the mother.⁶

Cardiac Arrest:

When a cardiac arrest occurs in a pregnant woman, standard resuscitative measures and standard drug therapy should be used without modification.⁸ The key to resuscitation of the fetus is to resuscitate the mother.⁷ In a pregnant patient close to term, the supine position without a wedge can result in a 30% decrease in cardiac output as a result of compression on the inferior vena cava. The patient's torso should be angled 30-40 degrees from the OR bed. The uterus may need to be displaced to the left manually during resuscitation. Standard drug therapy should be used without modification. Ventricular fibrillation should be treated with the standard shock therapy. Shocks have not been found to transfer a significant current to the fetus.⁸

If a maternal pulse has not been restored, the decision to perform a caesarean section should be made rapidly with delivery affected within 4-5 minutes of the arrest. Delivery of the fetus may relieve aortal compression and allow recovery of the venous return to the heart. If resuscitation efforts are successful before surgical delivery is attempted, caesarean section is not recommended, because in-utero resuscitation is likely.⁸

While the optimal interval of arrest to delivery is within 5 minutes, there are case reports of intact infant survival after more than 20 minutes of maternal arrest.⁸ If gestation is less than 24 weeks, pregnancy viability is probable following a successful resuscitation. When hypoxic episodes cause fetal brain damage, intrauterine fetal demise is the usual result. The fetus often survives when there has been no brain damage due to the "all or nothing" rule.⁹

Goals of Perioperative Care:

Gestational age plays a pivotal role in planning care. Goals of perioperative care for the pregnant patient include:

1. A thorough preoperative assessment is conducted, including:

- What is the gestation of the pregnancy?
- What is the maternal and fetal condition?
- Is there an obstetrics consult?
- What are the patient's anxieties?
- Will intraoperative x-ray or ultrasound procedures be required?

2. Reassure the patient:

- The family may have had little time to adjust to the uncertain outcome and risks
- The family's happiness is replaced with anxiety about the risks associated with the surgery
- Discomfort and pain often complicate normal coping strategies
- Sympathetic nerve fiber discharge results in decreased uterine blood flow
- Provide as much reassurance as possible
- If regional anesthesia is utilized and the fetus is being monitored, the volume on the monitor can be increased
- The anesthetist will be prepared to discuss concerns about teratogenicity associated with medications and discuss other concerns

3. Monitor maternal oxygenation and blood pressure:

- Pulse oximetry readings should remain above 94% to prevent fetal hypoxia
- Continuous oxygen is usually administered
- Maternal hemoglobin levels are closely monitored. Maternal hemoglobin levels may be decreased, due to the increased proportion of serum plasma associated with pregnancy
- A maternal blood pressure of less than 90mm Hg is likely associated with impaired placental perfusion
- A second IV site may be established or an arterial line may be inserted for monitoring

4. Use appropriate medications:

- The majority of anesthetic agents cross the placenta and enter fetal circulation¹
- Some drugs that adversely affect fetal development during the first trimester include nitrous oxide, halogenated agents, sedatives, tranquilizers, antidepressants and amphetamines. Many of these drugs may be

- administered in the second and third trimesters⁶ The fetal liver is immature and metabolizes narcotics slowly, so short-acting drugs may be preferable
- Local and regional anesthetics have not shown teratogenicity
- Lidocaine is preferable to Bupivacaine which may cause bradycardia⁴
- Heparin does not cross the placenta
- The anesthetist's goal is to limit drugs to those that are known to be safe for the pregnant patient

5. Prevent aspiration:

- Gastric emptying is delayed and there is an increased acid accumulation in the stomach associated with pregnancy
- An antiemetic or antacid may be prescribed preoperatively
- The patient is treated as if she has a full stomach with increased acidity associated with pregnancy
- Cricoid pressure is required during endotracheal intubation as directed

6. Avoid pre-term labor

- There is no association of any single anesthetic agent with an increase or decrease of pre-term labour⁶
- Vasopressors and drugs used to reverse muscle relaxants may stimulate the uterus to contract and initiate pre-term labor
- The use of halogenated agents in the third trimester decreases uterine tone and may prevent uterine contractions⁶
- Surgical manipulation of a gravid uterus may initiate pre-term labor

7. Minimize the patient's time under anesthesia:

- Local anesthetics with sedation and regional anesthetics are used whenever possible
- Be prepared to perform skin prep and draping before induction of a general anesthetic
- Have devices for electronic or ultrasonic fetal monitoring functioning before anesthetic induction begins. This may well provide some reassurance and comfort to the mother
- Some techniques to produce a light general anesthetic may increase the possibility of awareness under anesthesia¹⁰

8. Monitor the fetal heart rate (FHR):

- Although fetal heart rate can be heard at 10-14 weeks gestation, it is generally not reliable under 18 weeks and is most useful beyond 22 weeks. Many anesthetists may choose not to monitor FHR before the fetus is viable.⁴ Instead, they will focus their close attention to optimizing the maternal condition. However, pre-viable fetal monitoring may initiate actions to preserve fetal wellbeing.^{1,4,7,12} Positioning adjustments to improve placental blood flow and increasing fetal oxygenation by increasing maternal oxygenation may benefit the fetus.
- Fetal tachycardia may be the first sign of maternal hypoxia
- A FHR of less than 100 or more than 160 should alert the anesthetist to search for causes¹²
- If fetal monitoring is used, personnel competent in monitoring techniques should be involved.^{1,4,6,7}
- Optimizing maternal physiological status also optimizes placental perfusion and is more important than any mode of fetal monitoring.

9. Monitor for pre-term uterine contractions:

- If the uterus is being monitored for contractions, it should be carried out by experienced personnel.^{1,4,6,7} Because the anesthetist is focusing on the patient, an obstetrical nurse may be required.

10. Positioning

- Position the patient in a left tilt position after 20 weeks gestation to relieve pressure on the vena cava and aorta.
- i. Arrange to have the patient positioned in the left tilt position when being transported to the OR on a stretcher
- ii. Position the patient with a wedge under her right hip on the OR bed
- iii. Placing her left arm at 90 degrees on an armboard will help to stabilize her tilt
- Because of the hypercoagulable state associated with pregnancy, apply sequential compression stockings and/or TEDS preoperatively. This hypercoagulable state is nature's protection against bleeding at the time of delivery.

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PATIENT IS PREGNANT (cont.)

11. Prevention of hypothermia:

- Maternal hypothermia should be prevented
- i. Maternal hypothermia causes decreased utero-placental perfusion and may cause bradycardia
- ii. Hypothermia is associated with ventricular fibrillation in the mother and in the fetus
- iii. Pre-term labor is associated with re-warming the mother
- Theatre temperature should be at about 24 degrees Celsius⁶
- Use pre-warmed solutions and warming blankets
- Keep the patient's head covered

12. Electrosurgery:

- General safety principles associated with electrosurgery are followed
- The amniotic fluid absorbs and conducts energy well
- Use the lowest settings possible

13. Radiological investigation:

- Effects such as malformation, growth retardation, CNS abnormalities and fetal loss are dependant on exposure time and dosage⁶
- Radiation exposure should be minimized and radiation doses carefully documented
- Clear communication with the radiology technician may help to limit radiation exposure
- CT scans and x-rays must be used cautiously
- Ultrasonography and MRI do not use ionizing radiation and may be sufficient
- The pregnant uterus should be shielded from above and also from below if fluoroscopy is used
- The patient should be informed of the risks associated with radiation

14. Urinary catheter insertion:

- Bladder distention can cause uterine irritability and preterm labor
- After 12 weeks gestation, the bladder should be decompressed to allow adequate exposure in the pelvis and lower abdomen⁶
- A Foley catheter is recommended for procedures lasting more than 1 hour
- Urine output should be approximately 25 mL/hour



Jennifer Devodder RN (pregnant patient) and Joanna Dlugosz RN (nurse)

By/Par: J. Porteous

15. Laparoscopic surgery:

- The benefits of laparoscopic surgery probably outweigh the risks⁴
- Use an open technique to insert the primary trocar
- Increased abdominal pressure leads to decreased uterine blood flow, decreased maternal vena cava blood return and decreased maternal residual capacity
- Use the lowest possible intra-abdominal insufflation pressure. Less than 15 mm Hg is recommended
- A trans-vaginal Doppler could be used for fetal monitoring
- Be prepared to convert to laparotomy swiftly and efficiently if required

16. Be prepared for pre-term delivery when applicable:

- The fetus is viable after 24 weeks gestation
- In the event of untimely rupture of the membranes, pre-term labor or fetal distress, a caesarean section may be required to save the fetus
- If a caesarean section is a possibility:
 - iv. Notify the obstetrician
 - v. Notify the neonatal team
 - vi. Have neonatal equipment available

PATIENT IS PREGNANT (cont.)

17. Facilitate postoperative care:

- Inform PACU about the patient's pregnancy and condition well ahead of time to allow them to prepare
- Ensure the patient is in a left tilt position on the recovery bed or stretcher
- Supplemental oxygen may be administered on transport to PACU
- Fetal monitoring initiated in the OR will continue in PACU
- Patients in their second and third trimesters may be monitored for uterine contractions
- Abruptio placenta occurs in 40-60% of major trauma victims, often occurring after surgery¹¹

Conclusion:

Careful planning, which incorporates the gestational age of the fetus as well as maternal physiological and emotional changes, will ensure the best outcome for the pregnant surgical patient and her unborn child. Appendix A is a planning tool which can be utilized by perioperative nurses who are about to care for a pregnant patient who requires urgent or emergent surgery. This tool will be helpful to plan care when the nurse hears a colleague state "Oh and by the way, the patient is pregnant!"



By/Par: J. Porteous

Jennifer Devodder RN (pregnant patient) and Joanna Dlugosz RN (nurse)

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Aucune soumission non-signée, incomplète ou en retard ne sera considérée.



APPEL DE SOUMISSIONS