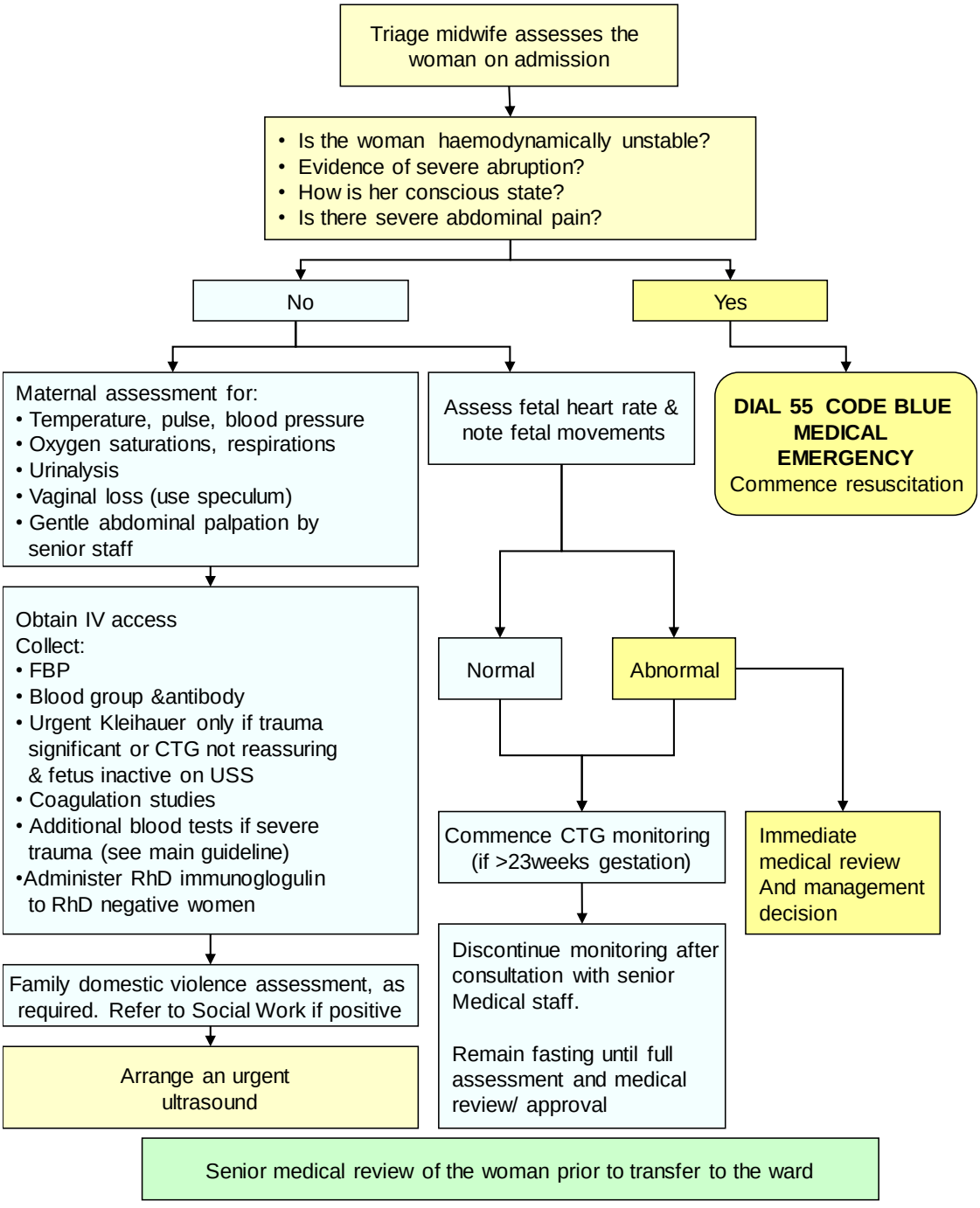
CLINICAL PRACTICE GUIDELINE

Abdominal trauma: Management during pregnancy

This document should be read in conjunction with the Disclaimer

Flow chart for management of a woman following abdominal trauma



Note: This flowchart represents minimum care & should be read in conjunction with the following full guideline & disclaimer. Additional care should be individualised as needed.

Aim

The appropriate assessment and management of a woman who present following abdominal trauma.

Background information

Abdominal trauma in pregnancy may lead to adverse fetal and maternal outcomes. Anatomical and physiological changes in pregnancy may cause delay, or difficulty in diagnosis of maternal injury. Common causes of injury in pregnancy are motor vehicle accidents (MVA) injury to the abdomen, assault , trauma to the abdomen which may result from domestic violence, a fall or be self-inflicted and other injuries such as burns and wounds.[1, 2]

Almost all trauma in pregnancy in Australia is blunt trauma. Motor vehicles crashes account for the majority and 1-10% of cases are attributed to assault.

Key points

1. All women who have experienced significant trauma to the abdomen should be observed and monitored for 24 hours in hospital.
2. Women with a negative blood group are offered RhD Immunoglobulin and a Kleihauer performed as appropriate.
3. Diagnosis of injury from abdominal trauma may require further investigation if clinical signs of trauma continue despite no evidence of abruption on ultrasound examination.
4. Ultrasound is a valuable tool for assessing abdominal injury to the woman and the fetus, but clinicians need to remain aware of the limitations. It may fail to identify intra-abdominal injury such as isolated retroperitoneal injuries, organ specific injury, small amounts of intraperitoneal fluid and intra-abdominal injury without haematoma.[3]
5. Antenatal counselling about the proper use and fitting of seat belts is a beneficial strategy to help reduce maternal and fetal mortality.
6. If a woman has suffered significant trauma and needs to be transferred to Royal Perth Hospital for ongoing care, the RPH ED consultant and Trauma Surgeon on call should be notified immediately by the Obstetric Consultant/Senior Registrar on call.
7. If the woman’s gestation is 23- 34 weeks and it is anticipated that there is a high possibility of a preterm delivery the Neonatal Consultant on call and NICU are to be informed by the Obstetric Consultant/Senior Registrar.

Procedure

Admission and triage

On admission the Triage Midwife will assess a woman presenting with abdominal trauma immediately for:

- Blood loss
- Pain
- State of consciousness
- Symptoms of haemodynamic instability

The most common complication from blunt trauma to the abdomen in pregnant women is placental abruption.[3] Signs of placental abruption include uterine tenderness, vaginal bleeding, uterine tetany and irritability. Bleeding may lead to maternal shock.[3]

- A **CODE BLUE MEDICAL EMERGENCY** should be initiated if the woman is physiologically compromised.

Maternal assessment

Observations

Obtain baseline observations:

- Pulse
- Respirations
- Blood pressure
- Temperature
- Oxygen Saturation
- Conscious state

Adjust the frequency and type of maternal observations according to the maternal condition and type of trauma involved e.g. neurological observations may also be required.

The assessment of shock in young women is difficult and must not be based on blood pressure (BP). A normal BP does not mean a normal circulation. In shocked young people BP is maintained well until very late and in the pregnant woman mild hypotension is commonly encountered. The pulse rate and its character, peripheral perfusion and skin colour provide a more accurate assessment of the circulation.

Abdominal palpation

Gentle palpation should be done by a senior midwife or the medical staff to assess:

- uterine tone, contractions and tenderness
- fundal height
- evidence of bruising or haematoma

Vaginal examination

Perform a speculum examination to assess for:

- blood loss
- rupture of membranes

Thermoregulation

The woman must always be kept warm, or rarely, cooled. Hypothermia is one of the main dangers in trauma contributing to worsening acidosis, coagulopathy and infection.

Urinalysis

Perform routine urinalysis including testing for blood in the urine. After 12 weeks gestation the uterus and bladder are more susceptible to injury, and late in pregnancy maternal fractures are associated with bladder injury.

Fetal assessment

- Assess the fetal heart rate (FHR) with the doptone as soon as possible.
- Note fetal movements.

Direct fetal injuries and fractures occur in less than 1% of blunt abdominal trauma cases and most occur late in pregnancy.[4] Hypoxic injuries to the fetus may be secondary to placental abruption.[1]

CTG monitoring

- Commence continuous fetal FHR monitoring as per discussion with Consultant.
- The decision regarding the duration of continuous monitoring will be made on history of the severity of the trauma, and the clinical presentation of the woman
- Continuous FHR monitoring should be continued until medical review.
- If discharge criteria are not met (see below), intermittent CTG should be continued for 24 hours (at least one 20 minute trace every 4 hours- the frequency dependent on the clinical condition of the mother and the severity of the abdominal trauma)
- Indications for more extensive fetal monitoring are:
    - Uterine contractions > 1 every 15 minutes.
    - **Significant** uterine tenderness.
    - Signs of fetal compromise on CTG.
    - Evidence of vaginal bleeding.
    - Rupture of the membranes.
    - Positive Kleihauer test.

  - Ultrasound suggestive of placental or cord abnormality.
  - Any evidence of serious maternal injury.
- Removal of continuous monitoring should be at the discretion of a Level 3 Obstetric Registrar or above.

Ultrasound

- Perform an ultrasound examination to assess fetal wellbeing.
- Organise an abdominal ultrasound examination to exclude significant abdominal trauma.

Ultrasound is used to detect the presence of intraperitoneal fluid, and to diagnose the source of bleeding or injury to the abdominal contents[8]. Ultrasound assessment is also used to assess fetal well-being, confirm gestational age, and identify placental injury.

Intravenous access

- Obtain intravenous access. If the woman is at risk, or haemodynamically compromised, insert at least two large bore 16 gauge cannulae in peripheral veins. Central veins are not the first choice of venous access.
- Blunt trauma may cause placental abruption and can be associated with pelvic fracture. Pelvic fracture signs may include abdominal pain, rebound and guarding and referred shoulder tip pain and is often associated with hypovolaemic shock.[3]

Blood tests

Placental laceration or abruption may lead to disseminated intravascular coagulation and hyperfibrinoginaemia.[3]

Order:

- Full blood picture (FBP)
- Blood group and antibody screen
- Urgent Kleihauer only if there is **significant** abdominal trauma, or when the CTG is not reassuring and the fetus is inactive on ultrasound. **The laboratory must be phoned to inform that an urgent Kleihauer is requested.**
- Coagulation studies

For women with moderate to severe trauma in pregnancy include:

- Group and cross match
- Serum electrolytes
- Renal function tests
- Serum glucose
- AST and ALT

- Amylase
- Arterial blood gas analysis
- Kleihauer test – quantify with flow cytometry if the Kleihauer test indicates significant feto- maternal haemorrhage.

RhD Immunoglobulin

Administer Rh D Immunoglobulin to Rhesus D negative (Rh D) women. Rh D negative women are at risk of rhesus isoimmunisation, which results in haemolytic disease of the newborn.[3]

Additional assessments

- Assess for Family Domestic Violence (FDV) as required. FDV may commence or increase in pregnancy, and assaults should be considered in all women with uterine rupture.[1] Refer to Social Work if FDV screening positive.

Diet

Offer diet only after a complete maternal and physical assessment is done and the woman is assessed as being haemodynamically stable and there is no evidence of fetal compromise. The decision to allow the woman to eat after abdominal trauma should made in liaison with the medical staff.

Discharge

Discharge criteria:

- No signs of fetal compromise
- No uterine activity
- No ruptured membranes
- No vaginal bleeding
- No evidence of fetal- maternal haemorrhage on the Kleihauer test.
- Normal ultrasound findings
- Ensure all Rh (D) negative women with abdominal trauma have received a dose of 625IU Rh(D) immunoglobulin even if the Kleihauer is negative.

Discharge home with instructions for the woman to return if:

- There are any signs of preterm labour
- Abdominal pain and / or vaginal bleeding
- Change in fetal movements

The woman should not be discharged without Obstetric Registrar review.

References

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4. Van Hook JW. Trauma in pregnancy. **Clinical Obstetrics and Gynecology**. 2002;45(2):414-24.

Bibliography

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Warner MW, Salfinger SG, Sudhakar R, et al. Management of trauma during pregnancy. **ANZ Surgical**. 2004; 74:125-8.

Related WNHS policies, procedures and guidelines

KEMH Clinical Guidelines: Obstetrics& Gynaecology:

- RhD Immunoglobulin
- Kleihauer Test
- Screening for Family and Domestic Violence

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NSQHS Standards (v2) applicable:	1 Governance, 8 Recognising & Responding to Acute Deterioration		