MATERNITY UNIT
GUIDELINE:

AMNIOTIC FLUID EMBOLISM

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SCOPE:
All midwives and obstetricians working in the maternity unit

PURPOSE:
To provide guidance on the management of amniotic fluid embolism in order to improve the chances of maternal and fetal survival.

DEFINITIONS:
Amniotic fluid embolism is a rare but catastrophic emergency in which amniotic fluid, and other debris, enters the pregnant woman's blood stream via the placental bed of the uterus and causes an allergic reaction.

GUIDELINE:
Hauora Tairawhiti has adopted the **PMMRC 'Amniotic Fluid Embolism (AFE) Management** – see below).

Amniotic Fluid Embolism (AFE)
DEFINITION:
Amniotic Fluid Embolism (AFE) is a rare but catastrophic obstetric emergency in which amniotic fluid, and other debris, enter the pregnant woman's blood stream via the placental bed of the uterus and cause an allergic reaction. The incidence of AFE is in the order of 1 in 16,000 to 1 in 55,000 pregnancies. AFE was equal to hemorrhage as the most common cause of maternal death in the most recently published PMMR report (2015).

The clinical diagnosis is based on the presentation with cardiovascular collapse or coagulopathy in the absence of other potential explanation. Women with mild cases of AFE usually recover without sequelae, but the overall fatality rate with severe AFE is high and case fatality rates of 13% to 30% are reported in recent studies. Neurological damage may occur in some survivors. Perinatal outcome is good in infants born to women who develop AFE following delivery but the perinatal mortality rate is high (154 in 1,000) if AFE develops prior to delivery.

Risk factors

Two studies from North America have reported increased rates of AFE with maternal age >35 years, caesarean section, instrumental delivery, preeclampsia, placenta praevia and placental abruption. Medical induction of labour was found to be a risk factor but the majority of women who develop AFE have no identifiable underlying risk factors.

Signs and symptoms

AFE usually presents during labour or around delivery, although cases have also been reported in first and second trimester abortion and as late as 48 hours postpartum and following amniocentesis or abdominal/uterine trauma.

Premonitory symptoms have been described and include breathlessness, chest pain, feeling cold, light headedness', restlessness, distress, panic, nausea and vomiting, pins and needles. Pain is not usually a feature.

Early symptoms include a sudden onset of dyspnoea and hypotension which is frequently followed by cardiovascular collapse and respiratory arrest. In 10-20% of cases these events are preceded by seizure-like activity. In women who survive this initial phase, coagulopathy frequently follows. In 10-15% of patients coagulopathy is the presenting manifestation.

Clinical management

The goal of treatment is to correct hypoxaemia and hypotension so that ischaemic consequences are prevented. Current treatment consists of aggressive oxygenation, treatment of circulatory collapse and counteracting coagulopathy. Prompt delivery may prevent fetal asphyxia and improve fetal outcome when AFE occurs prior to delivery. The woman will require transferring to ICU once stable.

CALL for HELP – 777 and request crash team plus anaesthetist, obstetrician & paediatrician. Ensure you have the crash trolley in the room.

<u>Circulatory collapse</u>

1. Oxygen should be given at high concentrations of at least 10-15L/min and unconscious patients should be immediately intubated and ventilated.
2. Intravascular access should be obtained.
3. Vasopressors should be used to improve ventricular function, inotropes also have a place.
4. Other therapies include inhaled nitric oxide for pulmonary hypertension.

<u>Coagulopathy and major obstetric haemorrhage</u>

Development of coagulopathy and major obstetric haemorrhage should be anticipated.
In the event of bleeding, the **massive transfusion protocol** should be activated.

1) Baseline bloods should be taken to assess the presence and degree of coagulopathy and a group and antibody screen taken to allow blood for transfusion.

Baseline bloods required:

i) Blood for group and antibody screen/ crossmatch (pink tube)

ii) FBC in edta tube (purple top)

iii) Coagulopathy screen in citrate tube (blue top).

2) Management of coagulopathy

Disseminated intravascular coagulation with rapid consumption of blood clotting proteins especially fibrinogen and also platelets is very common and develops very rapidly in AFE compared to other causes of major haemorrhage.

Aggressive pre-emptive replacement of blood and blood products should take place according to the Massive Transfusion Protocol under the direction of the obstetrician and anaesthetist.

3) Haemorrhage should be aggressively managed with uterotonic agents, uterine tamponade and examination to exclude co-existent genital tract trauma that may exacerbate blood loss. Severe ongoing uterine bleeding that does not respond to first line measures requires rapid recourse to more invasive techniques such as bracing suture (B-Lynch suture), uterine artery ligation, peripartum hysterectomy.

Recombinant activated Factor 7 has been used in management of severe obstetric haemorrhage that is unresponsive to standard treatment and is available from Hauora Tairawhiti blood bank. Options for second line treatment will be dependent on the expertise and resources available locally.

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ASSOCIATED DOCUMENTS:

Hauora Tairawhiti Resuscitation policy
Hauora Tairawhiti Rapid Massive Transfusion Protocol

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