

The Rapid Obstetric Screening Echocardiography Examination

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Maternal morbidity and mortality from haemorrhage, preeclampsia, cardiac failure, embolism and sepsis worldwide is significant (WHO 2004). Despite low mortality in our community, morbidity related to these diseases occurs and diagnostic uncertainty can exist when faced with common clinical situations (Lewis 2007).

In the field of obstetric anaesthesia and obstetric critical care transthoracic echocardiography (TTE) is an emerging technology although ultrasound in other areas of obstetrics is well established (Neilson 2000). TTE using a safe, portable and non invasive device, offers many advantages in this setting and can help address these diagnostic dilemmas (Dennis 2009).

Clinical scenario 1 - Breathlessness

A 32 year old woman 36 weeks pregnant is short of breath.

Is her breathlessness due to a respiratory or cardiac cause? Can it be attributed to pregnancy?

Clinical scenario 2 - Hypotension

A 28 year old woman is hypotensive after a caesarean birth.

Despite fluid resuscitation she is still hypotensive. Is bleeding causing the hypotension or is it something else?

Clinical scenario 3 – Preeclampsia

A 33 year old woman 32 weeks pregnant weighing 145 kg, body mass index (BMI) 50 is hypertensive blood pressure (BP) 170/100 mmHg with significant proteinuria.

How much fluid can I give to this critically ill woman who, even if I could use ultrasound to locate her internal jugular vein, cannot safely lie flat to enable the placement of a central venous catheter? How do I safely resuscitate her and prevent acute pulmonary oedema?

Work by our group has demonstrated that TTE is acceptable and applicable in this population and is able to be used in both research studies and as a rapidly performed bedside scan to assist with diagnosis and for assessing response to treatment (Dennis A, Arhangelschi I et al. 2009).

Principles of the Rapid Obstetric Screening Echocardiography (ROSE) scan:

1. **A**cceptable and applicable
2. **B**edside test in left lateral position
3. **C**omfortable and concise examination – Parasternal views, Apical views
4. **D**iagnosis and response to therapy – Contractility status and volume status
5. **E**mbolism (Air, Blood, Amniotic fluid) – Right heart function/Relative size
6. **F**etal heart rate assessment

References

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