Aneurin Bevan University Health Board

Fetal Arrhythmias in Pregnancy and Labour Guidelines

N.B. Staff should be discouraged from printing this document. This is to avoid the risk of out of date printed versions of the document. The Intranet should be referred to for the current version of the document.

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Introduction

This Guideline is a clinical guideline designed to support safe and effective care.

Fetal arrhythmias or disturbances in the cardiac rhythm are reported in 7% of pregnancies. Majority of these are secondary to fetal extrasystoles and are benign. Severe rhythm disturbances causing persistent tachy or bradyarrythmias can cause fetal haemodynamic disturbance which if untreated can result in fetal hydrops and intrauterine death. It is important to differentiate true arrhythmia from fetal heart rate changes secondary to 'fetal distress'. [1]

What is it about? Why is it needed?
This may require information relating to audit, risk management, quality and safety.

Scope of guideline

This policy applies to all members of staff including midwives, Obstetric medical staff and nursing staff on the early pregnancy assessment unit and gynaecology ward.

This guideline is cross referenced to Standard for Healthcare Services 7

Aims

To provide support for clinical decision making

Objectives

To provide high quality care for women experiencing fetal arrhythmias

Roles and Responsibilities

Maternity staff are responsible for the execution of this guideline.

Protocol outlining the initial prenatal management of fetal arrhythmias

GPs/CMWs are advised to refer women to the maternity unit if they present with an irregular fetal heart rate (FHR) or a sustained FHR more than 180bmp or less than 100bmp. A review should be arranged on the same day in DAU or in the Triage Unit.(Out of hours)
Following tests should be performed:

1) Full Antenatal Assessment
2) Fetal Auscultation, perform ECTG if >26/40
3) Exclude labour, maternal tachycardia or sepsis.

***If there are any signs of labour interpret CTG as per routine criteria and manage accordingly**

4) Assess Caffeine intake
5) Medication History (any Sympathomimetic / Antihistaminic)

<u>If the fetal arrhythmia is confirmed then organise:</u>

1) A review by Senior Obstetrician
2) Urgent Ultrasound scan(within 24 hrs.) to assess:
   i-Growth
   ii-Liquor volume
   iii-Any evidence of fetal hydrops
   iv-Structural cardiac anomalies

3) General Advice (See below)

<u>Advice for women with benign arrhythmias</u>

1) Abstain from smoking, consuming stimulant beverages containing caffeine and foods containing excessive vanilla, chocolate etc.
2) Avoid stimulant medications such as Ephedrine, Salbutamol, nasal sprays, Otrivine etc.
3) The reduction of maternal stress would suffice in resolving these benign arrhythmias in the majority of fetuses
4) Women should be advised about fetal movements and to report any changes

<u>Management:</u>

- **Normal rate (110-160) but irregular rythm:**

  A second review in 48hrs in DAU and if normal rate and rhythm confirmed ,then continue with planned CMW/ANC visits . If the rhythm continues to be abnormal, refer to FMC (fetal medicine clinic).

If Fetal Heart Rate <100 or >180 or if there is any evidence of fetal Hydrops on Ultra Sound Scan

- Urgent advice from fetal medicine specialist. Alternatively discuss with Fetal cardiologist in UHW (for urgent Fetal Echocardiogram (Telephone 0290744743) or contact the on call paediatric cardiologist in UHW via switchboard for advice regarding treatment.
- Alert the Neonatology team at RGH

Prenatal Management of Fetal Heart Arrhythmias in Fetal Medicine

Persistent Fetal Tachycardia >180bpm

In cases where the senior decision was to initiate management locally at RGH after discussion with FM consultant / Paediatric cardiologist at UWH:

1. Urgent maternal ECG to assess baseline maternal QRS duration (duration should not increase by > 25% whilst on treatment), Full blood count, U&Es
2. Admit to Delivery Suite to commence Digoxin / Flecianide therapy.
3. Ensure that fetal echocardiography has been arranged.

Drug Therapy to Reverse Persistent Fetal Tachycardia >180bpm **(Should not be initiated locally without discussing with fetal cardiologist or fetal medicine specialist)**

Digoxin and Flecainide have been shown to be effective in reversing persistent fetal tachycardia

Digoxin: Digoxin is usually given as a dose of 250 mcg tds for 5 days followed by lowest therapeutic Digoxin levels before the next dose ((or at least 6 hours after the last one) which should be maintained between 1.0-2.6 nmol/L or 0.8 to 2.0 mcg/L.

Flecainide: Flecainide is usually given as a dose of 100mg bd for 5 days followed by trough Flecainide levels before the next dose which should be maintained between 0.15 to 0.9 mg/L. If therapeutic levels are attained and conversion does not occur then Flecainide can be increased to TID or QID as necessary.

If the patient is followed up locally at RGH:

1) Woman must be managed jointly by Paediatric Cardiologist and a Fetal Medicine Consultant with appropriate input and counselling by a Consultant Neonatologist
2) At least weekly visits to FMC for:
   a. Maternal serum levels of Flecainide and Digoxin to ensure therapeutic levels and avoid toxicity
   b. ECG (duration should not increase by more than 25% whilst on treatment)
   c. FBC & U&E's
   d. USS to assess the fetal wellbeing including fetal heart rate and rhythm
3) Regular fetal echocardiogram checks as per the initial management plan from FMC/Paediatric cardiologist.
4) Place of delivery will depend on fetal heart condition and the advice of the Paediatric cardiologist.
5) Mode and timing of delivery will depend on fetal heart rate and rhythm and the general condition of the fetus. There is no contraindication to vaginal delivery. However if unable to undertake continuous fetal heart monitoring in labour or interpret CTG, then Caesarean Section is the preferred method of delivery.

Management of Bradyarrhythmias

Persistent Fetal Bradycardia <100bpm

In cases where the decision was to initiate management locally at RGH after discussion with FM consultant / Paediatric cardiology at UWH:

1. Urgent Anti Ro and Anti La antibody screen
2. Admit to Delivery Suite for maternal ECG and to commence medications
3. Make sure that Fetal heart echocardiogram referral is made.

Drug Therapy to Reverse Persistant Fetal Bradycardia <100bpm **(only after advice by paediatric cardiologist/Fetal medicine specilaist)**

Use of steroids has been reported to reverse hydrops and modify progression of heart block. Other modalities like plasmapheresis, beta sympathomimetic have been tried with limited success.

Subsequent Prenatal Management of Persistent Fetal Bradycardia <100bpm

1) Woman must be managed jointly by a Paediatric Cardiologist and a Fetal Medicine Consultant with appropriate input and counselling by a Consultant Neonatologist
2) At least weekly visits to FMC for USS to assess fetal wellbeing including fetal heart rate and rhythm
3) Weekly auscultation by a midwife (Thus fetal heart rate is being checked twice weekly)
   If heart rate falls below 60bpm – **urgent (same day) referral to Fetal Medicine or Paediatric Cardiology**
4) Will have regular fetal echocardiogram checks as per the initial management plan from FMC/Paediatric cardiologist.
5) Place of delivery will depend on fetal heart condition and the advice of the Paediatric cardiologist
6) Mode and timing of delivery will largely depend on fetal heart rate and rhythm and general condition of the fetus. If unable to undertake continuous fetal heart monitoring in labour Caesarean Section is the preferred method of delivery.

Training

Staff are expected to access appropriate training where provided. Training needs will be identified through appraisal and clinical supervision. Training compliance is recorded within the directorate.

Audit

This guideline will be audited as part of the directorate risk management system.

References

1. Textbook of Fetal abnormalities, second edition.Peter Twining, Josephine M.McHugo, David W.Pilling
2. Guideline on Initial prenatal management of fetal arrhythmias detected in midwifery led and consultant led units. University Hospital of Wales.