Reducing stillbirth through improved detection of fetal growth restriction: *A best practice toolkit*

NHS
London
Strategic Clinical Networks

Aim

To improve the detection of fetal growth abnormalities in London through the use of customised growth assessment and protocols.

This toolkit has been produced as part of the London Maternity Strategic Clinical Network's strategy to identify areas of good practice for implementation across all maternity units in the capital, ensuring equally good outcomes for all pregnant women and their babies.

This toolkit presents the evidence that the implementation of antenatal detection of fetal growth restriction is an effective way of reducing the number of stillbirths. In practice, the Growth Assessment Protocol (GAP) is the best described intervention combining three core elements including GROW and a package of support. It is envisaged that all maternity units will adopt the package across London.

Background and rationale

Stillbirth rates in the United Kingdom have shown little change over the last 20 years, and the rate remains among the highest in high income countries. In England and Wales, the stillbirth rate is 4.7 per 1,000 live births. London has the highest stillbirth rate of all regions in the United Kingdom at 5.3 stillbirths per 1,000 live births[1].

A recent review has suggested that in terms of the economic impact on the National Health Service, the annual costs in England and Wales for investigation and care immediately following stillbirth is almost £6 million, whilst antenatal costs in a next pregnancy are approximately £15.1 million. Combined with litigation costs (£1.6 million), this figure rises to £16.7 million for the UK health service[2].

Reducing stillbirth rates has been identified as both a key national and local priority for the NHS and Strategic Clinical Networks, and is supported by the National Outcomes Framework[3].

Risk factors

Risk factors associated with stillbirth include maternal obesity, ethnicity, smoking, pre-existing diabetes, and history of mental health problems, antepartum haemorrhage and fetal growth restriction (birth weight below the 10th customised weight percentile).

The evidence shows that fetal growth restriction (FGR) is by far the single strongest risk factor for stillbirth after 34 weeks gestation, and it accounts for approximately 50 per cent of all stillbirths before 34 weeks gestation.

However, the early detection of fetal growth problems can substantially reduce the risk of stillbirth. Findings from a cohort study in the West Midlands between June 2009 and May 2011 showed that the relative risk of stillbirth can be halved (from 6.5 to 3.4) when FGR is detected antenatally[4].

Role of customised growth charts

Customised antenatal growth charts are designed to provide a more accurate representation of fetal growth and improve the recognition of babies that are pathologically small. The charts take account of height, weight, ethnicity, parity of the woman. They are used to plot fundal height measurements and estimated fetal weight following an ultrasound scan and predict the fetal growth curve for each pregnancy.

Customised assessment of birth weight and fetal growth has been recommended in national guidelines from the Royal College of Obstetricians and Gynaecologists[5].

Customised charts improve outcomes by

- Improving the detection of fetal growth problems
- Avoiding unnecessary ultrasound referrals, enabling resources to be focused towards high-risk pregnancies
- Reducing anxiety by reassuring mothers when growth is normal

The customised chart is calculated using computer software. In the UK, Gestation Related Optimal Weight (GROW), software is available from the Perinatal Institute, and as part of the comprehensive growth assessment protocol (GAP) which is designed to provide quality assurance.

The regional implementation of GAP accreditation training between 2008 and 2011 in three regions (West Midlands, Yorkshire and Humber and the North East) was associated with a significant reduction in stillbirths due to fewer deaths of babies with FGR and a substantial increase in antenatal detection.

By 2012, the West Midlands had seen a 22 per cent reduction in the stillbirth rate, equivalent to 92 fewer deaths a year. Extrapolated to the rest of the UK, it is estimated that the GAP programme has the potential to save more than 1,000 babies a year[6].

Growth assessment protocol (GAP)

Since 2013, GAP has been adopted by more than half of UK maternity units.

GAP training comprises three core elements, including the GROW charts and a package of support:

1.) Implementation of evidence based protocols and guidelines

- Customised growth charts and birth weight centiles via specialised software
- Evidence based template in the use of fetal growth assessment charts including referral criteria for adapting into local protocols

2.) Training and accreditation of all staff involved in clinical care

- GAP trainers who deliver "train the trainer" sessions
- E-learning and test package
- Competency document for peer assessment
- Online training and competency log

3.) Rolling audit and benchmarking of performance

- Data collection tool to determine FGR rates and antenatal detection rates
- Reporting and benchmarking of unit based rates of FGR and detection
- Audit tool to log missed cases

Auditable standard

Each unit should audit the proportion of babies with IUGR identified during the antenatal period (percentage of babies detected <10th customised centile) and missed cases of IUGR.

Implementation

The Perinatal Institute's programme for reducing stillbirths through improved detection of fetal growth restriction is recommended by commissioning guidance from NHS England[7].

The GAP programme is available to Trusts directly from the Perinatal Institute and information on the small cost and timescale for implementation and maintenance is also available at www.perinatal.org.uk/gap or on telephone 0121 607 0101.

Key factors to aid the successful local implementation of the GAP programme

- Ensure training and accreditation of all staff using GROW (target of 75 per cent in the first year)
- Nominate trust champions to provide local leadership in implementation, drawing on a range of specialties such as a midwifery manager (e.g. head of midwifery, supervisor of midwives, clinical risk manager, matron), an ultrasonographer and an obstetric/fetal medicine lead.

References / further reading

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