

Intrapartum deaths: missed opportunities

Andrew CG Breeze

Christoph C Lees

Abstract

Although fetal and perinatal death remains a common event in obstetric practice, only a minority of these deaths occur during, or as a consequence of, events during labour or delivery. Unfortunately, many of these deaths are associated with substandard care. In some cases, avoidance of labour altogether, with delivery by Caesarean section, will prevent such adverse events and these risk factors can be determined antenatally. For most women, ostensibly 'low-risk' for such problems at the onset of labour, good midwifery and obstetric care, with the judicious use of fetal monitoring and intervention when concerns arise, are the cornerstone of avoiding delivery-related perinatal death. In this review we examine risk factors for delivery-related perinatal death and consider how such tragedies could hopefully be avoided.

Keywords abruption; breech; caesarean section; cord accident; electronic fetal monitoring; fetal death; growth restriction; instrumental delivery; malpresentation; multiple pregnancy; patient safety; risk management; uterine rupture; vaginal birth after caesarean section

Introduction

Fetal death remains a relatively common event in the UK. According to the latest available figures from the Confidential Enquiry into Maternal and Child Health (CEMACH), during 2006, the stillbirth rate in England, Wales and Northern Ireland was 5.3 per 1000 (representing 3692 stillbirths and 693,505 livebirths). Only a minority of these deaths occurred during labour and delivery (i.e. intrapartum-related stillbirths) although some intrapartum-related or delivery-related neonatal deaths also occurred. Despite improved staffing levels on maternity units over recent years, the number of intrapartum deaths in the UK has proved resistant to change, and the combined number of intrapartum-related stillbirths and neonatal deaths remains around 500 deaths per year, roughly one per 1000 livebirths; the majority of these are neonatal deaths. The National Health Service Litigation Authority (NHSLA) has had roughly 40 cases of intrapartum stillbirth per year reported to it since 1995, equating to approximately 0.7:10,000 livebirths in England and Wales (CC Lees, personal communication from NHSLA, November 2008). This is likely

Andrew CG Breeze MA MRCOG is a Specialist Registrar in Obstetrics & Gynaecology at the Norfolk & Norwich University Hospital, Norwich, UK.

Christoph C Lees MD MRCOG is a Consultant in Obstetrics & Maternal-Foetal Medicine at the Addenbrooke's Hospital, Cambridge, UK.

to be a significant underestimate as there is no compulsion for intrapartum deaths to be reported; the NHSLA is only in receipt of cases where a claim has actually been made, or is probable because of the involvement of solicitors, or references to potential claims or litigation.

In this review, we examine some recent reports examining cases of intrapartum stillbirth, and delivery-related neonatal death, and in considering circumstances where the risk of such events may be increased, how efforts to reduce such deaths could be concentrated.

The problem of intrapartum stillbirth and delivery-related perinatal death

While most stillbirths occur before the onset of labour (and remain 'unexplained'), a significant number occur in normally formed infants, alive and ostensibly in good condition at the onset of labour. In a developed country with universal healthcare for all, it is reasonable to expect that the great majority of such deaths could be preventable. In a recent study from Dublin, Ireland, the rate of intrapartum fetal death was 0.3 per 1000 term singleton births. Of course some infants will survive with either transient or long-term morbidity, rather than mortality. The two principle causes of these perinatal deaths are hypoxia/asphyxia and birth trauma. Consideration of risk factors for these will inevitably lead to an examination of how asphyxia and birth trauma might be avoided.

Risk factors for delivery-related perinatal death

Ethnicity

According to recent CEMACH data, black women have a two-fold risk of intrapartum stillbirth compared with white women with rates of 0.87 per 1000 maternities and 0.38 per 1000 maternities corresponding (odds ratio (OR) 2.3, 95% CIs 1.6, 3.4). (See Table 1 for a comparison of risk factors.)

Parity

Around 3% of intrapartum stillbirths occur in women who have had a previous stillbirth; 50% occur in nulliparous women. Nulliparity is associated with intrapartum fetal death (OR 1.49, 95% CIs 1.16–1.92).

Multiple gestation

Although stillbirth (and neonatal death) rates are higher in multiple pregnancies than in singletons, much of the excess perinatal mortality is a consequence of prematurity, structural malformations, and complications of monochorionicity, such as twin-twin transfusion syndrome. The overall stillbirth rate in multiple pregnancies is 2.5 times that for singletons. The stillbirth and neonatal mortality rates due to intrapartum causes in 2006 were 0.38 per 1000 and 0.23 per 1000 in singleton pregnancies, and 0.67 per 1000 and 0.38 per 1000 in multiple pregnancies. An increased risk of delivery-related perinatal death of the second twin relative to the first has been reported; this risk is estimated at around 1 in 270.

Small for gestational age

Small for gestational age (SGA) infants (birth weight under the 10th centile for gestational age) are over-represented in

Risk factors for delivery-related perinatal death

Factor	Relative risk	Relevant reference
Black ethnicity	Rate ratio of 2.3, (95% CIs 1.6, 3.4)	CEMACH 2008
Nulliparity	Odds ratio 1.49 (95% CIs 1.16–1.92)	Walsh 2008
Multiple pregnancy	Relative risk 1.72	CEMACH 2008
Small for gestation age (<10th centile)	16% of intrapartum stillbirths under in this group and 14% of delivery-related neonatal deaths	CEMACH 2008
Booked home birth	1.62 (compared with all births)	Mori 2008
Completed booked home birth	0.61 (compared with all births)	
Transferred into hospital from home	7.66 (compared with all births)	

CI, confidence interval; CEMACH, Confidential Enquiry into Maternal and Child Health.

Table 1

delivery-related perinatal death. According to CEMACH data, 16% of intrapartum stillbirths and around 14% of delivery-related neonatal deaths occurred in SGA infants. Unfortunately, clinical estimation of fetal size is unreliable in detecting SGA and the SGA fetus may often go unrecognised prior to delivery.

Place of birth

In the UK, women choosing home birth or a home-like setting (e.g. midwifery-led birth centres) will usually have been identified as being at 'low-risk' for intrapartum problems by their healthcare providers. Around 2% of births in the UK occur at home. However, not all women who deliver at home will actually be 'low risk' and not all problems in labour can be foreseen. However, centralisation of maternity units in some rural or semi-rural counties and increasing Government support for births at home may lead to increasing numbers of women choosing to deliver at home, or in a midwifery-led birthing centre (often geographically distant from an obstetric unit).

While home births and births in home-like environments are associated with a lower risk of obstetric intervention, what is less clear is whether they are associated with any different risk of perinatal mortality. Recent data collected from the UK from 1994–2003 suggest that the overall intrapartum perinatal mortality rate for all births between 1994 and 2003 was 0.79 per 1000 (4991 in 6,314,315 births). For women completing home birth, the corresponding rate was 0.48 per 1000 births, but for women transferred into hospital the rate was 6.05 per 1000. The intrapartum perinatal mortality rate for women booked for a home birth at booking was 1.28 per 1000. A simple mathematical analysis would suggest an increased risk of intrapartum-related death for women intending to have a home delivery, and in particular those women who subsequently require transfer into hospital. Further, it should be noted that women booked for home delivery

are almost invariably those with low-risk healthy pregnancy; the intrapartum-related mortality rate should, therefore, be considerably lower than the 'national average', which includes high-risk and preterm deliveries. The 5th Confidential Enquiry into Stillbirths and Deaths in Infancy (CESDI) report included a focus group on 22 deaths following home births; in 77% of cases there was evidence of substandard care. The key messages from this report are: informed choice; good communications (between professionals and with parents); prompt detection and acting on problems that arise (including early transfers to hospital); and adequate facilities and training in neonatal resuscitation.

Maternal age

Extremes of maternal age are often cited as risk factors for adverse perinatal outcome. Teenage pregnancies are at increased risk of preterm labour, for example, but much of the increased risk in such pregnancies may be secondary to maternal smoking behaviour, which is relatively common in teenager mothers and is, therefore, a significant confounder. There is no evidence of increased risk of stillbirth when compared with older mothers in London, although there is an increased risk of stillbirth in second (but not first) births of teenage mothers in Scotland (OR 2.6, 95% CIs 1.3–5.3). These studies do not report separate risks for intrapartum and antepartum stillbirths, however. Similarly, while increased risks of stillbirth have been reported for older women, such as those aged 35 years or more, the reported data do not distinguish between antepartum and intrapartum stillbirth.

Lessons from the literature and confidential enquiries

Fetal hypoxia and delivery-related perinatal death

In term infants, around two-thirds of neonatal deaths due to intrapartum causes are the result of intrapartum asphyxia. 'Mechanical' causes of fetal death, such as uterine rupture, cord prolapse and events such as placental abruption all cause fetal death through hypoxia/asphyxia. However, the ability of the fetus to withstand such insults and the ability of the obstetric team to achieve timely delivery before fetal death is inversely associated with advancing fetal maturity. Most remaining delivery-related deaths are the consequence of birth trauma or infection, although distinguishing between an antenatally-acquired or intrapartum infection may be difficult. Considering how intrapartum-related deaths could be reduced will inevitably involve an examination of the role of obstetric interventions, such as electronic fetal monitoring and Caesarean section in reducing either intrapartum hypoxia or birth trauma. There are a number of interventions that merit particular attention when considering how obstetricians may influence the risk of delivery-related perinatal death, and these will be considered in relation to published evidence.

Electronic fetal monitoring vs intermittent auscultation

The introduction of electronic fetal monitoring in the 1970s (the cardiotocogram or 'CTG') raised expectations that rates of cerebral palsy and perinatal death could be significantly diminished with improved detection of intrapartum hypoxia. Unfortunately, these hopes have not been realised and potential harmful consequences of electronic fetal monitoring have also been identified, such as increased risks of obstetric intervention. Current national guidelines only recommend the use of electronic fetal monitoring

Download English Version:

<https://daneshyari.com/en/article/3967464>

Download Persian Version:

<https://daneshyari.com/article/3967464>

[Daneshyari.com](https://daneshyari.com)