Stillbirth: The other half of Perinatal Mortality

Abstract:

Stillbirth is fetal death after 20 weeks gestation. There are a number of definitions and classifications. WHO defines a stillbirth as a baby BW ≤500g, ≥24 weeks gestation who died before or during birth. However for international comparisons it recommends that reporting be restricted to those with BW≥1000g and gestation ≥28 weeks. In Ireland stillbirths must be registered, the definition being BW≥500g or having reached a gestational age ≥24 weeks. Stillbirth affects 1 in 160 births. The incidence of stillbirths is approximately 1:5000 live births and it equals the number of infant deaths in the first year of life. At the beginning of the third trimester of pregnancy the baby weighs 1 Kg and the risk of stillbirth is 1-2%. The possibility of a stillbirth increases with maturity throughout the third trimester and is 3 times greater at 40 weeks than at earlier gestational ages. It is relevant for the 5-10% of pregnancies that continue ≥42 weeks. If managed expectantly one in 400 post-term pregnancies will end in a stillbirth. Since 2003 the stillbirth rate has remained static in the US at 3.0 stillbirths per 1000 births. Prior to 2003 the stillbirth rate had declined 1.4% annually while the infant mortality rate fell twice as fast at 2.8%. Globally there are 2.6 million stillbirths annually. In Ireland the stillbirth rate is 3.3 per 1000 births which equates to 230 deaths per year. Despite its frequent occurrence stillbirth has been a relatively neglected component of perinatal medicine. Because a definitive cause cannot be identified in many cases, counselling is very difficult. This lack of scientific causation data has resulted in professional fatalism towards the stillbirth problem.

One of the major challenges is that it has been technically difficult to determine the cause of the demise in individual cases. Post mortem rates have declined to 50% due to clinicians reluctance to place their important workload on the identification of the cause of death. Clinicians feel that the distinction is not clinically or scientifically useful and should be abandoned. At least 35 stillbirth classification systems have been published in the last 50 years. Some concentrate on fetal causes (Wigglesworth), others on maternal or placental pathology or a combination of both. The purpose of classification is to identify deficiencies in the delivery of care, to point out where improvements are possible and to indicate the place of new knowledge and development. Flenady et al found that Wigglesworth and Aberdeen performed suboptimally while CODAC emerged as the best.

The Stillbirth Collaborative Research Network (SCRN) was established by the Eunice Kennedy Schriver National Institute in 2001. Its objective is to determine the causes of stillbirth in the US. The Group used the INCODE research tool to systematically decide on the cause of the stillbirths. The three point approach to establishing the cause of a stillbirth was post-mortem examination, placental history and karyotyping. Additional tools included fetal maternal haemorrhage, toxicology, glycolated and anticardiolipin antibodies. This pragmatic approach used in the SCRN Writing Group found that among 500 stillbirths it was possible to assign a probable cause of death in 60.9% of cases and a possible or probable cause in 76.2%.

There are 5 broad categories into which most stillbirths fit. These are obstetric factors, placental disease, infective causes, genetic/structural and umbilical cord complications. Obstetric conditions are responsible for 29.3% of cases. The placenta is also a leading cause of stillbirth accounting for 26% of cases. The proportion of stillbirths due to infection was approximately 15%. Umbilical cord abnormalities accounted for 10% of cases. The criteria for including a cord complication as the cause of death was vasa praevia, cord entrapment, stricture with thrombi. This is an important departure because cord issues were previously overlooked due to the difficulty in distinguishing between harmless nuchal cords and cord conditions leading to significant pathophysiology. The other hand congenital anomalies only account for a small fraction of stillbirths. Another emerging theme is the relationship between the gestation age of the stillbirth, ocurs and its likely causation. Thirty per cent of stillbirths take place between 20-24 weeks gestation and 50% occur before 28 weeks. Intrapartum stillbirths nearly always happen to fetuses less than 24 weeks (83%). After 28 weeks gestation stillbirths are related to maternal hypertension. Cord complications leading to stillbirths were concentrated on the last weeks of the pregnancy. The obstetric history was found to be important. A previous stillbirth was associated with an OR 5.9. Other independently associated risk factors were diabetes, maternal age over 40 years, being overweight or obese, narcotic drug abuse and cigarette smoking in the 3 months prior to pregnancy. There were racial differences in the stillbirth rates with non-Hispanic black women being at a 2-fold risk. This discrepancy appears to be due to obstetric complications and infection or a combination of both.

The SCRN Group adds a new impetus to tackling and preventing stillbirths. It has demonstrated the importance of a thorough investigation of each case. The relationship between gestational age and stillbirth patterns is compelling. For example the susceptibility of those at 20-24 weeks gestation to intrapartum death. The increased risk of stillbirth in those who continue to gestate is a powerful argument for consideration. Mullan and Horton pointed out in their Lancet series that stillbirth should be placed as highly on global and national agendas as prevention of maternal and neonatal deaths.

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Editor

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