

Study examines decrease in delivery-related rate of death of infants born at term

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During about the last 20 years, the risk of delivery-related death at birth or shortly thereafter for term infants has decreased nearly 40 percent in Scotland, with the largest contributing factor being a decrease in the number of deaths caused by a lack of oxygen for the baby during the childbirth process, according to a study in the August 12 issue of *JAMA*.

Rates of obstetric intervention in labor, including cesarean delivery, have increased significantly in most developed countries. "It is, however, unclear if this has been paralleled by decreased rates of perinatal [pertaining to the period immediately before and after birth] and neonatal death associated with complications of labor at term," the authors write.

Dharmintra Pasupathy, M.B., Ch.B., M.Sc., of the University of Cambridge, England, and colleagues used data from more than 1 million births at term during a 20-year period in Scotland to determine the trend and factors associated with delivery-related perinatal death. The study included data from a registry of births (Scottish Morbidity Record 02) and a registry of perinatal deaths (Scottish Stillbirth and Infant Death Survey) between 1988 and 2007 and included all single infant births in a cephalic (head) presentation at term ($n = 1,012,266$), excluding those with perinatal death due to congenital anomaly or antepartum (before birth) stillbirth.

There were 719 delivery-related perinatal deaths (0.07 percent) during the study period, which included 219 intrapartum stillbirths (defined as

"intrauterine fetal death occurred following the onset of labor but before birth"; 30.5 percent) and 500 neonatal deaths (defined as "death during the first 4 weeks of life in a liveborn infant"; 69.5 percent). Of these perinatal deaths, 432 (60.1 percent) were attributed to intrapartum anoxia (lack of oxygen occurring during delivery) and 287 (39.9 percent) were attributed to other causes.

The absolute risk of delivery-related perinatal death in the population was 7.1 per 10,000 births. The incidence of perinatal death attributed to intrapartum anoxia (4.3 per 10,000 births) was higher than the incidence of perinatal death attributed to other causes (2.8 per 10,000 births). When modeled between 1988 and 2007, there was a decrease in the risk of delivery-related perinatal death from 8.8 to 5.5 per 10,000 births, a 38 percent decrease. When analyzed by the cause of death, there was a statistically significant decrease in the incidence of death attributed to intrapartum anoxia from 5.7 to 3.0 per 10,000 births (a 48 percent decrease), but no statistically significant decrease in the incidence of deaths attributed to other causes.

The magnitude of the decrease in the incidence of deaths attributed to intrapartum anoxia was comparable between intrapartum stillbirth (2.6 to 1.1 per 10,000 births; a 60 percent decrease) and neonatal death (3.1 to 1.9 per 10,000 births; a 38 percent decrease). Adjustment for maternal, fetal, or obstetric characteristics did not reduce the magnitude of decrease in the risk of delivery-related perinatal death or in the subgroup attributed to intrapartum anoxia.

"The key finding of our analysis is that rates of death ascribed to intrapartum anoxia in term infants declined in Scotland between 1988 and 2007," the authors write. "The pattern of the decline suggests that this was primarily due to a reduced number of severely anoxic [infants](#) rather than improved neonatal resuscitation. The change was paralleled by increased rates of cesarean delivery, but there is no direct evidence

supporting a causal association between the 2 trends."

More information: JAMA. 2009;302[6]:660-668.

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