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Effect of Maternal Cigarette Smoking on Pregnancy

Complications and Sudden Infant Death Syndrome

Joseph R. DiFranza, MD Robert A. Lew, PhD
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Smoking during pregnancy can have devastating effects on the developing human from conception to delivery. Infants exposed to maternal smoking can appear perfectly healthy at birth only to succumb to the Sudden Infant Death Syndrome months later.

Tobacco Induced Abortions

The association of maternal smoking and miscarriage has been investigated in at least 20 studies published over the past 30 years. Tobacco induces between 19,000 and 141,000 abortions in American women each year. Our best estimate is that 115,000 "spontaneous" abortions are actually caused by tobacco each year. This would represent 19% of all miscarriages experienced by smoking women. Smoking during pregnancy increases a woman's risk of miscarrying by 24%.

Low Birth Weight

The association of maternal smoking and the delivery of babies weighing less than 2500 grams at birth is the subject of at least 30 studies published over the past 35 years. Tobacco use is responsible for between 32,000 and 61,000 low birth weight deliveries each year. Our best estimate is that 53,000 such births are attributable to maternal tobacco use each year. Smoking accounts for 18% of all low weight births and 45% of such births among women who smoke during pregnancy. Smoking during pregnancy increases the risk of low birth weight by 82%. The consequences of low birth weight births are detailed in the next two sections.

Neonatal Intensive Care

The most common consequence of low birth weight is the need for treatment in an intensive care unit immediately after birth. Maternal smoking is the cause of an estimated 14,000 to 26,000 infant admissions to neonatal intensive care units in the US each year. Most of these infants will survive unscathed. Others suffer permanent injuries and thousands die.

Perinatal Mortality

At least 42 studies published since 1959 have measured the effects of maternal smoking on the death of infants immediately before, or soon after delivery. Smoking is the cause of an estimated 1900 to 4800 infant deaths annually. Our best estimate is that 3700 infant deaths in the perinatal period are caused by maternal smoking each year in the US. This represents 7% of all perinatal deaths, and 21 % of perinatal deaths among the offspring of women who smoke during pregnancy. These deaths are caused primarily by low weight births and premature separation of the placenta. Smoking during pregnancy increases the risk of perinatal death by 26%.

Sudden Infant Death Syndrome

At least 19 studies concerning smoking and SIDS have been published since 1966. SIDS is caused by maternal smoking during pregnancy and by exposure of the infant to cigarette smoke from any source after pregnancy. Hence smoking by the father and other household members can also cause SIDS deaths. Maternal smoking alone is responsible for an estimated 1200 to 2200 SIDS deaths each year. Additional deaths would be attributed to smoking by other household members. Our best estimate is that 1900 SIDS deaths are caused by maternal smoking in the US each year. Maternal smoking is responsible for 35% of all SIDS deaths in the US, and 66% of SIDS deaths among the infants of women who smoked during their pregnancy. **Smoking during pregnancy triples the risk of SIDS.**

Conclusions

Much of the uncertainty reflected in these estimates is due to uncertainty in the number of women who smoke during pregnancy. A rich body of scientific evidence very well establishes the link between maternal smoking and each of the conditions discussed above.

Tobacco products are the cause of major morbidity and mortality among humans from the time of conception onward. The magnitude of the harm caused by the use of tobacco products during pregnancy is enormous, but has not been previously appreciated. **At least three times as many infants die of SIDS caused by maternal smoking as are killed as a result of homicide or child abuse.**

Attempts to help expectant mothers to quit smoking have had very limited success. Since nearly all smoking starts in the teenage years or earlier, efforts to reduce these deaths should focus on preventing nicotine addiction among girls.

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