

# Kofinas Perinatal

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## **The association between stillbirth in the first pregnancy and subsequent adverse perinatal outcomes (From the American Journal of Obstetrics and Gynecology 2009; 201; 378.e1-6)**

This study sought to examine the association between first pregnancy stillbirth and subsequent adverse perinatal outcomes. This study examined first two singleton deliveries at 20-44 weeks gestation from 1991-2008 (N=71,315) using birth certificate, hospitalization and outpatient encounter files. Multivariable logistic regression models were used to assess the association. The stillbirth was observed in 5.3 of 1000 first deliveries. There was an increased risk of an **ischemic placental disease, fetal distress, chorioamnionitis, extreme preterm birth, and early neonatal mortality in pregnancies after stillbirth versus pregnancies after live birth**. Interpregnancy intervals of less than 2 and more than 4 years after stillbirth increased the risk of an ischemic placental disease and a spontaneous preterm birth. Risks vary by stillbirth subtype. A first pregnancy stillbirth may increase adverse perinatal outcomes in subsequent pregnancy. This is a conclusion.

The findings of this study suggest that women whose first pregnancy resulted in stillbirth are at increased risk for ischemic placental disease, fetal distress, chorioamnionitis, spontaneous preterm birth and early neonatal mortality in the second pregnancy. Ante-partum stillbirth in the first pregnancy was associated with increased risk for ischemic placental disease in the second pregnancy. The interval between two pregnancies more defies the magnitude of associations with shorter and longer interpregnancy intervals resulting in an increased risk for adverse outcomes. The study further showed that women with a history of stillbirth were at higher risk of recurrence in subsequent pregnancy, an observation that is consistent with the findings of previous studies. Furthermore, consistent with the findings of this study of the association between prior stillbirth and subsequent preterm birth, BLACK et al recently reported a 2.44 increased risk for preterm birth in women with a prior preterm birth. However, unlike the findings of the present study Black's study did not show an association between stillbirth in the first pregnancy and a subsequent stillbirth and neonatal death.

The pathoetiologic mechanism by which ischemic placental disease, spontaneous preterm birth and stillbirth care is not well understood, strong evidence suggests that genetic and environmental factors may contribute to etiologic mechanism of the disease. The current study showed that both shorter and longer interpregnancy intervals are associated with ischemic placental disease and spontaneous preterm birth in subsequent pregnancy. Although the mechanism underlined the association between first pregnancy stillbirth and a subsequent adverse pregnancy outcome remains speculative, findings of this study suggest that there may be a chronic inflammatory condition that may not have been resolved.

There are a number of other potential explanations of the findings. The maternal depletion hypothesis suggests that a short interpregnancy interval may not ensure sufficient time between subsequent pregnancies for the mother to recover from the nutritional burden and maternal stress. Hence, the uterine lining may not support a pregnancy conceived after a short pregnancy interval. In addition, the baby of selected fertility whereby couples will try to replace the lost child within a short period after miscarriage. This study has some limitations to consider. The coding on birth death certificates of behavioral risk factors such as smoking during pregnancy may not be reliable and may be underreported. Second, a strong association between obesity and stillbirth has previously been reported but we cannot take obesity into consideration in this study given the lack of information on pre-pregnancy weight. SGA was defined as birth weight less than 10<sup>th</sup> percentile based on the 1991-2008 race/ethnicity and sex specific internal standard. This method improves the distinction between

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constitutional and pathologic SGA. In conclusion, findings of this study suggest that a first pregnancy stillbirth may increase adverse pregnancy and early neonatal outcomes in subsequent pregnancy.

Clinical implications:

1. There is strong association between stillbirth in the first pregnancy and subsequent adverse outcomes.
2. Women with a history of stillbirth may benefit from appropriate clinical attention to monitor signs of impending adverse outcomes.