

Editorial Note on Nicotine and maternal BMI impact on fetal birth weight

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Editorial

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ABSTRACT

According to the World Health Organization, smoking is the most important risk factor for adverse pregnancy outcomes in industrialized nations. The association between maternal smoking and retarded fetal growth was first described in 1957, and is now a well-known fact. Although smoking is associated with many health risks for mother and child, several thousands of pregnant women are known to smoke. A German Perinatal Quality Survey has shown that the percentage of pregnant smoking women in Germany is 10.9%. In the European Union, it has been estimated that 10-27% of the pregnant women continue smoking during pregnancy. In comparison, in the USA the average for women who smoke during pregnancy is 7.1%. Low birth weight, small for gestational age (SGA) status, preterm birth, and a low APGAR score are just a few of the harmful effects of nicotine on pregnancy and the newborn.

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The effects of nicotine are seen in every trimester of pregnancy; these range from increased spontaneous abortions in the first trimester to increased preterm delivery rates and a low birth weight in the final trimester. A recent study from Rogers showed that smoking causes an epigenetic phenomena because of altered DNA methylation. These epigenetic alterations are extensive and postnatally durable. A causal link between altered DNA methylation and the phenotypic changes observed in offspring remains to be firmly established, yet the association is strong, and mediation analyses suggest a causal link.

The current data were achieved from the German Perinatal Survey. This Perinatal Survey was established 1970 in Munich and is an important tool for data-supported quality assurance and is conducted throughout Germany. Voluntary participation, anonymity of the patient, her child and the participating clinic, as well as confidentiality are important keywords in data collection. Thus, it is possible to identify quality features and indicators, location determination and to identify potential for improvement. For example, the following patient data are collected and coded by the responsible doctor and midwife: Delivery mode (spontaneous delivery with respective birth injury, vacuum extraction, forceps, primary/ secondary/ emergency Caesarean section), maternal diseases during pregnancy, such as pre-eclampsia or HELLP-syndrome; concomitant diseases, BMI, nicotine abuse. The database of Schleswig-Holstein comprised 110.047 singleton pregnancies which were registered between 2010 and 2017.

The evaluation took place in August 2018. Informed consent was given by all patients in written form. The BMI was taken from the maternity log, where the height and weight was measured by the resident gynecologist. Information concerning the smoking status were self-reported by the patient. Based on their smoking status during pregnancy, patients were divided into smokers and non-smokers and assigned to one of the following four groups according to their daily.