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Titel des Beitrags: Prenatal and postnatal tobacco smoke exposure and development of insulin resistance in 10 year old children.

Abstract: In this study, we evaluated the association between prenatal and postnatal exposure to environmental tobacco smoke and the development of insulin resistance in 10 year old children. Fasting blood samples were collected from 470 children participating in two prospective birth cohorts. Of those 276 were selected population based and enriched with 194 children exceeding the 85th percentile of body mass index in this age group. Children already having diabetes type 1 or 2 at the age of 10 years were excluded. Fasting blood insulin and glucose levels and calculated HOMA index for insulin resistance assessment were analysed using generalised additive models. Potential confounders were adjusted for. Insulin resistance was increased by 24% in children frequently exposed to environmental tobacco smoke during childhood (MR(adj) = 1.24, p = 0.001), while glucose levels were not. Exclusion of prenatally exposed
children did not attenuate the association (MR(adj) = 1.25, p = 0.006). After stratification, the effect sizes were identical within overweight children and the population based sample of children. Insulin resistance and fasting insulin levels were increasing with increasing numbers of cigarettes smoked in children’s home. Maternal smoking during the third trimester of pregnancy increased children’s insulin levels (MR(adj) = 1.19, p = 0.037), and even more so, if children were exclusively breastfed after birth (MR(adj) = 1.31, p = 0.016). Increased mean ratios were found for smoking of a third person in addition to maternal smoking. Positive dose-dependent associations and independent effects of postnatal exposure suggest involvement of environmental tobacco smoke in the risk for development of insulin resistance in children.