

ENVIRONMENTAL TOBACCO SMOKE EXPOSURE - PREGNANCY OUTCOMES AND CHILDREN'S HEALTH

Kinga Polanska, Nofer Institute of Occupational Medicine, Poland

Wojciech Hanke, Nofer Institute of Occupational Medicine, Poland

Wojciech Sobala, Nofer Institute of Occupational Medicine, Poland

Danuta Ligocka, Nofer Institute of Occupational Medicine, Poland

Background and Aim: Environmental tobacco smoke exposure (ETS) is associated with poor pregnancy outcomes including increases risk of spontaneous abortion, stillbirth, preterm delivery, low birth weight and sudden infant death syndrome. ETS exposure after birth can increase the risk of sudden infant death syndrome, respiratory infections, asthma, middle ear diseases and it can cause neurodevelopmental and behavioral problems in children. The aim of the study was to analyze the influence of environmental tobacco smoke exposure on pregnancy outcome and children's health.

Methods: The study population consisted of pregnant women (N=640) and their children (N=190) followed up to two years of life. Pregnant women were interviewed three times during pregnancy. From all women included into the study the saliva sample was collected three times to verified smoking status. Assessment of child ETS exposure within two years after birth was based on questionnaires conducted with mothers, confirmed by biochemical verification of cotinine level in child urine. Cotinine level in biological samples was analyzed using high performance liquid chromatography coupled with tandem mass spectrometry/positive electrospray ionisation (LC-ESI⁺MS/MS) and isotope dilution method. Pregnancy outcome including: birth weight, length, head and chest circumference was noted by neonatologist. The children's health focused on anthropometry indicators and the incidences of upper and lower respiratory tract infections, allergy and asthma was performed by pediatricians during the first and second year of life.

Results: Multivariate analysis (including gender, gestational age and parental educational status) indicated that the newborn of smoking mothers had significantly lower birth weight (coef. - 307g, p<0.001), length (coef. - 1.4cm, p=0.02), head (coef. - 0.7cm, p=0.002) and chest circumference (coef. - 0.8cm, p=0.003). There were no statistically significant associations between ETS exposure and anthropometric measurements within first two years of life. Such exposure increases the risk of respiratory diseases but the results were not statistically significant.

Conclusions: All effort should be taken to eliminate the child ETS exposure both during prenatal and postnatal period.