Neonatal blood pressure in association with prenatal air pollution exposure, traffic, and land use indicators

Madhloum N1, Nawrot TS1,2, Gyselaers W3,4, Roels HA1,5, Bijnens E1, Vanpoucke C*, Lefebvre W7, Janssen BC1, Bianca Cox1

Key findings

Higher prenatal air pollution exposure (last 4 to 5 weeks of pregnancy) ~ higher neonatal blood pressure

More greenness at maternal residence during pregnancy ~ lower neonatal blood pressure

More industrial area at maternal residence during pregnancy ~ higher neonatal diastolic blood pressure

Residential traffic indicators did not significantly associate with neonatal blood pressure

Background

Elevated blood pressure in early life may lead to cardiovascular morbidity and mortality in later life1

1 Hao G et al. Hypertension (2017)

Short- and long-term air pollution exposure has been associated with increased blood pressure in adults2 and children3,4

3 Pieters N et al. EHP. (2015)

Methods

Distributed lag model estimates for the association between neonatal systolic blood pressure and air pollution during the last 15 weeks of pregnancy. In short, the last 4 to 5 weeks of pregnancy are the vulnerable time window for elevated systolic blood pressure.

Findings

Distributed lag model estimates for the association between neonatal systolic blood pressure and air pollution during the last 15 weeks of pregnancy. In short, the last 4 to 5 weeks of pregnancy are the vulnerable time window for elevated systolic blood pressure.