Long-term exposure to fine particulate matter and incidence of type 2 diabetes mellitus in a cohort study: effects of total and traffic-specific air pollution.

Studies investigating the link between long-term exposure to air pollution and incidence of diabetes are still scarce and results are inconsistent, possibly due to different compositions of the particle mixture. We investigate the long-term effect of traffic-specific and total particulate matter (PM) and road proximity on cumulative incidence of diabetes mellitus (mainly type 2) in a large German cohort. We followed prospectively 3607 individuals without diabetes at baseline (2000-2003) from the Heinz Nixdorf Recall Study in Germany (mean follow-up time 5.1 years). Mean annual exposures to total as well as traffic-specific PM10 and PM2.5 at residence were estimated using a chemistry transport model (EURAD, 1 km(2) resolution). Effect estimates for an increase of 1 \( \mu g/m^3 \) in PM were obtained with Poisson regression adjusting for sex, age, body mass index, lifestyle factors, area-level and individual-level
socio-economic status, and city. 331 incident cases developed. Adjusted RRs for total PM10 and
PM2.5 were 1.05 (95%-CI: 1.00; 1.10) and 1.03 (95%-CI: 0.95; 1.12), respectively. Markedly higher
point estimates were found for local traffic-specific PM with RRs of 1.36 (95%-CI: 0.98; 1.89) for
PM10 and 1.36 (95%-CI: 0.97; 1.89) for PM2.5. Individuals living closer than 100 m to a busy road
had a more than 30% higher risk (1.37; 95%-CI: 1.04; 1.81) than those living further than 200 m
away. Long-term exposure to total PM increases type two diabetes risk in the general population, as
does living close to a major road. Local traffic-specific PM was related to higher risks for type two
diabetes than total PM.

Zeitschriftentitel / Abkürzung:  
Environ Health

Jahr:  
2015

Band:  
14

Seiten:  
53

Sprache:  
eng

Pubmed:  

TUM Einrichtung:  
Nuklearmedizinische Klinik und Poliklinik

Occurences:  
- Einrichtungen > Fakultäten > Fakultät für Medizin > Kliniken und Institute > Nuklearmedizinische
Klinik und Poliklinik > 2015

entries: