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LONG TERM EXPOSURE TO AIR POLLUTION AND DIABETES RISK IN DANISH NURSE COHORT STUDY

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ABSTRACT

Background and aims: Studies have shown that long-term exposure to air pollution increases the risk of Type 2 Diabetes (T2D). However, studies which investigate different exposure windows for the risk of T2D, and data for particles and gases are lacking. We will study the effect of long-term exposure to traffic related particles over 40 years on the incidence of diabetes.

Methods: We used the Danish Nurse cohort with 28,731 participating female nurses, recruited in 1993 (19,898) or 1999 (8,833), when self-reported baseline information on diabetes prevalence and confounders were collected. We followed nurses in the Danish National Diabetes Register (NDR) from 1995 until 2013 and in Central Person registry for date of death or emigration until 2013. The air pollution exposure mean levels of PM2,5, PM10, NOx and NO2, has been estimated for each participant at the home address since 1971 until 2013. We will model the association between air pollutants and diabetes incidence using time-varying Cox proportional hazards model with age as underlying time scale, and adjusted for body mass index, physical activity, smoking, alcohol use, diet, employment and marital status. Single and two-pollutant models will be fit.
Results: Out of 28,731 nurses, we excluded 619 with prevalent diabetes, 192 that died before 1995 (start of follow-up in NDR), 2,669 with missing data on covariates. Of 25,251 women in the final analyses, 1,249 developed diabetes (4.9%) during 15.1 years mean follow-up (incidence rate 3.3 per 1,000 person-years). Mean age at baseline was 54.6 years (44-95 years).

Conclusions: This study will contribute to the current evidence base with a new large prospective cohort study with data on incidence of diabetes, objectively assessed from a national registry, and long windows of exposure (since 1971) for both particles and gases. The results will be presented at the conference.

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