

中文題目：長期大氣細懸浮微粒暴露與巴金森氏症發生之相關性研究

英文題目：Association of fine particulate matter exposure with the incidence of Parkinson's disease in Taiwan

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Background: Preliminary evidence suggests an association between air pollution exposure and the risk of Parkinson's disease (PD). We aimed to investigate the association between exposure to fine particulate matter (PM_{2.5}) and the risk of incident PD using a nationwide dataset.

Method: We used data from the Taiwan National Health Insurance Research Database. Air quality data from the Taiwan Environmental Protection Administration website were spatiotemporally linked to each subject. Participants were followed from the index date (January 1st, 2005) to PD occurrence or until December 31st, 2017. We excluded subjects with a PD diagnosis before the index date. A Cox regression model was used to calculate the hazard ratio (HR) with a 95% confidence interval (CI).

Results: A total of 454,583 subjects were included [mean (SD) age, 63.1 (9.9) years; male proportion, 50%], and 4% developed PD (n = 18,862) with a mean follow-up of 11.1 (3.6) years. We found that a per interquartile range (IQR) increase in exposure to PM_{2.5} (10.17 µg/m³) was associated with an increased risk of PD (HR, 1.15; 95% CI, 1.13-1.16). In the two-pollutant models, the HR of PD was 1.24 (95% CI, 1.22-1.25) when adding SO₂ and 1.13 (95% CI, 1.11-1.14) when adding NO₂ in the model. In the three-pollutant model (adding both SO₂ and NO₂), the HR of PD was 1.22 (95% CI, 1.20-1.23) per IQR increase in exposure to PM_{2.5}.

Conclusion: Our study highlights the association between PM_{2.5} exposure and the risk of developing PD, supporting the pressing need to establish a public health policy against ambient air pollution.