

Abstract citation ID: aakag023.1132

ABSTRACT NUMBER: ESOC2026A2489

CHRONIC EXPOSURE TO AIR POLLUTION IS ASSOCIATED WITH INCREASED RISK OF STROKE IN THE GENERAL POPULATION OF TARANTO

Rodolfo Sardone¹, Giovanni Boero²

¹ University of Liverpool, Liverpool, United Kingdom

² The Neurology Department of Local Health Authority of Taranto Taranto, Italy

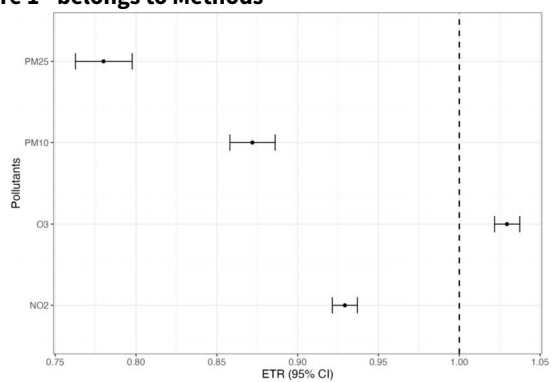
Background and aims: We investigated the association between long-term exposure to ambient air pollutants and stroke risk in the general population of Taranto, Italy.

Methods: We analyzed residents of Taranto enrolled in the Tramontana cohort of the MISTRAL project from 2016 to 2025 (N≈230,000). Incident stroke events were identified during follow-up. Individual long-term exposure to PM_{2.5}, PM₁₀, NO₂, and O₃ was estimated using annual mean concentrations. Stroke risk was evaluated using Cox proportional hazards models, while accelerated failure time (AFT) models were applied to assess the impact of air pollution on time to stroke onset. Models were adjusted for age, sex, disability status, and mean income, and multi-pollutant models were used to identify independent effects.

Results: During a mean follow-up of approximately nine years, 2.3% of participants experienced a first stroke. Higher exposure to PM_{2.5}, PM₁₀, and NO₂ was consistently associated with increased stroke risk in fully adjusted Cox models and with shorter time to stroke onset in AFT models (all p<0.01). O₃ was not associated with increased stroke risk and showed a modest inverse association in multi-pollutant analyses. Older age, male sex, higher disability burden, and lower income were independently associated with stroke incidence.

Conclusions: Long-term exposure to PM_{2.5}, PM₁₀, and NO₂ is an independent risk factor for stroke in the general population of Taranto, supporting the role of air pollution reduction in stroke prevention.

Conflict of interest: Nothing to disclose

Figure 1 - belongs to Methods**Figure 2 - belongs to Results**