

00176 The Relationship Between Ambient Air Pollution and Acute Ischemic Stroke - A Time-stratified Case Crossover Study in a City-state With Seasonal Exposure to the Southeast Asian Haze Problem.

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Aims: Studies are divided on the short term association of air pollution with stroke. Singapore is exposed to seasonal transboundary haze. We aimed to investigate the association between air pollution and stroke incidence in Singapore.

Methodology: We performed a time-stratified case-crossover analysis on all ischemic stroke cases reported to the Singapore Stroke Registry from 2010-2015. Exposure on days was compared with control days on which exposure did not occur. Control days were chosen on the same day of the week earlier and later in the same month in the same year. We fitted a conditional Poisson regression model to daily stroke incidence that included Pollutant Standards Index (PSI) and environmental confounders. PSI was categorized based on established classification (0-50=Good, 51-100=Moderate, 101 \geq Unhealthy). We assessed the relationship between stroke incidence and PSI in the entire cohort and in predetermined subgroups of individual-level characteristics.

Result: There were 29384 ischemic stroke cases. Moderate and unhealthy PSI showed association with stroke occurrence with incidence risk ratio (IRR) 1.10, 95% confidence interval (95%CI) 1.06-1.14 and IRR1.13, 95%CI 1.03-1.25 respectively. Subgroup analyses showed generally significant association, except in Indians and non-hypertensives. The association was significant in subgroups age \geq 65, female, Chinese, non-smokers and those with history of diabetes, hypertension and hyperlipidemia. Stratified by age and smoking, the risk diminished in smokers of all ages. Risk remained elevated for five days after exposure.

Conclusion: We found a short-term elevated risk of ischemic stroke after exposure to air pollution. These findings have public health implications for stroke prevention and emergency health services delivery.