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Fine particles and cardiovascular mortality in Taiwan

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Air Pollution, especially fine particles (PM 2.5) has been an important issue in Taiwan recently, especially in the three biggest cities, Taipei, Taichung and Kaohsiung. This study focused on the association between air pollutants concentrations (data from Taiwan Environmental Protection Administration (EPA)) and cardiovascular mortality (data from Taiwan Death Registry (TDR) provided by the Department of Health (DOH)). Concentration of fine particle is Kaohsiung>Taichung>Taipei (Daily average in 2006-2009: 46.84, 35.59, 30.11; Taiwan 34.61). Taichung, with moderate weather, appears to have most notable long-term effect of fine particle on cardiovascular disease death, which is especially evident in the cold season (Relative risk of Taichung: 1.06 in warm season, 1.34 in cold season; Taiwan: 0.98 in warm season, 1.02 in cold season). The long-term effect of fine particle on hypertensive disease and cerebrovascular disease is notably obvious in cold season in Taichung (Relative risk: hypertensive disease 1.47, cerebrovascular disease 1.36 in cold seasons; hypertensive disease 0.95, cerebrovascular disease 1.03 in warm seasons). On the other hand, short-term effects of fine particle on hypertensive disease are most evident (Odds Ratio: 1.89 in cold season). The long-term effect of fine particle on cardiovascular disease death is very obvious in the city Taichung. Seasonal effects in the cold season seem to worsen the situation. We also take the difference in composition of the fine particles in the three cities into consideration. Future work will include co-effects between weather and composition in different cities on the issue of fine particle effects on cardiovascular disease.

Biography

Bo-Jen Chen is a medical student in China Medical University, Taiwan.

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