

## LETTERS

### Snowfall and myocardial infarction. What is the effect of barometric pressure?

The study by Auger and colleagues in *CMAJ* showed that the amount and duration of snowfall was associated with an increased risk of admission to hospital and death due to myocardial infarction (MI) among men from Quebec, Canada.<sup>1</sup> The study apparently did not adjust by barometric pressure; if the data are available, does the inclusion of barometric pressure have a confounding effect or effect modification on the estimates? Some studies have shown that changes in barometric pressure are associated with MI and coronary deaths.<sup>2-4</sup>

In the historic snowstorm that hit the eastern United States in January of 1978, barometric pressure in some cities dropped as low as 40 millibars in 24 hours. A blizzard is distinctive because of the fast drop in barometric pressure in a 24-hour period. Three days after the storm of 1978, admissions for MI, total mortality and ischemic heart disease deaths increased in

Rhode Island for the five-day period following the blizzard; however, the effect of barometric pressure was not assessed in that study and the blizzard was considered the only culprit.<sup>5</sup>

A recent Asiatic study found that extreme ambient temperatures were associated with cardiorespiratory mortality. An interesting finding was the decrease of cold effect on mortality by 2.36% associated with an increase in barometric pressure, indicating that it may have an impact on the effect of other weather variables on mortality.<sup>6</sup> Furthermore, there is evidence of a positive correlation between barometric pressure and blood oxygen saturation.<sup>7</sup> Patients with MI or ischemic heart disease are particularly susceptible to changes in blood oxygen saturation.

#### **Eduardo Hernández-Garduño MHS**

Physician epidemiologist, Unidad de Investigación Básica Aplicada (UIBA), Centro Oncológico Estatal (COE), Instituto de Seguridad Social del Estado de México y Municipios (ISSEMYM), Toluca, México

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#### References

1. Auger N, Potter BJ, Smargiassi A, et al. Association between quantity and duration of snowfall and risk of myocardial infarction. *CMAJ* 2017;189:E235-42.
2. Danet S, Richard F, Montaye M, et al. Unhealthy effects of atmospheric temperature and pressure on the occurrence of myocardial infarction and coronary deaths. A 10-year survey: the Lille-World Health Organization MONICA project (Monitoring trends and determinants in cardiovascular disease). *Circulation* 1999;100:E1-7.
3. Goerre S, Egli C, Gerber S, et al. Impact of weather and climate on the incidence of acute coronary syndromes. *Int J Cardiol* 2007;118:36-40.
4. Ohlson CG, Bodin L, Bryngelsson IL, et al. Winter weather conditions and myocardial infarctions. *Scand J Soc Med* 1991;19:20-5.
5. Faich G, Rose R. Blizzard morbidity and mortality: Rhode Island, 1978. *Am J Public Health* 1979;69:1050-2.
6. Chung Y, Lim YH, Honda Y, et al. Mortality related to extreme temperature for 15 cities in Northeast Asia. *Epidemiology* 2015;26:255-62.
7. Pope CA III, Dockery DW, Kanner RE, et al. Oxygen saturation, pulse rate, and particulate air pollution: a daily time-series panel study. *Am J Respir Crit Care Med* 1999;159:365-72.

**Competing interests:** None declared.