Heavy snowfall, longer duration, associated with higher risk of heart attack

February 13 2017

People living in areas with winter snow may need to think twice before shovelling after a heavy snowstorm. According to a new study, snowfall is associated with a higher risk of hospital admission for heart attack, or myocardial infarction (MI), after heavy snowfall, especially in men. The study, published in *CMAJ* (*Canadian Medical Association Journal*), found associations with larger snowfalls and longer duration of snow.

"We suspect that shovelling was the main mechanism linking snowfall with MI," writes Dr. Nathalie Auger, University of Montreal Hospital Research Centre, Montréal, Quebec, with coauthors. "Men are potentially more likely than women to shovel, particularly after heavy snowfalls. Snow shovelling is a demanding cardiovascular exercise requiring more than 75% of the maximum heart rate, particularly with heavy loads."

A team of researchers looked at data from two separate administrative databases on 128 073 individual hospital admissions and 68 155 deaths from heart attack (MI) in the province of Quebec between 1981 and 2014. They restricted analysis to months in which snow falls, November to April, and obtained detailed weather information from Environment Canada for each health region included in the study.

About 60% of hospital admissions and deaths due to MI were in men. The day after a snowfall had the strongest association, with about 1/3 of MIs occurring then, and the association was even stronger after snowfalls lasting 2 to 3 days. These risks were elevated regardless of age,

cardiovascular risk factors or other health conditions. However, the effects were not seen in women.

"Quantity of snowfall was associated with an increased likelihood of hospital admission or death due to MI the following day among men," write the authors. "The association between snowfall and MI was stronger among men, and weaker or absent among women."

The authors point out several limitations to the paper, including lack of data on sex-specific shovelling habits, size of areas shovelled or whether snow removal was manual or with a snow blower.

"Although these are potentially important considerations, the hypothesis that shovelling is associated with an increased risk of MI events among men remains plausible," they write.

The authors urge public awareness campaigns to educate people about the risk of heart attack after a snowfall and that they may need to avoid this activity depending on health status.

In a related commentary, Dr. David Alter, Toronto Rehabilitation Institute and the University of Toronto, writes the "findings add weight to our understanding that the act of snow shovelling in cold temperatures sets the stage for an eco-biological-behavioural 'perfect storm,' particularly among those physically deconditioned who have or who are at risk of heart disease."

More information: *CMAJ*, www.cmaj.ca/lookup/doi/10.1503/cmaj.161064

CMAJ commentary, www.cmaj.ca/lookup/doi/10.1503/cmaj.170022

Provided by Canadian Medical Association Journal