How cold is too cold: the effect of seasonal temperature variation on risk of STEMI

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- I have nothing to declare
Background

• Clear correlation between cold weather and the incidence of and hospitalization for acute MI as well as cardiac deaths.
• However, no consensus on the relationship of weather and STEMI (highest risk MI).
• Our objective was to assess the relationship between cold weather (temperature and snowfall) with STEMI in Winnipeg, Manitoba, Canada.

2013 ACC/AHA STEMI guidelines
Gasparrini A, Guo Y, Hashizume M. Mortality risk attributable to high and low ambient temperature: a multicountry observational study. Lancet 2015;386:369-75
Methods

• We performed a review of all patients with STEMI in Winnipeg from January 1, 2009 to December 31, 2014.

• Information was collected from Environment Canada:
  – Temperature
    • Daily high, mean, daily low
  – Snow fall
Distribution of temperature

% of events

1817 STEMI over 6 years (2190 days)

Average Daily STEMI Cases by Month
(2009 to 2014)

Average Daily High (°C)

STEMI Rate (Average Cases per Day)

Daily STEMI Rate:
- January: 0.98
- February: 0.88
- March: 0.89
- April: 0.83
- May: 0.82
- June: 0.82
- July: 0.68
- August: 0.69
- September: 0.75
- October: 0.88
- November: 1.01
- December: 0.85

Average Daily High (°C):
- January: -11
- February: -9.1
- March: -0.9
- April: 9.3
- May: 17.1
- June: 23.0
- July: 26.0
- August: 25.7
- September: 20.0
- October: 11.0
- November: 0.8
- December: -9.4
STEMI Rate by Daily High Temperature (2009-2014)

Daily High Temperature Category

STEMI rate (per day)
Conclusions

• There is a clear association between temperature and the rate of STEMI.
• For every 10 degrees colder, the risk of STEMI goes up by 7%
• No detrimental effect of hot weather