

## Impact of Weather on the Development of Acute Myocardial Infarction in Riga, Latvia

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**Introduction.** Cardiovascular disease is one of the leading causes of death in Latvia and the most prevalent cause of hospital admission. Studies around the world have shown that seasonality and meteorological variables may impact the occurrence of acute myocardial infarction (AMI). Signalling that there might be additional factors, beyond the already known ones, influencing the development of AMI. Previous studies have shown that there is an increased risk for AMI at lower temperatures. However, there is no consensus regarding the impact of weather and seasonality on the occurrence of AMI. Up to now, and to the author's knowledge, the effects of weather variables on the development of AMI have not been assessed in Latvia.

**Aim.** The aim of this study is to assess if there is any relationship between admission rates of acute myocardial infarctions (AMI) and weather conditions in Riga, Latvia.

**Material and Methods.** Data on AMI was collected from Riga Eastern Clinical University Hospital's archive of all patients diagnosed with acute myocardial infarctions, ICD I21 (I21.0–I21.9) over three consecutive years, 2011–2013. Meteorological data of temperature, humidity, wind and atmospheric pressure was retrieved from the Monitoring Department of Latvian Environment, Geology and Meteorology Centre. The meteorological data was linked with monthly data of hospital admission rates of AMI. IBM SPSS, version 2.0 was used to assess the correlation between admission rates and the meteorological variables. Independent sample t-test was used for data analysis.

**Results.** All values of  $p < 0.05$  were considered significant. A statistical significant correlation was seen between temperature and AMI. Higher occurrence of AMI was seen in colder periods; November–March, ( $p = 0.047$ ) and with lower temperatures ( $\leq 5^{\circ}\text{C}$ ), ( $p = 0.028$ ). No statistical significance occurred between humidity, wind and AMI ( $p > 0.05$ ). A tendency of more cases of AMI was observed at higher levels of atmospheric pressure ( $p = 0.208$ ); however, the result was not statistically significant ( $p > 0.05$ ).

**Conclusions.** Colder weather with low temperatures results in more cases of acute myocardial infarction. Wind, atmospheric pressure and humidity do not impact the occurrence of AMI in Riga, Latvia.