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The impact of meteorological parameters on the incidence of myocardial infarction

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Introduction: The changing of some meteorological parameters have major burden on the human body. That’s why it became necessary to adopt to the altering conditions. The air temperature, atmospheric pressure have a significant influence on the patient’s physical shape, blood pressure and response to stress.

The aim of our study was to assess the impact of the fronts and all the factors forming the weather at the same time on the incidence of myocardial infarction and its prognosis.

Methods: We performed a retrospective analysis on the data of 11820 consecutive patients surviving acute myocardial infarction between 2005 and 2014. We used to scales applied in meteorology to characterise the days (Péczely Scale, Front Scale). We studied the incidence of the values of the different scales 2 days before and after the infarction.

Results: We had a database of 11820 patients, STEMI (n=5183) and NSTEMI (n=6004). We created different subgroups (age, 30-day mortality, occurrence of primary ventricle fibrillation) to make our estimation. Considering non VF patients the effect of Front 3 whereas among VF positive patients Front 5 is more significant. The incidence rates of Front 3 one day before and on the day of the infarction in the non-VF and NSTEMI group is 0.2041 and 0.1735, in the non-VF and STEMI group it is 0.1939 two days before the event. The incidence rate of Front 5 on the -2nd day in the NSTEMI and VF positive group is 0.0357, it is 0.0714 among STEMI and VF positive patients on the day of the event. The influence of the approaching warm front is significant (p<0.05).

Conclusion: The influence of the weather is not irrelevant in the occurrence of MI. The mortality rates are higher in several subgroups on days having a Péczely Scale 3. The different fronts have a major impact on the severity of the infarction. The Front 5 causes higher incidence of VF due to MI. We proved that warm fronts have a significant effect on patients dying within 30 days.