

Different Physical Conditions Concomitant with Acute Myocardial Infarction (AMI) and Intermediate Coronary Syndrome (ICS) (Codes 410/versus 411 ICD 10)

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In recent studies it was shown that blood coagulation and inflammation markers are raising at high geomagnetic activity; acute myocardial infarction and all his subtypes, mostly related to atheromatous plaque disruption –with higher Cosmic Ray (Proton) activity. The **aim** of this study was to explore physical conditions related to monthly distribution of AMI and ICS.

Patients and methods: the data was a part of MONICA study in Kaunas, Lithuania in years 2000-2005 (72 consecutive months). 4633 patients with AMI (2461 men) and 961 with ICS (654 men), (age up to 65) were studied. For comparison four indices of Solar (SA), three of Geomagnetic (GMA), Cosmic Ray (CRA) measured by Neutron activity imp/min. were used. Cosmophysical data were from space science institutions in the USA and Russia. Pearson correlation coefficients and their probabilities were obtained.

Results: monthly number of AMI and ICS show different links with the physical parameters: AMI were significantly inverse related to SA ($r=-0.37$, $p=0.0021$) and direct to CRA (Neutron) activity ($r=0.23$, $p=0.048$). ICS was not correlated with these two parameters, but show significant links to GMA ($r=0.246$, $p=0.037$). Gender differences were evident, men more close related to changes in the mentioned physical parameters.

Conclusion: monthly number of AMI and ICS are different related to fluctuations of environmental physical parameters.

The described connections can affect differences in the pathogenesis of these two forms of Acute Coronary Insufficiency.