

LAD/RCA as Culprit Arteries in AMI (n-2011) in Changing Physical Environment. PCI Data, 2000-2010

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Percutaneous Coronary Intervention (PCI) is one of the principal treatments of Acute Coronary Syndrome (ACS), including Acute Coronary Infarction (AMI). This treatment largely expanded our knowledge about the pathophysiology of AMI and related coronary pathologies. Recent studies found significant relationship of the timing of ACS with environmental physical activity- Solar (SA), Geomagnetic (GMA), Cosmic Ray (CRA) activity.

The aim of this study was to check the interrelationship of two most often involved as culprit arteries- LAD and RCA in the development of AMI in different daily levels of GMA and CRA.

Patients and methods: patients undergoing PCI for AMI at the day of disease (n-2011, 79.9% men) in Rabin Medical Center in years 2000-2010 were studied. The culprit arteries –LAD and RCA, related to AMI in Zero and I0-IV0 of daily GMA and inverse to GMA related CRA (measured by Neutron activity on the Earth surface.) were studied and their ratio compared.

Results: LAD in 45.0% and RCA in 35.7% were the culprit arteries in the AMI. The LAD/RCA ratio rose inverse to GMA (zero – IV0 , $r=0.94$, $p=0.017$) and in correlation with daily Neutron activity for LAD $r=0.97$, $p=0.03$; RCA, $r=0.95$; $p=0.04$. LAD/RCA ratio was 1 in IV0 of GMA and steady rose to 1.62 (62% difference) at zero GMA ($r= -0.94$, $p=0.0117$), and raising Neutron activity accompanied by rising LAD involvement as culprit artery in AMI.

Conclusion: high daily Neutron activity and low GMA are accompanied by rising LAD as culprit artery in AMI. The possible mechanisms of this finding are discussed.