

CARDIOVASCULAR FUNCTION IN RELATION TO BIOMETEOROLOGY IN CORONARY ARTERY DISEASE PATIENTS

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Cardiovascular events and death rates have shown being related to the changes in meteorological situation for meteosensitive subjects. Meteotropic response can be expressed not only by hard end-points of hypertension or coronary artery disease (CAD). They might have expression like angina pectoris, hypertensive reaction, arrhythmia etc, which mechanisms can be related to the autonomic heart rate (HR) control and hemodynamics.

The goal of the study was - cardiovascular meteo-sensitivity mechanism is related to the changing autonomic control of cardiovascular function, reflected by HR and hemodynamics at rest and during active orthostatic test (AOT).

The study deals with an analysis of HR and hemodynamics responses to repetitive (morning, noon, evening every subsequent 5 days) testing during active orthostatic test. Computerized analysis of HR frequency at rest and its maximal responses to AOT (ΔRR_B), SV, CO, TPR and arterial BP was performed and their relation to the changes in meteorological situation, evaluated for 30 healthy (Ss) and 41 CAD pts.

The main results: (1) cardiovascular sensitivity related to meteorological situation was reflected through the changes in HR frequency, HRV, ΔRR_B , SV, TPR and arterial BP, mostly due to changes in autonomic control; (2) the most important factors, having an impact on cardiovascular function, are geomagnetic activity, as well as the changes of atmospheric pressure (p), temperature and humidity;

(3) cardiovascular responses are different for healthy Ss and CAD pts, while the latter being less expressed and related to meteorology; (4) level of correlation between of cardiovascular responses and meteorological factors have different expression in time for healthy Ss (relationship most expressed at noon) and CAD pts (at morning time).

Concluding the results might be stated, that reduced autonomic control of HR and hemodynamic in CAD pts can lead to inertness of cardiovascular system and to the loss of ability for its adaptation to external influences, particularly to changing meteorological and geomagnetic factors. Reduction in cardiovascular adaptability might be responsible for meteo-sensitivity leading to serious complications.