440

ANTARCTICA AS A MODEL FOR UNDERSTANDING PERIPHERAL CRITICAL LIMBS ISCHEMIA AND BRAIN HYPOXIA: ADAPTATION OR JUST SURVIVING?

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Introduction:

1) Peripheral, hands and foot skin circulation is mainly used for temperature regulation, we are both "Reptiles" and "Birds". We adapt our peripheral temperature, we "loose" our tail (fingers) to save the core.

2) Brain circulation otherwise is mainly "temperature independent", related to brain oxygen needs

Antarctica Model:

1) Peripheral vascular disease: fingers and foot necrosis and gangrene happened in skin areas strictly related to thermal regulation; study in "extreme" Chronic exposure in people usually living in warm areas helps to understand and may be to treat CLI, critical limbs ischemia.

Raynaud phenomenon: is physiological in extreme conditions? Is a "tail loose" phenomenon?

2) Chronic Brain Ischemia: high altitudes are a very good model to understand the problem of chronic cerebral ischemia and also relationship to peripheral chronic ischemia

Methods:

Transcranial Doppler, Spirometry, Pulsoximetry, Laser Doppler and Teletermography were used. The Subjects were evaluated before and after at least one month working in Mario Zucchelli Station (MZS) and in Concordia. They were divided into four exposure levels The results comes from last 10 years studies

Results:

Peripheral circulation “adapts” only in cold exposure at sea level. “Patological” responses were monitored in Concordia, were Hypoxia was added. Brain react unexpectedly increasing peripheral resistances. Detailed data will be discussed

Discussion:

Those studies demonstrated how Antarctica helps to understand physiopathology of vascular reactivity. Will be very interesting to discuss the detailed results to understand better the initial meaning of the data