Temporal artery flow response during the last minute of a head up tilt test, in relation with orthostatic intolerance after a 60 day head-down bedrest

Submitted by Emmanuel Lemoine on Tue, 02/24/2015 - 16:14

Mots-clés  
Adult [10], Bed Rest/adverse effects [11], Blood Flow Velocity [12], Cerebral Arteries/physiopathology/ultrasonography [13], Femoral Artery/physiopathology/ultrasonography [14], Head-Down Tilt/adverse effects [15], Humans [16], Male [17], Orthostatic Intolerance/physiopathology/ultrasonography [18], Regional Blood Flow/physiology [19], Temporal Arteries/physiopathology/ultrasonography [20], Tilt-Table Test [21], Ultrasonography, Doppler, Color [22], Vascular Resistance [23]

OBJECTIVE: Check if the Temporal flow response to Tilt could provide early hemodynamic pattern in the minutes preceding a syncope during the Tilt test performed after a 60-d head down bedrest (HDBR). METHOD: Twenty-one men divided into 3 groups [Control (Con), Resistive Vibration (RVE) and Chinese Herb (Herb)] underwent a 60 day HDBR. Pre and Post HDBR a 20 min Tilt identified Finishers (F) and Non Finishers (NF). Cerebral (MCA), Temporal (TEMP), Femoral (FEM) flow velocity, were measured by Doppler during the Tilt. Blood pressure (BP) was measured by arm cuff and cardiopress. RESULTS AND DISCUSSION: Four of the 21 subjects were NF at the post HDBR Tilt test (Con gr:2, RVE gr: 1, Herb gr: 1).

At 1 min and 10 s before end of Tilt in NF gr, FEM flow decreased less and MCA decreased more at post HDBR Tilt compared to pre (p<0.05), while in the F gr they changed similarly as pre. In NF gr: TEMP flow decreased more at post HDBR Tilt compared to pre, but only at 10 s before the end of Tilt (P<0.05). During the last 10 s a negative TEMP diastolic component appeared which induced a drop in mean velocity until Tilt arrest. CONCLUSION: The sudden drop in TEMP flow with onset of a negative diastolic flow preceding the decrease in MCA flow confirm that the TEMP vascular resistance respond more directly than the cerebral one to the cardiac output redistribution and that this response occur several seconds before syncope.
