

SPACE LIFE SCIENCES SYMPOSIUM (A1)
 Medical Care for Humans in Space (3)

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RHODIOLA ROSEA RESTORES THE DECLINED BASILAR ARTERY BLOOD FLOW VELOCITY
 INDUCED BY 39DAY HEAD-DOWN BEDREST

Abstract

Objective: Many investigations of cerebral blood flow regulation after spaceflight or head-down bedrest (HDBR) focused on the middle cerebral artery(MCA), which represents only the anterior circulation of brain, there is little information on the changes of regulation in posterior circulation such as basilar artery(BAS). In this study, we compared the changes of cerebral blood flow velocity(CBFV) between anterior and posterior circulation, and evaluated the countermeasure effects of Rhodiola rosea on the changes of CBFV after 39d HDBR. Methods: Fifteen healthy male volunteers underwent HDBR for 45 days and were randomly assigned into control(Con, n=8) and Chinese herb countermeasure group(Herb, n=7), the volunteers in Herb group received oral capsules of Rhodiola rosea 3 times daily. CBFV of the right MCA(Vmca) and BAS(Vbas) were measured using transcranial Doppler at 7d before HDBR(D-7) and 39d HDBR(D39). Results: Compared with the data of before HDBR, there was no change in the maximal and mean Vmca after 39d HDBR in Con and Herb groups. However, Rhodiola rosea decreased significantly the resistance index(RI) of MCA. 39d HDBR induced the significant decrease of maximal Vbas in Con group, but in Herb group, this effect was reversed by treatment with Rhodiola rosea daily, Rhodiola rosea even increased a little of maximal Vbas after 39d HDBR. Conclusion: In this study we

investigated for the first time to our knowledge the changes of CBFV in the posterior circulation after HDBR and the countermeasure effects of *Rhodiola rosea*. The results showed that there was significant simulated microgravity effects on posterior circulation of brain, which deserved further investigation in the future or in spaceflight task, especially its physiological significance in the underlying mechanisms of orthostatic intolerance after space flight.