

Mechanisms for Cooling the Brain Selectively and Hemodynamics of Emissary Venins

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1997 Fiscal Year Final Research Report Summary

Mechanisms for Cooling the Brain Selectively and Hemodynamics of Emissary Venins

Research Project

Project/Area Number

06404018

Research Category

Grant-in-Aid for Scientific Research (A)

Allocation Type

Single-year Grants

Section

一般

Research Field

Environmental physiology (including Physical medicine and Nutritional physiology)

Research Institution

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Project Period (FY)

1994 - 1997

Keywords

Research Abstract

The purpose of this study was to investigate how the efficiency of selective brain cooling mechanisms in humans are influenced by the change in emissary venous flow due to the change in posture, intrathoracic pressure and ventilation. 1. Compared with in supine body position, emissary flow was higher and tympanic temperature became lower in upright position. With 6°-head down position, the changes were in opposite directions. 2. While occluding the angular vein of one side and the facial vein at the alinasal level of another side, there occurred a discrepancy of tympanic temperatures in both sides, higher in the side where the angular vein was occluded. 3. In a negative breathing through a respirator with an inspiratory resistance or through a tank whose pressure was maintained negative, emissary flows increased and tympanic temperature became lower compared with the controls. 4. With hyperventilation, tympanic temperature became lower. The was observed when CO₂-added air was inspired, but the effect was not consistent in this case. 5. When the subject breathed through a nostril of one side, that of the other side was kept obstructed, the ipsilateral tympanic temperature became slightly lower. All these results suggest that enhancement of emissary venous flow was necessary important to increase efficiency of selective brain cooling in humans during hyperthermia.

Research Products (15 results)

All Other

All Publications (15 results)

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- [Publications] Nagasaka T: "Influence of changing intrathoracic pressure on emissary venous flow and selective brain cooling in hyperthermic conditions" Biometeorology 14(slovenia). 2-2. 325-332 (1997) ▼
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- [Publications] 田辺 実: "化粧品が高温環境下の発汗反応及び選択的脳冷却機構に及ぼす影響" コスメトロジー研究報告. 4. 122-129 (1996) ▼
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- [Publications] Sakurada S.: "Arole for gastrointestinal endotoxins in enhancement of heat rolernace by physical fitness." J Appl Physiol. 84. 207-214 (1998) ▼

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