

**P-24****COUPLING BETWEEN INTERNAL CAROTID ARTERY AND VERTEBRAL VENOUS FLOW DURING ORTHOSTATIC STRESS**

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To indicate whether the shift in venous drainage from the brain during orthostatic stress where the internal jugular vein (IJV) is “collapsed” reflects that flow from the part of the brain served by the internal carotid artery (ICA) becomes drained by vertebral vein (VV), a correlation analysis between ICA and VV blood flow was performed during supine rest and when 9 subjects (5 men) were seated. To appreciate inter-individual variation, determination of vascular flow was carried out during hyperventilation and inhalation of 6% carbon dioxide (CO<sub>2</sub>). During supine rest change in ICA blood flow in response to manipulation of CO<sub>2</sub> was reflected in IJV blood flow ( $P < 0.001$ ), but not in VV blood flow ( $P = 0.121$ ). When seated, vertebral artery (VA) blood flow did not change ( $P = 0.784$ ). In addition, where viewed, VV remained open and changes in VV blood flow in response to manipulation of CO<sub>2</sub> became associated with that in ICA ( $r = 0.828$ ,  $P < 0.001$ ) and VA ( $r = 0.612$ ,  $P < 0.001$ ). These results support that venous drainages from the anterior part of the brain is shifted to the posterior veins when the diameter of IJV is reduced (partially collapsed), because VV does not collapse which raises the question whether a siphon supports posterior cerebral blood flow during orthostatic stress.

**Keywords:** siphon, cerebral blood flow, venous drainage, collapse, inter jugular vein