

Head position and cerebral blood flow velocity in acute ischemic stroke: A systematic review and meta-analysis

Olavarría, Verónica V.

Arima, Hisatomi

Anderson, Craig S.

Brunser, Alejandro M.

Muñoz-Venturelli, Paula

Heritier, Stephane

Lavados, Pablo M.

Background: Patients with acute ischemic stroke (AIS) have impaired vasomotor reactivity, especially in the affected cerebral hemisphere, such that they may depend directly on systemic blood pressure to maintain perfusion to vulnerable 'at risk' penumbral tissue. As the sitting up position may affect cerebral perfusion by decreasing cerebral blood flow (CBF) in salvageable tissue, positioning AIS patients with their head in a lying flat position could increase CBF through collateral circulation or gravitational force. We wished to quantify the effect of different head positions on mean flow velocity (MFV) by transcranial Doppler ultrasonography (TCD) in AIS patients to assess the potential for benefit (or harm) of head positioning in a clinical trial. **Methods:** We performed a systematic review and meta-analysis of observational studies with TCD to evaluate differences in cerebral MFV between the lying flat and sitting up head positions in AIS. For each study and each comparison, we obta