Cerebral aqueduct resistance

- Hemodynamic changes and their relationship with white matter hyperintensities in CSVD patients with cognitive impairment: a 4D flow study
- Transmantle pressure under the influence of free breathing: non-invasive quantification of the aqueduct pressure gradient in healthy adults
- Assessment of neurofluid dynamics in relation to clinical improvement after tap-test: pilot study
- Tetraventricular hydrocephalus with aqueductal flow void: an overlooked entity having consistent improvement following endoscopic third ventriculostomy
- RAQ: A Noise-Resistant Calibration-Independent Compliance Surrogate
- RAQ: a novel surrogate for the craniospinal pressure-volume relationship
- Enhanced in vitro model of the CSF dynamics
- Mathematical Modelling of CSF Pulsatile Flow in Aqueduct Cerebri

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Aqueduct resistance, in a medical or physiological context, generally refers to the resistance to cerebrospinal fluid (CSF) flow through the cerebral aqueduct, a narrow channel connecting the third and fourth ventricles in the brain. This resistance can have implications for conditions such as **hydrocephalus**, where the accumulation of CSF occurs due to blockage or imbalance in production and absorption.

see also Aqueductal stenosis.

Phase contrast magnetic resonance imaging.

Key Points

1. **Flow Dynamics:**

1. The cerebral aqueduct is a bottleneck for CSF flow in the brain, and any obstruction or increased resistance can disrupt normal flow.
2. Resistance can be influenced by structural anomalies, tumors, scarring, or congenital narrowing.

2. **Measuring Aqueduct Resistance:**

1. Imaging techniques like Phase Contrast Magnetic Resonance Imaging are often used to assess CSF flow and calculate resistance.
2. Flow patterns, velocity, and pressure gradients help determine whether resistance is pathological.

3. **Clinical Relevance:**

1. Increased aqueduct resistance can lead to raised intracranial pressure and ventriculomegaly (enlargement of ventricles).
2. Common related conditions include **aqueductal stenosis** and **normal pressure**

hydrocephalus (NPH).

4. **Management and Treatment:**

1. Treatment depends on the underlying cause of resistance. For example:
    1. **Shunt placement** to divert CSF.
    2. **Endoscopic third ventriculostomy (ETV)** for bypassing the blockage.
2. Advances in neuroimaging are critical for guiding treatment decisions.

Phase contrast magnetic resonance imaging for cerebral aqueduct resistance

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