

## 9<sup>th</sup> International Conference on DEMENTIA AND DEMENTIA CARE

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#### **Cervical stenosis-induced chronic CSF flow obstruction as a contributing cause of dementia**

**Statement of the Problem:** Obvious CSF flow obstruction is a well-established acute and sub-acute cause of dementia. Unfortunately, the less-obvious vagaries of CSF production and absorption remain relatively unexplored and logically could play a role in neuronal destruction. The purpose of the study is to demarcate processes (particularly cervical stenosis) by which restricted (often episodic), CSF circulation subtly damages neuronal tissue and to propose studies and arrangements to track and prevent the onset of such difficulties.

**Method:** To assess the impact of recent new understandings of CSF flow dynamics and on the possible etiology of dementia, a substantial literature review was conducted and new suggestions proposed.

**Findings:** A systematic literature review suggests the elevated prevalence of cervical stenosis, concomitant CSF flow obstruction and dementia in an elderly population. The literature further suggests that cervical stenosis can significantly, often discreetly, compromise CSF circulation, thereby injuring neuronal tissue by direct untoward pressure, by restriction of cerebral CSF bulk flow retarding beta-amyloid clearance and by ventricular ependymal cell damage allowing trans-ependymal CSF flow neuronal damage. Moreover, such restriction could contribute to the development of sleep apnea, thereby causing concomitant respiratory and circulatory dysfunction, promoting the development of a vicious cycle in which widespread direct neuronal injury as well as further increase in ICP occurs.

**Conclusion:** We conclude that, among other obstructive possibilities, cervical stenosis could play a role in the development of dementia. Recognition of subtle, chronic CSF alterations (in some ways comparable to chronically abnormal blood pressure) calls for the development of, preferably non-invasive, technology to measure CSF circulation on a 24-hour basis. If the parameters of episodic abnormalities could be better adjudicated, prevention of such events could reasonably be effectuated by cervical decompression, therapeutic drug regimen and altered sleep position.

#### **Biography**

Joe Sam Robinson is currently the President of Georgia Neurosurgical Institute, USA. He is a Professor and Chief of Neurosurgery at Mercer University. He is a Clinical Professor of Neurosurgery at Medical College of Georgia and an author of over 100 peer review articles.

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