

## Commentary

Darko D. Lavrenčič

MED ZSA

Cesta 6.maja 11, Vrhnika, Slovenija, EU

[darko.lavrencic@siol.net](mailto:darko.lavrencic@siol.net)

<https://www.med-lavrencic.si>

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### **The intracraniospinal volumes homeostasis: looking for a physical solution to the physical problem.**

Monro-Kellie-Burrows-Weed doctrine is based on physical law that all intracraniospinal volumes are enclosed in nearly rigid space of cranium and spinal channel.

There are published countless research articles and numerous reviews dealing with variables influencing intracraniospinal volumes homeostasis:

1. The parenchyma of brain and medulla spinalis with meninges
2. Blood and blood vessels of brain and medulla spinalis
3. Cranial intradural venous blood and venous blood in spinal extradural space with soft tissue
4. Cranial and spinal cerebrospinal fluid space
5. Cerebrospinal fluid formation
6. Cerebrospinal fluid removal
7. Cerebrospinal fluid flow
8. Cerebrospinal fluid pressure
9. Cerebrospinal fluid composition
10. Ciliary cerebrospinal fluid movement
11. Dural elasticity
12. Blood vessels pulsatility
13. Respiration
14. Body position and weight
15. Environment (gravity and pressure)
16. Age, sex

It is well known that plexus choroideus is highly vascularized but it is not so well known that it is also highly innervated.

There is a hydrodynamic interplay between two intertwined liquid pressure columns: the column of the cranial and spinal cerebrospinal fluid and the column of the venous blood in the cranial dural venous sinuses and the spinal epidural venous plexuses.

Each column is a continuous column of water-like liquid. And since, anatomically, there are no valves in spinal epidural venous system, one continuous liquid column with cranial venous sinuses exists.

It looks like this very complex intracraniospinal volume homeostatic environment is actively controlled in physiological conditions simply by only one variable represented by cerebrospinal fluid formation [1].

## References

1. MED zasebna splošna ambulanta mag.Darko D.Lavrenčič dr.med. <https://www.med-lavrencic.si> Accessed 19 February 2019.

## Declarations

Not applicable.