Opinion

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Craniometrical Junction Abnormalities in the Management of Degenerative Brain Disorders

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Opinion

Over the past 20 years, there has been a significant increase in the incidence of various degenerative brain diseases and the public awareness associated with these conditions. Cognitive dysfunction labels can include anything from underdiagnosed conditions such as ADD, ADHD, and various "brain fog" disorders, to degrees of cognitive impairment and more serious brain diseases such as dementia, Parkinson's disease, Alzheimer's disease, multiple sclerosis (MS), amyotrophic lateral sclerosis (ALS), Chronic Traumatic Encephalopathy (CTE), Factors of Traumatic Brain Injury (TBI) and Post Traumatic Stress Disorder (PTSD). However, as the number of cases of cognitive decline increases, determining the exact cause continues to be overlooked by researchers and doctors.

When considering the treatment and management of all cognitive impairments, hemodynamics of the brain is an important factor that must be considered to ensure that the brain receives and discharges adequate blood flow. If the brain does not receive enough blood flow from the arteries, it becomes undernourished and can degenerate. If the brain cannot evacuate hypoxic blood from the brain through the venous system, there is also a risk of deterioration. A deficiency in the venous drainage system can also lead to an increase in vascular pressure inside the brain, which can negatively impact the filtration and removal of neurotoxins from the cerebrospinal fluid pump. marrow (CSF).

The upper cervical spine directly interacts with various vascular elements responsible for supplying and maintaining adequate cerebral hemodynamics. The internal carotid artery (ICA) and the internal jugular vein (IJV) lie just anterior to the superior cervical vertebra and the vertebral artery passes through the transverse foramen of the superior cervical vertebra. With numerous research papers demonstrating the possibility of vascular changes due to vascular indentation of the vertebral structures, it seems likely that abnormal superior cervical alignment may influence cerebral hemodynamics.

In addition, Styrofoam elongation may affect ICA and IJV currents and alter cerebral hemodynamics. Whether due to structural elongation or due to calcification of the styloid ligament, the condition is known as Eagle syndrome when the extension of the file affects the regional nerves. Eagle syndrome has been reported in medical research journals as a relatively rare event; however, preliminary results from recent large-scale studies seem to suggest styloid lengthening to such an extent that transverse processes of the superior cervical vertebrae (C1) are fairly common. A preliminary South Carolina study in 2021-2022 of 200 cases found that the styloid process(s) extended to the extent of the transverse process of the C1 vertebra with a prevalence of 80% or more by some investigators. and a separate survey The US National Preliminary Clinical Study conducted by multiple investigators on more than 3,000 cases between 2017 and 2020 showed a prevalence of more than 50%. It appears that styloid prolongation is much more common than previously thought. If the styloid

process normally grows to the level of the C1 transverse process, there are two possibilities for vascular compression. First, if the C1 vertebra is dislocated (displaced) in a way that includes a rotator cuff component, the transverse process may force the IJV posteriorly to the elongated file. Second, if a patient with prolonged file(s) spends a lot of time in the craniometrical flexion position, the file(s) may fold inward into the IJV, causing further compression.

Given the continued flexion of the neck associated with the era of texting, gaming, and office computer work, the possibility of increased IJV compression between the dislocated C1 vertebrae and the elongated style may cause brain hemodynamic changes and may be an important factor contributing to the increased incidence of degenerative brain diseases.

In a study supported by the Rollins School of Public Health, which is currently being peer-reviewed, found that 79% of the cohort had cervical cranial dislocations. This may be representative of a much larger cohort likely to result in cognitive dysfunction due to untreated cranial subluxation. The epidemiological impact of this altered hemodynamic status may outweigh the currently known correlations in morbidity and mortality.

Structural alignment procedures that can effectively ameliorate craniometrical vascular compression syndrome may have a positive impact on the recovery and prevention of degenerative brain disorders. The structural alignment procedures focused on correcting the craniometrical alignment are primarily found within the chiropractic profession. Due to the sensitivity of the neuro vasculature in the craniometrical region, as well as the anatomical uniqueness of the absence of cervical discs and interlocking posterior facet joints in that region, procedures used to correct craniometrical alignment should be applied gently, non-invasively, and within the patient's normal range of structural motion whenever possible.

Determination of the presence of elongated styloid processes as well as accurate determination of the measurable malposition of craniometrical vertebral alignment and the associated appropriate directional realignment, make diagnostic imaging an essential component for determining the safest and most effective craniometrical alignment procedures. The absence of such imaging could place the practitioner in a position of lacking necessary data for determining appropriate treatment and could increase the potential for patients to experience adverse reactions.

Conclusion

In conclusion, the determination of craniometrical subluxation and the effective use of craniometrical alignment procedures may have a significant and positive effect on improving the cerebral hemodynamics of a large portion of the population and should be a standardized component in the evaluation and management of cognitive dysfunction syndromes.