GLOBAL SCIENCE LIBRARY

EDITORIAL

Global Neurology

Neurosurgical procedures in central nervous system vasculitis

Orlin Pavlov*

Resident, Department of Neurosurgery, University Medicine Marburg, Germany

Neurologists and neurosurgeons are the two sides of the same coin. The diseases treated by both specialties often overlap and for the good of the patient, the one can't without the other. We are dedicating this editorial to the central nervous system (CNS) vasculitis and possible neurosurgical interventions, which might be required to better the neurological outcome of the patients. We are going to stress out the importance of having neurosurgeons on the team.

The CNS vasculitis is a general term, which encompasses two groups: primary angiitis of the CNS (PACNS) and secondary CNS vasculitis. PACNS develops only in the brain and spinal cord, without any systemic effects, whereas the middle and small vessels are affected. The symptoms of the patient could be due to stroke or encephalopathy. On the other hand, the secondary CNS vasculitis occurs in association with lupus erythematosus, granulatosis with polyangitis, rheumatoid arthritis, etc.

For the diagnosis of CNS vasculitis, the laboratory tests, including liquor and imaging are of great importance. CSF studies reveal inflammatory changes. MRI remains golden standard for detecting CNS vasculitis, especially ADC maps, diffusion and echo sequences.

The treatment of CNS vasculitis is derived from the protocols for treatment of systemic vasculitides, whereas corticosteroids and cyclophosphamide are used for induction of the therapy. Methotrexate, azathioprine and mycophenolate mofetil could be used as well as secondary therapy.

The exact percentage of neurosurgical interventions in patients with CNS vasculitis remains unknown. The neurosurgical interventions do not have direct effect on the primary disease. They are used as a supportive treatment for confirming the diagnosis, monitoring of intracranial pressure (ICP) and oxygen consumption and temperature or relieving high intracranial pressure. All these neurosurgical procedures are common in patients with subarachnoid hemorrhage, malignant stroke or tumors. These procedures could better the neurological outcome of the patient and shorten the hospital stay.

Brain Biopsy

All neurosurgeons begin their residency performing brain biopsies. Through this technique a sample of brain tissue is obtained, which could be further investigated. The brain biopsy could be navigational-guided or stereotactic. In both cases a sample of the region of interest is obtained. Rates of procedure-related morbidity are between 0% and 12%. The overall mortality lies under 2%.

Monitoring of ICP

In order to monitor the ICP, a small probe is inserted, typically over the Kocher's Point, into the brain parenchyma. CNS Vasculitis could be associated with multiple strokes, sometimes affecting the entire medial cerebral artery (MCA). This could lead to increase of the intracranial pressure and secondary neurological deficits could occur, if the patient survives. The ICP correlates with the clinical findings in the patients (pupillary difference) and the computer tomography of the brain findings. A possible limitation of the ICP monitoring devices is the distance between the device and the possible side of the herniation. In that way, the increase in the ICP could be too late observed, after the herniation.

Decompressive Hemicraniectomy (DH)

When an infarction occurs in more than 50% of the territory of the middle cerebral artery a mass effect occurs, and a herniation begins. In CNS vasculitis, things get more difficult because, in contrast to embolic infarction, where only one major vessel is affected, many vessels are affected.

The decompressive hemicraniectomy improves the neurological outcome of the patients after a malignant medial cerebral artery (MCA) infarction. The role of the DH is not well studied and there are no randomized trials to assess the efficacy. However, in selected cases, where a one-sided MCA infarction occurs with a mass effect, a DH could be life-saving procedure till the systemic therapy works.

The collaboration of neurologists and neurosurgeons in the treatment of CNS vasculitis ensures the good outcome of the patient. As already stated, the neurosurgical interventions are supportive to the systemic therapy and could not replace it [1-5].

References

1. Torres J, Loomis C, Cucchiara B, Smith M, Messé S. Diagnostic Yield and Safety of Brain Biopsy for Suspected Primary Central Nervous System Angiitis. Stroke. 2016; 47: 2127-9.
2. Berlit P. Diagnosis and treatment of cerebral vasculitis. Ther Adv Neurol Disord. 2010; 3: 29–42.
3. Hall WA. The safety and efficacy of stereotactic biopsy for intracranial lesions. Cancer. 1998; 82: 1749-55.

4. Schwab S, Aschoff A, Spranger M, Albert F, Hacke W. The value of intracranial pressure monitoring in acute hemispheric stroke. Neurology. 1996; 47: 393-398.

5. Lammy S, Fivey P, Sangra M. Decompressive craniectomy for malignant middle cerebral artery infarction in a 16-year old boy: a case report. J Med Case Rep. 2016; 10: 368.

Correspondence: Orlin Pavlov, Resident, Department of Neurosurgery, University Medicine Marburg, Germany, Tel: + 49 176 82439 060; E-mail: orlinpavlov88@gmx.de

Rec: Feb 20, 2020; Acc: Feb 25, 2020; Pub: Feb 28, 2020

Global Neuro. 2020;1(1):5
DOI: gsl.gon.2020.00005