

Neurology PGY-3 Resident Assignment

By

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1. JR is a 42 YO RHAAF with a past medical history significant for Hepatitis C secondary to remote IV drug use which was diagnosed approximately 5 years prior to her presentation. She initially presented to the burn unit after receiving second degree burns to the face and bilateral upper extremities. Her recovery had been uneventful until approximately one week after the initial injury. She started to experience a right sided headache and mild mental status changes. A head CT was done that showed a 4 cm by 2 cm left sided parietooccipital hemorrhage. The patient was then transferred to the NSICU under the neurosurgery service for further care. No surgical intervention was needed. She had an MRI/MRA scan that confirmed the area of hemorrhage but showed no evidence of AVM, aneurysm etc. A follow up cerebral angiogram showed diffuse areas of smooth, luminal narrowing along with a small aneurysm at the junction of the cavernous/supraclinoid portion of the right ICA. JR developed worsening delirium and headache and was then evaluated by the neurology consult service. She was later evaluated by rheumatology for treatment of presumed CNS vasculitis (CNSV). Pt was eventually transferred to the Neurology ward team for further care. Her exam at that time was significant for mental status changes, 4+/5 RUE strength, mild decreased sensation to all modalities, mild motor aphasia, and a right homonymous hemianopia. Her rheumatological workup consisted of several labs such as AMA 1:20 (-), Hepatitis B surface antigen (-), cryoglobulins (-), HIV (-), C3 127 (n), C4 33 (n), CH50 32 (n), SPEP (n), ANA 1:80 (-), RPR NR, ESR 50, CRP 6.3, RF 138. JR was started on high dose solumedrol for seven days followed by an oral prednisone taper.

JR had an extended hospital stay, mostly secondary to psychiatric complications secondary to both high dose steroids and vasculitis. These symptoms improved with the oral steroid taper. She was also started on cellcept which was well tolerated. She had a short inpatient rehab stay and finished her recovery as an outpatient. Her ESR and CRP were followed and eventually got back near normal range. Her deficits from the hemorrhage resolved almost completely except for minimal visual field deficits. The cellcept was stopped to help the healing of a clavicular fracture soon after her discharge. The prednisone was then slowly tapered off.
2. The differential diagnosis for this condition includes secondary CNS vasculitis, herpes zoster associated cerebral angiitis, CNS infection, eclampsia in a pregnant woman, drug induced vasculopathy, CADASIL, cerebral embolus, benign angiopathy.
3. The final diagnosis was Hepatitis C induced isolated CNS vasculitis. This diagnosis was arrived at primarily by review of the conventional cerebral angiogram which showed diffuse, scattered areas of luminal narrowing and a small right MCA aneurysm, along with the absence of any systemic findings. The HCV PCR confirmed the hepatitis c diagnosis.

4. What percentage of hepatitis c patients develop ICNS?
 - a. Tembl, JI et al. Neurologic complications associated with hepatitis c infection. Neurology 1999;53:861
 - b. Siva, A. Vasculitis of the Nervous System. Journal of Neurology, 2001 June;248(6) 451-68.

5. Therapeutic options for isolated CNS vasculitis include high doses of solumedrol and prednisone. This therapy is thought to decrease the immune response and thus the deposition of immune complexes in vessels. Cytotoxic agents including cyclophosphamide also treat vasculitis by a similar mechanism. IVIG therapy has also been used to treat ICNSV. It has several different mechanisms of actions ranging from blocking receptors on macrophages to inhibiting complement mediated damage to neutralizing autoantibodies.

6. Two organizations that can help patients and families with this diagnosis include these patient/family support groups. They are <http://www.medhelp.com> and <http://www.cnsv.net/support/>.

7. Outcomes- Several articles were reviewed to determine the outcomes of patients with CNSV. It seems that patients tend to do relatively well if treated early, response rates to therapy are about 60%. Patients should be treated for at least one year after the clinical condition stabilizes. There was some discussion about what treatment and length of therapy is most effective because the limiting factor in how well patients do often times is how well they can tolerate the medications. There was a case reviewed by Riemer et al (1999) where a patient died from cyclophamide induced myelodysplastic syndrome. Although this patient was clinically stable angiography showed progressive stenosis so treatment was continued. At autopsy there was no inflammation or scarring. This case brought out an interesting point. Cases of CNSV should be treated early and initially in an aggressive manner but treatment should be tailored not only to imaging studies but also to the patients' clinical condition for a more positive outcome.

8. Questions:
 - a. Isolated CNSV is most definitively diagnosed by:
 - 1) MR angiography 2)PET scan 3) Cerebral angiogram 4) CSF analysis 5) biopsy/autopsy
 - b. Isolated CNSV primarily effects:
 - 1) dural venous sinuses 2) small aa of leptomeninges 3) large aa 4) small aa of brain parenchyma 5) both 2 and 4
 - c. Conventional treatment of ICNSV consists of but is not limited to:
 - 1) warfarin 2) whole brain radiation 3) high dose corticosteroids 4) antivirals 5) IVIG

Answers:

a. 5) biopsy/autopsy. Cerebral angiogram is likely to be helpful in making the diagnosis of CNSV but might not be definitive if there is mostly small vessel involvement. Angiogram is more helpful when the more medium sized vessels are affected. Biopsy/autopsy is the most definitive test but is not usually done for obvious reasons. CSF analysis is likely to be sensitive in CNSV but not specific. There has not been enough research done with MRA to know exactly how sensitive or specific it is for CNSV but the thought is that it is probably not good enough to make the diagnosis. PET scan will probably show abnormalities especially with infarcts or hemorrhages but again will not be specific.

b. 5) both 2 and 4. CNSV usually affects the small aa of the meninges and parenchyma. It often involves the medium sized aa also but is unlikely to involve the larger aa. There was no report in my review of the literature of CNSV affecting the venous sinuses.

c. 3) high dose corticosteroids. The key to the question is the word conventional thus asking for the “best” answer. The other choices have definitely been used in the treatment of CNSV but throughout the literature high dose corticosteroids and cytotoxic agents, mainly cyclophosphamide are the first line agents.

9. I found JR’s case to be interesting because she had such a complicated course, yet had an amazing recovery. I also wanted to do this assignment about her because I wanted to learn more about the condition in an effort to provide better treatment for her.

REFERENCES

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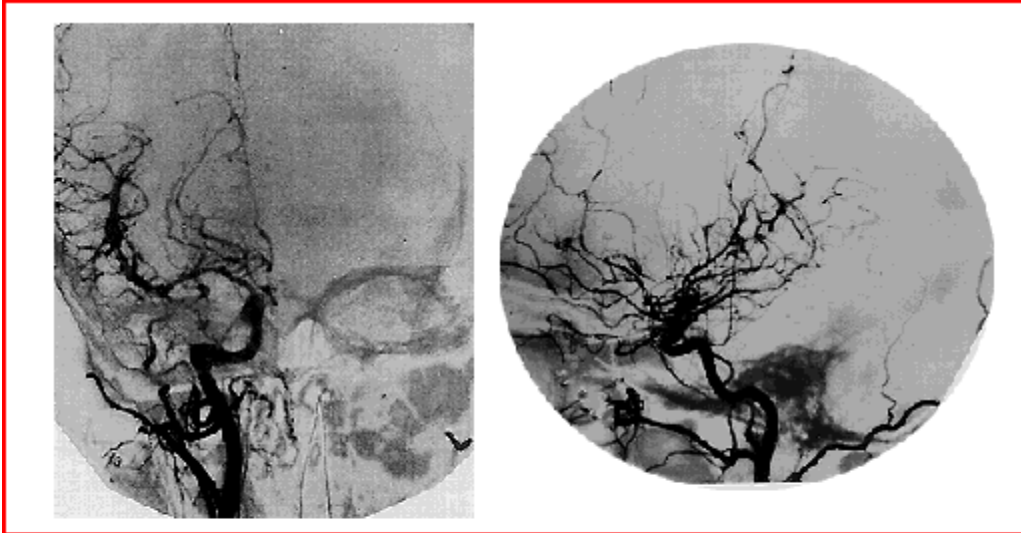
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WWW.CNSV.NET

WWW.Medhelp.com

WWW.UTDOL.COM -Isolated CNS vasculitis



Carotid angiograms in isolated CNS vasculitis Left panel: An anteroposterior view of a right carotid angiogram in a patient with isolated central nervous system vasculitis (ICNSV) reveals focal narrowing of multiple vessels in both the anterior and posterior systems. Right panel: A lateral view of a right carotid angiogram in ICNSV demonstrates beading and multiple irregularities both proximally and distally. Courtesy of Leonard H Sigal, MD.

From www.utdol.com- isolated CNS vasculitis