

# STANDARD DEVIATIONS: March Madness – Cabin Fever vs Neuro COVID-19

Greetings,

If Cabin Fever is not a recognized psychological illness, then why do I have all the symptoms? Just ask my family. Boredom, irritability, restlessness, impatience, anxiety, loneliness, hopelessness, depression, and a severe case of lack of motivation are my routine. And I don't think I'm the outlier. Look in the mirror and then tell me I'm the only one.

Unfortunately, COVID-19 has done more damage to our neurons than just Cabin Fever. There is evidence emerging that point to some real complications and encephalopathies from this virus. But how bad is it?

**“There are few detailed investigations of neurologic complications in severe acute respiratory syndrome coronavirus 2 infection.”** CDC EID Journal Sept. 2020

**“Encephalopathy is common in critically ill patients with COVID-19.”** March 18, 2021 Journal of American Health Information Management Assc. (AHIMA)

Hunh?? Well, which is it?

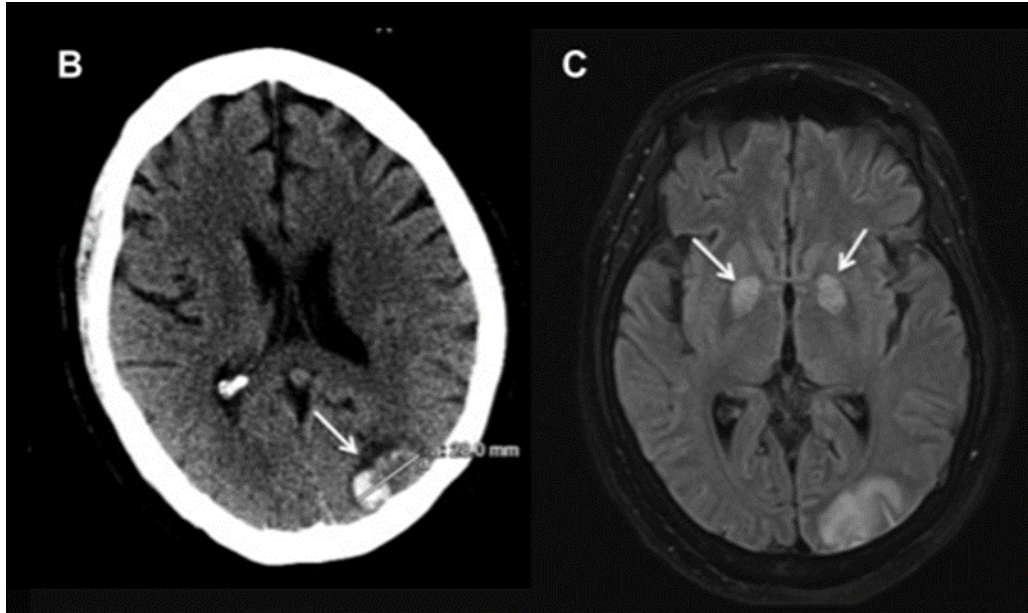
The answer is that we just don't know .... yet. Understanding of neurological disease with COVID-19 is evolving, and evidence is building.

Dysgeusia (taste loss) and anosmia (smell) have been well documented. Headache, dizziness, and encephalopathy are actually more common. Other neurological pathologies, including ischemic and hemorrhagic stroke, movement disorders, focal motor and sensory deficits, ataxia and seizures, are seen but not as much.

Encephalopathy is common in older patients (> 50 years of age), and they are severely or critically ill.

Hypoxic/metabolic changes result in encephalopathy. Studies find changes produced by the intense inflammatory response against the virus trigger cytokine storm and the subsequent acute respiratory distress syndrome, multiple organ failure, and an attack on brain vasculature.





{B. Hematoma at occipital pole and C. hypodensity edema in the same pt.}

Encephalopathy is always preceded by the common clinical features of COVID-19, like, fever, cough, breathing difficulty (dyspnea), and headache. Typically, these patients are already in the intensive care unit when encephalopathy develops.

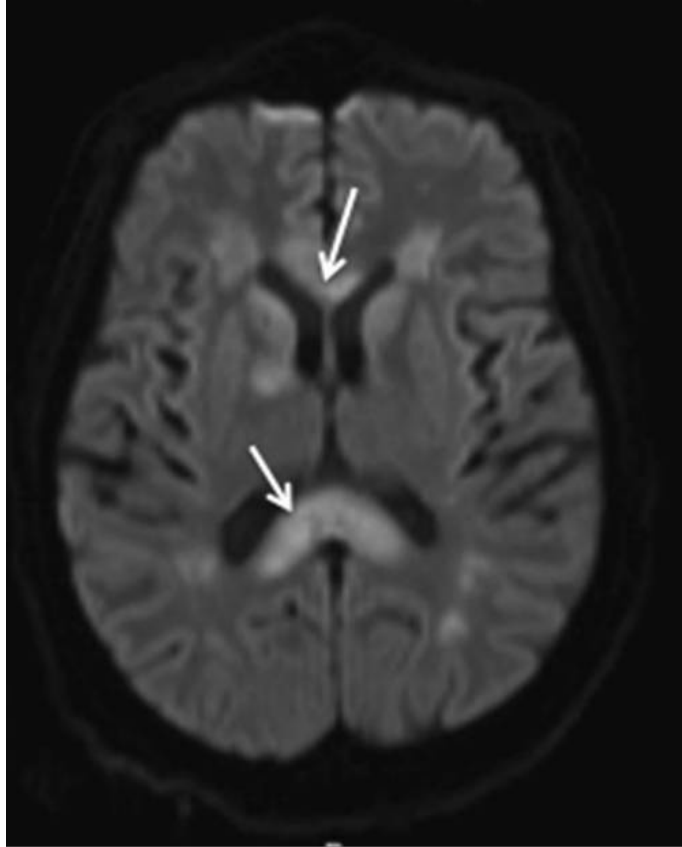
We can see them in the laboratory, too. The critical patients that develop encephalopathies have tell-tale lab markers. They show elevations in:

- White blood cell counts
- D-Dimer
- Fibrinogen
- Ferritin
- LDH

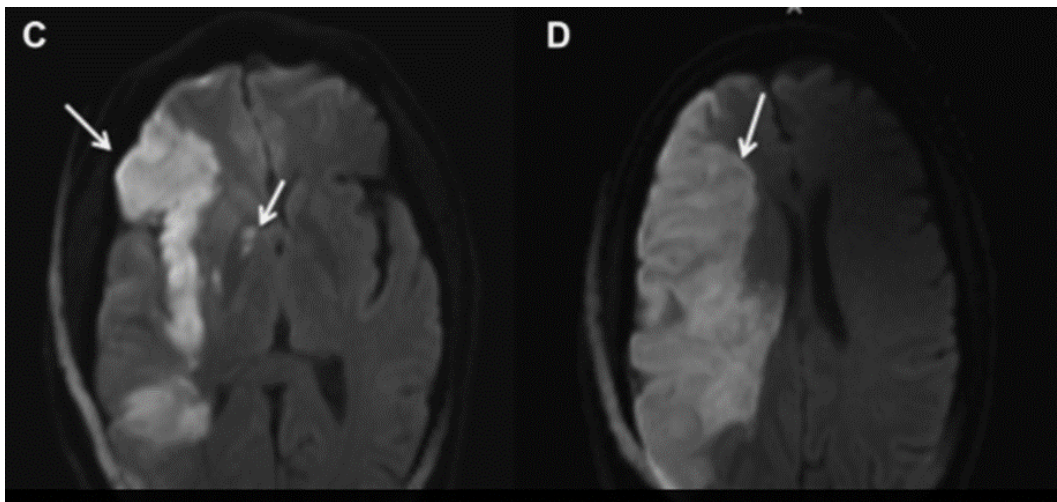
But when CSF is analyzed the results are confounding. Cultures don't grow, our typical viral PCRs come up negative, CSF glucose and total protein appear normal. CSF cell counts are elevated but not remarkable and tend to have more lymphs and monocytes than neutrophils.

MRI finds the culprit. Scans show how the vasculature is affected and lesions of curious white matter hyperintensities (WMH).





{White matter hyperintensities}



{Circulatory restrictions from arterial stenosis}

The facts today are clear that SARS-CoV2 causes neurological damage. The magnitude and diversity of conditions will only be known in the future.



Encephalopathies will likely become more evident as the pandemic stretches into a second year, or longer.

Now, some conditions can be attributed to isolation and some mental illness results from social and occupational pressures. We see burnout, panic buying, and loneliness devolve to depression and anxiety, and these conditions are disturbing. Psychiatric sequelae don't conform to our paradigm, but are just as real a disease problem, just not lethal.

But, the observable physiology in the damaged brain is truly horrific; and unfortunately, these encephalopathies are killers.

Stroke and aneurysm are things we can test and point to in real ways. Brain Fog, psychosis, schizophrenia and myriad other ailments are being seen in the neuro-pathology of COVID-19; we don't really know how to test these conditions with hard science.

When we think about risk, we envision observable tangible symptomology that we can test. Laboratories (and doctors) love to quantify and isolate problems. COVID-19 mental illness may alter our views of diagnostic methods.

Even when COVID-19 dissipates, mental illnesses will affect individuals that did and did not get infections. A little Cabin Fever may not be so bad, after all.

Have a great week and be safe,

Bryan

