

Supplemental Material: Tables and Figures

Krett JD, Jewett GA, Elton-Lacasse C, Fonseca F, Hahn C, Au S, Koch MW. Hemorrhagic Encephalopathy Associated with COVID-19.

Table S1

Standard cerebrospinal fluid (CSF) results from day 1 and day 14.

Value	Units	Day 1	Interpretation	Day 14	Interpretation
WBC	x10 ⁶ /L	2	Normal	3	Normal
RBC	x10 ⁶ /L	0	Normal	668	High
Xanthochromia	--	Absent	Normal	Present	Consistent with hemorrhages
Protein	g/l	0.94	High	0.67	High
Glucose	mmol/l	6.1	Serum value: 8.3	5.4	Serum value: 11.1
Opening Pressure	cmH ₂ O	19	Normal	16	Normal
HSV/VZV DNA	PCR	Negative	--	Negative	--
Enterovirus RNA	PCR	Negative	--	Negative	--
Bacterial Culture	--	Negative	--	Negative	--
COVID-19 RNA	PCR	--	--	Negative	--
Oligoclonal Bands	--	--	--	Present	Matched with bands present in serum
AMPA Ab	--	--	--	Negative	Identical to serum results
NMDA Ab	--	--	--	Negative	Identical to serum results
VGKC Ab	--	--	--	Negative	Identical to serum results
DPPX Ab	--	--	--	Negative	Identical to serum results
GABABR Ab	--	--	--	Negative	Identical to serum results

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HSV = herpes simplex virus; VZV = varicella zoster virus; AMPAR = α -amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid receptor; NMDA-R = N-Methyl-d-aspartate receptor; VGKC = voltage-gated potassium channel; DPPX = dipeptidyl-peptidase-like-protein-6; GABABR = gamma aminobutyric acid B receptor; Ab = antibody.

Table S2

	95% Range (pg/ml)		Median (pg/ml)	Inter-quartile range (pg/ml)		St. Dev. (pg/ml)
sCD30	0	27.7	2.5	0	6.1	37.2
sEGFR	1852	7958	3804	2789	4743	1806.9
sgp130	15224	62771	30621	22769	37296	16623.8
sIL-1RI	0	15.2	3.2	1.6	5.7	61.9
sIL-1RII	0	364	21.1	0	54.5	151.1
sIL-2Ra	0	240	7.2	2.0	18.9	182.4
sIL-4R	0	35.2	5.4	2.2	9.3	24.0
sIL-6R	396	1553	825	643	1016	470.8
sRAGE	0	4.1	1.0	0	2.5	11.1
sTNFR1	253	1309	495	388	704	511.7
sTNFR2	308	2760	665	495	1048	1400.4
sVEGFR1	0	286.7	25.7	0	70.3	441.0
sVEGFR2	388	2102	812	638	1086	2375.6
sVEGFR3	0	65.1	7.9	0	17.4	182.6

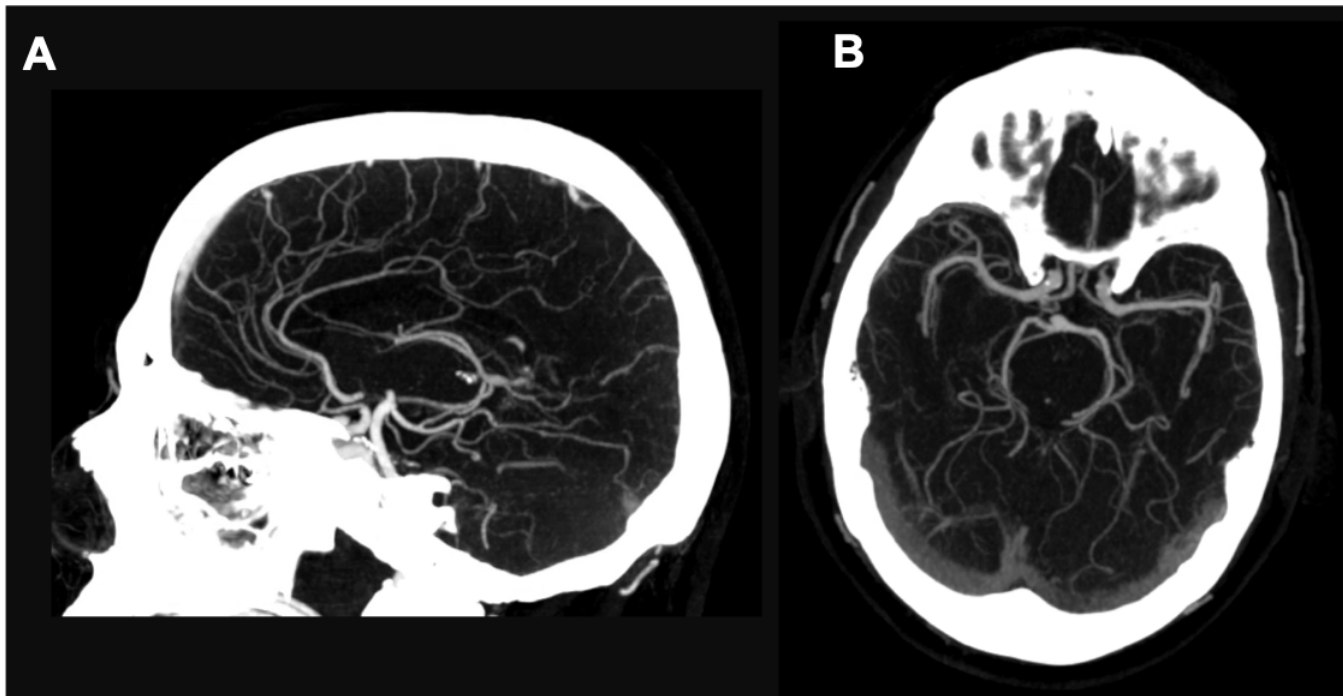
5% 95% Percentile 25% 75% Percentile

Human Soluble Cytokine Receptor Panel (MILLIPLEX® assay, EMD MilliporeSigma). 95% Range depicts the 5th and 95th percentile based on the normal distribution provided by Eve Technologies, Calgary, Alberta, Canada. Likewise, interquartile range values and standard deviations are depicted. This distribution is derived from 124 patient CSF samples submitted to the laboratory (22 for research use, 102 for experimental clinical diagnostic use).

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Figure S1

Cranial CT angiography on day 15. Sagittal (B) and axial (C) images demonstrate no vascular stenoses, occlusions, or alternative sources for the hemorrhages seen on MRI.



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Figure S2

MRI brain on day 21. Axial fluid-attenuated inversion recovery (FLAIR) [A-B] and susceptibility-weighted images (SWI) [C-D] re-demonstrate multifocal hemorrhages with mild surrounding vasogenic edema. Evolution of the hemorrhages, including changes in signal characteristics, are consistent with the expected temporal evolution. Gadolinium enhancement continues to be absent.

