

eTable2. Factors associated with poor 90-day outcome (GOS-E score 1–4) in patients with severe COVID-19 and acute encephalopathy at ICU admission (n=345)

	Poor 90-day GOS-E score (n=199) (57.7%)	Good 90-day GOS-E score (n=146) (42.3%)	OR (univariate analysis)	95% CI
Demographic and patient characteristics				
Age, years	70 (62, 77)	63 (53, 70)	1.06	1.04–1.08
Male sex (n=339)	126 (65.0%)	93 (94.1%)	1.04	0.66–1.62
Body mass index (n=324)				
Normal (18.5, 24.9 kg/m ²) or underweight (<18.5 kg/m ²)	51 (29.6%)	28 (20.1%)	1	
Overweight (25, 29.9 kg/m ²)	63 (35.4%)	55 (36.6%)	0.63	0.35, 1.13
Obese (≥30 kg/m ²)	64 (36.0%)	56 (40.3%)	0.63	0.35, 1.13
Neurological comorbidity	36 (18.1%)	17 (11.6%)		
Presumed ultimately fatal comorbidity	42 (21.1%)	8 (5.5%)	4.61	2.09, 10.20
Functional signs before hospital admission				
Dyspnea	161 (80.9%)	116 (79.5%)	1.10	0.64–1.87
Cough	93 (46.7%)	85 (58.2%)	0.63	0.41–0.97
Chest pain	4 (2.0%)	4 (2.7%)	0.73	0.02–2.96
Sore throat	2 (1.0%)	7 (4.8%)	0.20	0.04–0.99
Diarrhea	28 (14.1%)	29 (19.9%)	0.66	0.31–1.17
Abdominal pain	8 (4.0%)	3 (2.1%)	2.00	0.52–7.66
Chills	12 (6.0%)	18 (12.3%)	0.46	0.21–0.98
Time from first neurological signs to hospital admission, days (n=319)	0 (–1, 0)	0 (0, 1)	1.00	0.95–1.05
Time from first neurological signs to ICU admission, days (n=319)	0 (–3, 0)	0 (–3, 0)	0.96	0.91–1.02
Treatments targeting COVID-19				
Oseltamivir (various combinations)	4 (2.0%)	3 (2.1%)	0.98	0.22–4.44
Lopinavir/ritonavir alone	3 (1.5%)	1 (0.7%)	2.22	0.23–21.60
Lopinavir/ritonavir (various combinations)	16 (8.0%)	23 (16.8%)	0.47	0.24–0.92
Remdesivir alone	1 (0.5%)	1 (0.7%)	0.73	0.04–11.8
Remdesivir (various combinations)	28 (14.1%)	9 (6.2%)	2.49	1.14–5.46
Interferon (various combinations)	4 (2.0%)	7 (4.8%)	0.41	0.12–1.42
Hydroxychloroquine alone	7 (3.5%)	6 (4.1%)	0.85	0.28–2.59
Hydroxychloroquine (various combinations)	35 (17.6%)	45 (30.8%)	0.48	0.29–0.79
Azithromycin alone	8 (4.0%)	2 (1.4%)	3.02	0.63–14.4
Azithromycin (various combinations)	56 (28.1%)	50 (34.3%)	0.75	0.47–1.19
Tocilizumab alone	2 (1.0%)	0	–	–
Azithromycin (various combinations)	22 (11.1%)	20 (13.7%)	0.78	0.41–1.50
IL-2-inhibitor (various combinations)	1 (0.5%)	0	–	–
Convalescent plasma (various combinations)	14 (7.0%)	2 (1.4%)	5.45	1.22–24.4

	Poor 90-day GOS-E score (n=199) (57.7%)	Good 90-day GOS-E score (n=146) (42.3%)	OR (univariate analysis)	95% CI
Immunoglobulins (various combinations)	1 (0.5%)	1 (0.7%)	–	–
Methylprednisolone alone	69 (34.7%)	42 (28.8%)	1.31	0.83–2.09
Methylprednisolone (various combinations)	119 (59.8%)	83 (56.9%)	1.13	0.73–1.74
Number of given treatments targeting COVID-19	1 (1, 3)	2 (1, 3)	0.85	0.71–1.07
Clinical and laboratory findings at ICU admission				
Delirium/ Subsyndromal delirium	150 (75.4%)	129 (88.4%)	0.40	0.22–0.73
Number of criteria for delirium / Subsyndromal delirium diagnosis	2 (1, 3)	3 (2, 5)	0.72	0.61–0.86
Glasgow Coma Scale score	12 (6, 14)	14 (10, 14)	0.93	0.88–0.98
Coma, GCS <9	71 (35.7%)	32 (21.9%)	1.98	1.21–3.22
Body temperature, °C (n=344)	36.9 (36.5, 37.5)	37.3 (36.7, 38.3)	0.68	0.55–0.83
Systolic blood pressure (mmHg)	127 (107, 147)	128 (109, 147)	1.00	0.99–1.01
Heart rate, beats per min (n=342)	91 (79, 107)	93 (81, 108)		
Pulse oximetry, % (n=344)	95 (91, 98)	95 (92, 98)	0.99	0.96–1.02
Glycaemia, mmol/L (n=336)	8.3 (6.6, 11.8)	8.7 (6.4, 11.5)	1.00	0.97–1.04
PaO ₂ /FiO ₂ , mmHg/% (at ICU admission) (n=279)	104 (76, 155)	112 (78, 205)	1.00	1.00–1.00
Worst laboratory finding from days 1 to 28 during ICU stay				
PaO ₂ /FiO ₂ , mmHg/% (n=322)	93 (70, 131)	102 (76, 185)	1.00	0.99–1.00
D-dimer, ng·mL ⁻¹ (n=271)	2347 (1200, 6470)	1490 (910, 2962)	1.00	1.00–1.00
C-reactive protein, mg/L (n=301)	176 (110, 268)	141 (81, 204)	1.00	1.00–1.00
Procalcitonin, mg/mL (n=235)	0.52 (0.20, 1.53)	0.20 (0.11, 0.70)	1.00	1.00–1.00
Lymphocytes, g/L (n=331)	765 (443, 1200)	800 (570, 1100)	1.00	1.00–1.00
Creatinine, µmol/L (n=344)	117 (79, 205)	96 (69, 157)	1.00	1.00–1.00
Lactate dehydrogenase, IU/L (n=273)	540 (416, 763)	447 (353, 589)	1.00	1.00–1.00
Severity scores on day 1 after hospital admission				
SAPS II score (n=341)	39 (19, 51)	35 (18, 43)	1.02	1.00–1.03
Total SOFA score	6.0 (4.0, 8.0)	5.5 (4.0, 8.0)	1.05	0.98–1.13
ICU management				
High-flow nasal oxygen	94 (47.2%)	62 (42.5%)	1.21	0.79–1.87
Non-invasive ventilation	36 (48.1%)	16 (11.0%)	1.79	0.95–3.38
Mechanical ventilation	173 (86.9%)	117 (80.1%)	1.65	0.92–2.94
Venovenous extracorporeal membrane oxygenation	4 (2.0%)	1 (0.7%)	2.97	0.33–26.9
Vasopressor or inotropic support	174 (87.4%)	96 (65.8%)	3.62	2.11–6.23
Renal replacement therapy	60 (30.2%)	17 (11.6%)	3.28	1.82–5.91
Final diagnosis for acute encephalopathy				
Toxic-metabolic encephalopathy (septic and/or hypoxic and/or toxic metabolic)	163 (81.9%)	119 (81.5%)	1	–
CNS infectious/inflammatory complication	7 (3.5%)	5 (3.4%)	1.02	0.32–3.30
CNS vascular thrombotic or hemorrhagic complication	26 (13.1%)	27 (18.5%)	1.58	0.77–3.26
Other causes	3 (1.5%)	10 (6.9%)	0.22	0.06–0.81

*Status epilepticus/ posterior reversible encephalopathy syndrome / reversible cerebral vasoconstriction syndrome

Data are number (%) or median (interquartile range).

CI=confidence interval; CNS=central nervous system; FiO₂=fraction of inspired oxygen; GCS=Glasgow Coma Scale score; GOS-E=Glasgow Outcome Scale – Extended score; ICU=neurocritical or intensive care unit; OR=odds ratio; PaO₂=partial pressure of oxygen; SAPS=Simplified Acute Physiology Score; SOFA=Sequential Organ Failure Assessment score.