

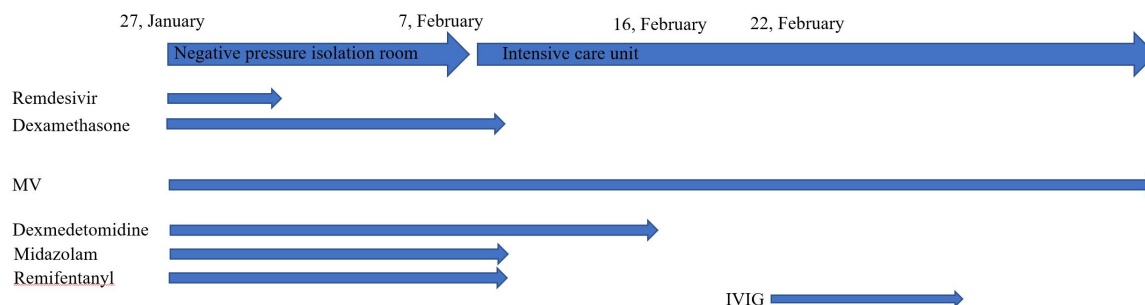
## Guillain-Barre Syndrome caused by COVID-19 infection

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**Background:** Guillain-Barre syndrome (GBS) is an inflammatory polyradiculoneuropathy, characterized by rapidly progressive, symmetric involvement. It occurred after a preceding infection or after vaccinations. Various subtype of GBS have been reported. AMSAN is a relatively rare type of GBS that not only affects the motor nerves but also the sensory nerves.

**Case Presentation:** A 61-years female presented emergency department of Konyang university hospital with the complaint of dyspnea, and myalgia. She has received the first and second dose of AstraZeneca COVID-19 vaccine on August 27, 2021 and October 21, 2021 and 3rd booster shot by Pfizer COVID-19 vaccine on January 3, 2022. Based on outbreak of COVID-19 and laboratory finding suggesting that COVID-19 pneumonia, the patients was treated with remdesivir, dexamethasone and empirical antibiotics(cefoperazone/sulbactam,levofloxacin). Remdesivir was maintained for 5 days and dexamethasone was used for 10 days. In HD 10, the dose of sedative agents was reduced and spontaneous awakening test was performed. She was drowsy, but opens her eyes to voices. But no movements were observed. In physical examinations, there was decreased motor grade in bilateral upper and lower extremity (proximal upper motor grade I, distal upper motor grade II, lower motor grade I) with areflexia in both biceps and knee tendon. There is no abnormality in brain CT. In hospital day 21, first neuroconductive study (NCS) was performed. NCV studies revealed acute motor and sensory axonal neuropathy (AMSAN) type which is rare axonal variant of GBS. The patient was treated with 400mg/kg of intravenous immunoglobulin (IVIG) for 2 days and weaned from ventilator. The patient's upper extremity muscle strength was completely recovered, but the lower extremity muscle strength was slowly recovering.

**Conclusion:** In our patients, patients developed flaccid paralysis in management of critical COVID-19 pneumonia and diagnosed AMSAN, severe variant of GBS by clinical symptoms and NCS. and the clinical improvement was archived after IVIG therapy. This suggest that GBS must be considered when flaccid paralysis occurs in COVID-19 pneumonia patients.



	1st study (February 21)	2nd study (March 7)	3rd study (March 15)	4th study (at discharge)
Mental status	Alert, awakness	Alert, awakness	Alert, awakness	Alert, awakness
Shoulder (Rt/Lt)	II / II	II / II	II / II	IV+ / IV+
Elbow (Rt/Lt)	I / I	IV / IV	IV / IV	IV+ / IV+
Distal finger flexion (Rt/Lt)	III / III	IV / IV	IV / IV	IV+ / IV+
Distal finger exteions (Rt/Lt)	II / II	IV / IV	IV / IV	IV+ / IV+
Hip (Rt/Lt)	I / I	I / I	I / I	IV+ / IV+
Knee (Rt/Lt)	I / I	I / I	II / II	IV / IV
Ankle (Rt/Lt)	II / II	II / II	III / III	IV / IV
Distal toe flexion (Rt/Lt)	II / II	III / III	III / III	IV-/IV-
Distal toe extension (Rt/Lt)	II / II	III / III	III / III	IV-/IV-
DTR	Areflexia	Areflexia	Areflexia	Bilateral hyporeflexia