

Reply to *The outcome of severe Guillain-Barré syndrome after robotic or conventional rehabilitation also depends on the triggering agent and the neurophysiological subtype*

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Dear Editor,

We read the interesting letter to the Editor by Dr. Finsterer and appreciated the comments on our work. In this paper we aim at answering to the questions raised.¹

For the first point, Dr Finsterer suggests to add information about Nerve Conduction Studies (NCS) and needle Electromyography (EMG); unfortunately, we are not able to give the neurophysiological investigations acquired during the first admission at the hospital. Anyway, as regards the type of GBS, we can point out that he was diagnosed with an Acute Motor Axonal Neuropathy (AMAN), as stated by previous medical documents. Furthermore, we can confirm that the patient presented cranial nerve involvement, as evidenced by the ascending paralysis which involved trunk and head control, swallowing problems, mimic musculature deficits and respiratory impairment.

As regards the second topic, we know that at admission the patient presented both mild-flu like syndrome associated with gastrointestinal disturbances. In particular, his nasal and pharyngeal swabs for SARS-CoV-2 were tested for Reverse Transcription-Polymerase Chain Reaction (RT-PCR) and their result were negative. While, fecal analysis turned out to be positive to *Campylobacter Jejuni* (*C. Jejuni*). This stated, we can consider this infection as one of the possible triggers involved in such clinical involvement. Indeed, as evidenced even by Finsterer, *C. Jejuni* is responsible for about a third of GBS cases, where the clinical involvement is often more severe than that due to other causes.² As a side aspect, ganglioside antibodies, directed against gangliosides (sialic-acid-containing glycolipids), in particular GM1-antibodies were elevated, which is quite a common feature in AMAN cases.²

The third point focuses on the diagnosis of axonal Polyneuropathy (PNP) in addition to GBS. As stated in the Case Report, the described axonal polyneuropathy has to be referred to the GBS. Indeed, our patients did not present any risk factor associated with PNP, except for high blood pressure. Besides, his intensive care unit hospitalization lasted about

four months, which is quite an important risk factor to be considered for developing critically ill neuro-myopathy. Anyway, a neurophysiological evaluation performed two months after first hospitalization confirmed the acute motor axonal neuropathy with ability to evoke low-amplitude responses only in the facial region, with a relatively preserved sensory function. Therefore, we have no clear evidence of PNP in addition to GBS.

As regards the therapeutic approach, we can acknowledge that the patient received plasma exchange and intravenous immunoglobulin in the Neurologic Unit, performing a total of four cycles of intravenous immunoglobulin. As delineated in the clinical documentation a therapeutic approach with steroid bolus was proposed, with no clinical benefits. Indeed, afterwards the patient was referred to an intensive-care unit for the severe deterioration of his neurological and respiratory condition requiring ventilatory support. Besides, even neurophysiological investigations did not suggest an improvement. In this regard, in a recent meta-analysis on corticosteroids, Hughes *et al.* found that corticosteroids given alone could not significantly hasten recovery from GBS or affect the long-term outcome.³ Therefore, we can suggest that such a therapeutic approach was attempted in order to verify possible positive impacts, and only after first-line drugs.

As regards the fifth aspect, the clinical improvement with rehabilitation was not documented by NCS. This is quite an important aspect to be underlined. We agree with the author that clinical improvement should be followed and sustained by improvement in neurophysiological investigations. Furthermore, the description of the clinical picture on admission in the neurologic unit is not supported by functional data. Anyway, we can suppose that the important ascending paralysis involving both upper limbs turned out to induce a huge disability in daily activities.

In conclusion, the suggestions mentioned would help in our ongoing research work and open an eye on verifying GBS subtypes and electrophysiological studies in order to guide and state the efficacy of rehabilitative interventions.

Outcome of GBS after rehabilitation: reply

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Ethical approval and consent to participate

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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