

Peripheral causes of cognitive motor dissociation in patients with vegetative or minimally conscious state - Reply

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1 **Peripheral causes of cognitive motor dissociation in patients with vegetative or**
2 **minimally conscious state – Reply**

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17 We thank Latronico and colleagues for their comments regarding our article¹. They proposed
18 that peripheral nervous system and muscle pathology² may have contributed to the lack of
19 behavioural responses exhibited by our patient. As mentioned in our Discussion section, Shea
20 and Bayne³ had previously argued a similar peripheral explanation for the absence of overt
21 motor behaviour in patients with preserved covert motor behaviour⁴. In vegetative and
22 minimally conscious patients, peripheral damage is most commonly related to motor axonal
23 neuropathy⁵, which, as Latronico and colleagues point out, is a major cause of *paralysis*².
24 While we did not specifically test for electrophysiological signs of peripheral pathology, our
25 patient showed no evidence of paralysis. In fact, he exhibited frequent spontaneous

26 movements of the limbs (more frequently upper limbs), head, and torso, as well as very
27 consistent withdrawal to painful stimulation (see information about clinical assessments in
28 the original supplementary information). In contrast, he was incapable of producing
29 voluntarily motor responses to command. Therefore, the main deficit he exhibited, which our
30 study aimed to explain, was not an absence of skeletal movement, but a lack of *voluntary*
31 *control* of his motor responses, and thus the underlying mechanism is necessarily central ⁶.
32 Based on this, we disagree with Latronico and colleagues' suggestion for a role of peripheral
33 pathology in explaining our patient's lack of overt command following capabilities.
34 Nevertheless, as we mentioned in our Discussion, our patient exhibited other symptoms in
35 addition to the lack of command following (e.g. lack of visual pursuit, or vocalizations) for
36 which our results may not offer a complete explanation. In this context, we agree that the
37 evaluation of the peripheral nervous system and muscles, in combination with neuroimaging
38 and clinical assessments, may contribute to a more comprehensive understanding of the full
39 clinical profile exhibited by each individual patient.

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