Guillain-Barré syndrome associated with SARS-CoV-2 infection: causality or coincidence?

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), originating from Wuhan, is spreading around the world and the outbreak continues to escalate. Patients with coronavirus disease 2019 (COVID-19) typically present with fever and respiratory illness.1 However, little information is available on the neurological manifestations of COVID-19. Here, we report the first case of COVID-19 initially presenting with acute Guillain-Barré syndrome.

On Jan 23, 2020, a woman aged 61 years presented with acute weakness in both legs and severe fatigue, progressing within 1 day. She returned from Wuhan on Jan 19, but denied fever, cough, chest pain, or diarrhoea. Her body temperature was 36·5°C, oxygen saturation was 99% on room air, and respiratory rate was 16 breaths per min. Lung auscultation showed no abnormalities. Neurological examination disclosed symmetric weakness (Medical Research Council grade 4/5) and areflexia in both legs and feet. 3 days after admission, her symptoms progressed. Muscle strength was grade 4/5 in both arms and legs and return of tendon reflexes in both legs and feet. Her respiratory symptoms resolved as well. Oropharyngeal swab tests for SARS-CoV-2 were negative.

On Feb 5, two relatives of the patient, who had taken care of her during her hospital stay since Jan 24, tested positive for SARS-CoV-2 and were treated in isolation. Relative 1 developed fever and cough on Feb 6, and relative 2 developed fatigue and mild cough on Feb 8. Both relatives had lymphocytopenia and radiological abnormalities. In the neurology department, a total of eight close contacts (including two neurologists and six nurses) were isolated for clinical monitoring. They had no signs or symptoms of infection and tested negative for SARS-CoV-2.

To the best of our knowledge, this is the first case of SARS-CoV-2 infection associated with Guillain-Barré syndrome. Given the patient’s travel history to Wuhan, where outbreaks of SARS-CoV-2 were occurring, she was probably infected during her stay in Wuhan. We consider that the virus was transmitted to her relatives during her hospital stay. Retrospectively, the patient’s initial laboratory abnormalities (lymphocytopenia and thrombocytopenia), which were consistent with clinical characteristics of patients with COVID-19, indicated the presence of SARS-CoV-2 infection on admission. The early presentation of COVID-19 can be non-specific (fever in only 43·8% of patients on admission).

Table 1: Motor nerve conduction studies

| Left median nerve                        | Right median nerve                   | Above elbow–below elbow |
|------------------------------------------|--------------------------------------|-------------------------|
| Wrist-abductor pollicis brevis           | Left ulnar nerve                     |                         |
| Antecubital fossa-wrist                  | Wrist-abductor digit minimi           |                         |
| Ankle-abductor hallucis brevis           | Below elbow–wrist                    |                         |
| Popliteal fossa-ankle                    | Above elbow–below elbow              |                         |
| Left tibial nerve                        |                                      |                         |
| Ankle-abductor hallucis brevis           | Right tibial nerve                    |                         |
| Popliteal fossa-ankle                    |                                      |                         |
| Left peroneal nerve                      |                                      |                         |
| Ankle-extensor digitorum brevis          | Right peroneal nerve                  |                         |
| Popliteal fossa-ankle                    |                                      |                         |

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