

Lopinavir/ritonavir/rocuronium bromide interaction

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Myopathy following off-label use: case report

A 54-year-old woman developed myopathy following concomitant administration of rocuronium bromide as a muscle relaxant therapy and off-label lopinavir/ritonavir for COVID-19 pneumonia [*routes not stated; not all time to reaction onsets stated*].

The woman, who was hospitalised due to COVID-19 pneumonia, started receiving off-label treatment with lopinavir/ritonavir 400/100mg two times a day for 10 days and high-dose dexamethasone 20 mg/day for 5 days and 10 mg/day for additional 5 days with other unspecified drugs. She was shifted to the COVID-19 pandemic-over-dimensioned post-surgical ICU, and was kept on invasive mechanical ventilation. Initially, high-doses of midazolam and fentanyl were administered, followed by propofol and remifentanyl. To control severe patient-ventilator asynchrony, she was administered cisatracurium besilate [cisatracurium]. Four days later, due to cisatracurium besilate shortage, she was administered rocuronium bromide [rocuronium] 0.5 mg/kg/h for 4 days. Later, cisatracurium besilate was procured and re-initiated. A good clinical progression was noted apart from transient mild renal insufficiency secondary to the infectious process. Cisatracurium besilate was stopped and extubation was scheduled. However, due to irregular respiratory pattern, extubation failed. She was initiated on dexmedetomidine and remifentanyl. After stopping sedatives, she was awake and co-operative and gestured for orotracheal tube removal due to discomfort. However, her respiratory pattern was irregular, and she had severe weakness due to which she was nearly unable to raise hands. Her only spontaneous movements were turning head from one side to another. Her baseline BIS and electromyography (EMG) values reduced and only isolated spikes were noted as a result of head movements. Myopathy or residual curarization was suspected. A possibility of lopinavir/ritonavir and rocuronium bromide interaction was considered; however, rocuronium bromide interacted with only ritonavir from the lopinavir/ritonavir therapy. Rocuronium bromide was stopped 8 days prior.

The woman was treated with sugammadex, and EMG value shortly increased. She regained enough strength to nearly achieve auto-extubation with her hands. Within less than a minute, her respiratory pattern was regular, and extubation was successful. The EMG pattern looked like transient recurarization that lasted for one hour. The episode had no consequence in pulse oximetry and was unnoticed. It was concluded that the myopathy developed secondary to prolonged effect of rocuronium bromide due to pharmacokinetic interaction with ritonavir.

Domingo-Chiva E, et al. Myopathy, residual effect of rocuronium, or both? A possible ritonavir-rocuronium interaction interfering weaning from mechanical ventilation in a patient with COVID-19 pneumonia. *Journal of Anaesthesiology Clinical Pharmacology* 36: 556-558, No. 4, Dec 2020. Available from: URL: http://doi.org/10.4103/joacp.JOACP_346_20

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