

How Low Can It Go?

COVID-19 and Hypophosphataemia

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The complex interactions between the COVID-19 infective process and other disease states or medications is still not well understood. This case report describes a case of severe hypophosphataemia in a patient with COVID-19.

Background

- Coronavirus disease (COVID-19) has been shown to cause significant hypophosphataemia, which is independently associated with an increased risk of acute kidney injury and death.¹
- Intravenous ferric carboxymaltose is also known to induce transient hypophosphataemia² up to six weeks after administration.³
- Hypophosphataemia is an electrolyte disturbance that causes muscle, bone, and joint pain, weakness, and spasm.
- Severe hypophosphataemia (<0.5 mmol/L) can result in significant cardiac and neurological complications, including seizure, coma, and death.⁴

Clinical Features

- A 29-year-old female presented to a COVID-19 outpatient clinic (COVID Care Centre) for treatment and symptom management.
- Her past medical history included obesity, chronic myeloid leukaemia, human immunodeficiency virus (HIV) with undetectable viral load, and iron deficiency anaemia.
- Her regular medications included dasatinib, the combined oral contraceptive pill, and bicitgravir/emtricitabine/tenofovir.
- Upon routine blood monitoring in the COVID-19 outpatient clinic, the patient was found to have severe hypophosphataemia (0.28 mmol/L).

Pharmacist Intervention

- The COVID-19 outpatient clinic pharmacist was consulted and undertook a full medication history.
- The pharmacist's investigation revealed that the patient had received an intravenous ferric carboxymaltose infusion four weeks prior to her COVID-19 illness.

Case Progress

- The pharmacist devised a management plan in collaboration with the clinic medical officer, including:
 - oral and intravenous phosphate replacement regime
 - electrolyte, urea and creatinine (EUC) monitoring
 - COVID-19 treatment
 - safety-netting with a local emergency department, if required
- The patient's COVID-19 and hypophosphataemia were both successfully managed in the community setting, avoiding the need for a tertiary hospital admission and additional resources.

Conclusion

- Clinicians should consider phosphate monitoring in patients with COVID-19 and concurrent comorbidities or medications (including ferric carboxymaltose) that could further increase the risk of hypophosphataemia.
- Pharmacists can support medical officers to identify risk factors for patients developing hypophosphataemia.
- Pharmacists can also support medical officers to develop plans for hypophosphataemia management in the community.
- Both hypophosphataemia and COVID-19 can be successfully managed in the outpatient setting, with appropriate safety-netting.

References

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