Chloroquine

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Off-label use, haemolysis and methaemoglobinaemia: case report

A 56-year-old man developed haemolysis and methaemoglobinaemia after off-label treatment with chloroquine for COVID-19 infection.

The man presented to the emergency department with a 6 day history of dry cough and myalgia. His RR was 24 /minutes and oxygen saturation was 94% with room air. A real-time PCR assay confirmed a diagnosis of COVID-19 and was hospitalised. On day 3 of hospitalisation, his oxygen saturation decreased to 83% despite of using a non-rebreathing mask with 15 L/min of oxygen and RR was 30 /minutes. He was admitted to the ICU for initiation of mechanical ventilation. Treatment with chloroquine was initiated [*route not stated*]. First dose of chloroquine was reported as 600mg followed by 300mg twice daily for 5 days. Laboratory investigations revealed haemoglobin level of 11.4 g/dL. After 12 hours, his haemoglobin level decreased to 8.9 g/dL. Other unspecified laboratory investigations exhibited signs of severe haemolysis. A peripheral blood smear confirmed the diagnosis of haemolysis. Increased levels of methaemoglobin were observed from arterial blood gas findings, which led to the diagnosis of methaemoglobinaemia. He also developed functional anaemia due to methaemoglobinaemia.

Glucose-6-phospate dehydrogenase (G6PD) deficiency was suspected because of the man's ethnic background (African-Caribbean) and chloroquine was discontinued. He received 3 units of packed RBCs in the next 48 hours. Even though, his methaemoglobin was relatively low, he was initiated on ascorbic acid to optimise his oxygenation. His methaemoglobin levels were normalised within 6 days and laboratory investigations revealed a very low G6PD activity in the RBCs. Genetic analysis revealed variant G6PD A- (the African variant). It was reported that, G6PD deficiency led to haemolytic anaemia, which worsened an already compromised oxygenation state caused by COVID-19 pneumonia [*not all outcomes stated*].

Kuipers MT, et al. Glucose-6-phosphate dehydrogenase deficiency-associated hemolysis and methemoglobinemia in a COVID-19 patient treated with chloroquine. American Journal of Hematology 95: E194-E196, No. 8, Aug 2020. Available from: URL: http://doi.org/10.1002/ajh.25862

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