[ID-P#146] Unmasking the Blue: A Case Series of Acquired Methemoglobinemia

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Introduction: Acquired methemoglobinemia is a rare, life-threatening condition characterized by elevated methaemoglobin levels (>5%), leading to impaired oxygen delivery.

Cases: This case series examines five patients diagnosed with methemoglobinemia, secondary to exposure to drugs including antimalarials, clofazimine, dapsone, unknown herbal drug, and emamectin benzoate. All patients presented with cyanosis without tachypnoea, chocolate-coloured blood, and a notable "saturation gap", where arterial blood gas (ABG) readings indicated normal PaO_2 (>100 mmHg) but low SpO_2 (78%–88%), even after oxygen supplementation. Despite persistent cyanosis, the patients were hemodynamically stable, with unremarkable respiratory system examination. These key findings prompted checks for methaemoglobin levels, which were significantly elevated, ranging from 12% to 48%, confirming the diagnosis. Management involved immediate discontinuation of the offending agents, followed by administration of methylene blue (1 mg/kg intravenously in 5% Dextrose bolus). In three of the five cases, a single dose was sufficient to reverse cyanosis. One case required a second dose due to persistent symptoms, while the patient with 12% methaemoglobin levels improved without medication over 2-3 days. All patients showed gradual improvement in SpO_2 levels, disappearance of cyanosis, decrease in methaemoglobin levels on serial ABGs. All patients survived due to timely diagnosis and intervention. The absence of glucose-6-phosphate dehydrogenase (G6PD) deficiency is a prerequisite for methylene blue administration which was checked in all the 5 patients. In G6PD-deficient patients, methylene blue is contraindicated, and high-dose intravenous ascorbic acid (1.5–3 g every 6 hours) can be used. The response to methylene blue is varied based on methaemoglobin levels, cardiac status, haemoglobin level, and the timeliness of intervention.

Conclusion: Early recognition and timely intervention with methylene blue are key to preventing severe hypoxia in drug-induced methemoglobinemia. Awareness of commonly implicated agents and access to facilities for methaemoglobin detection in ABG machines is essential.