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Rare case of metformin associated lactic acidosis in a patient with renal failure

Dr Xi Yan Ooi[1], Dr Wai Han Hoi[2]
[1]Department of General Medicine, Tan Tock Seng Hospital, Singapore, [2]Department of Endocrinology, Tan Tock Seng Hospital, Singapore

Objective
Metformin associated lactic acidosis (MALA) is an extremely rare condition (0.03 cases/1000 patient years) with a high mortality rate of 50%. We hereby describe a case outlining the diagnostic and management challenges.

Materials and Methods
A 63 year old Malay lady was admitted for progressive confusion and lethargy for two days. She had end stage renal failure on regular hemodialysis thrice weekly, ischemic heart disease, hypertension and type 2 diabetes mellitus on insulin mixtard (30/70) injections. Her last dialysis session was two days before admission. She was afebrile and hypertensive at 193/80 mm Hg with normal pulse rate and oxygen saturation. Her capillary blood glucose was 2.2 mmol/L.
Although the initial investigations were consistent with renal failure, she had high anion gap metabolic acidosis (pH 7.22, bicarbonate 8mmol/L) with high lactate levels at 16.2 mmol/L (<2.2). There was no attributable evidence of sepsis, cardiac or intracranial events. Hypoglycemia was corrected and urgent dialysis was initiated in view of severe lactic acidosis and renal failure. Further history revealed that for the past few months, patient was surreptitiously given metformin for convenience. The serum metformin level was found to be 7.0 µgram/ml and MALA was diagnosed.

Results
She was given supportive therapy and regular dialysis. The lactate level improved to 3.6 mmol/L on day four of admission and she was subsequently discharged.

Conclusion
Metformin should be avoided in renal failure due to risks of MALA. It is important to consider MALA in cases of unexplained lactic acidosis. Treatment is largely supportive.