

## Introduction :

Metformin is the most commonly prescribed medication to diabetics and the fourth most commonly prescribed drug worldwide. Therapy with metformin has been associated with type 2 lactic acidosis. Although MALA (metformin-associated lactic acidosis) is an extremely infrequent complication of metformin use, it can be grave and carries a 50% mortality rate. Early recognition and prompt management with hemodialysis especially in those that are non-responsive to bicarbonate therapy can improve the overall outcome for this subset of patients. We present a case of severe lactic acidosis and acute renal failure secondary to metformin use.

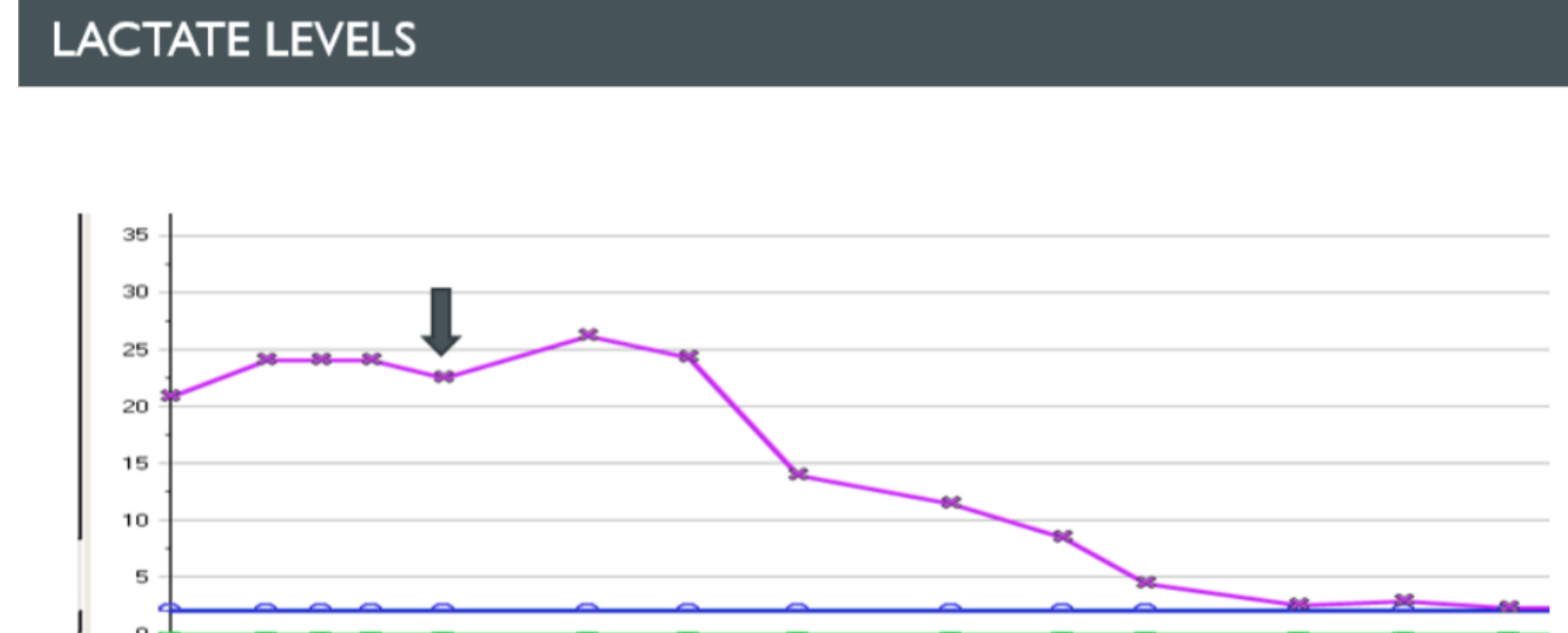
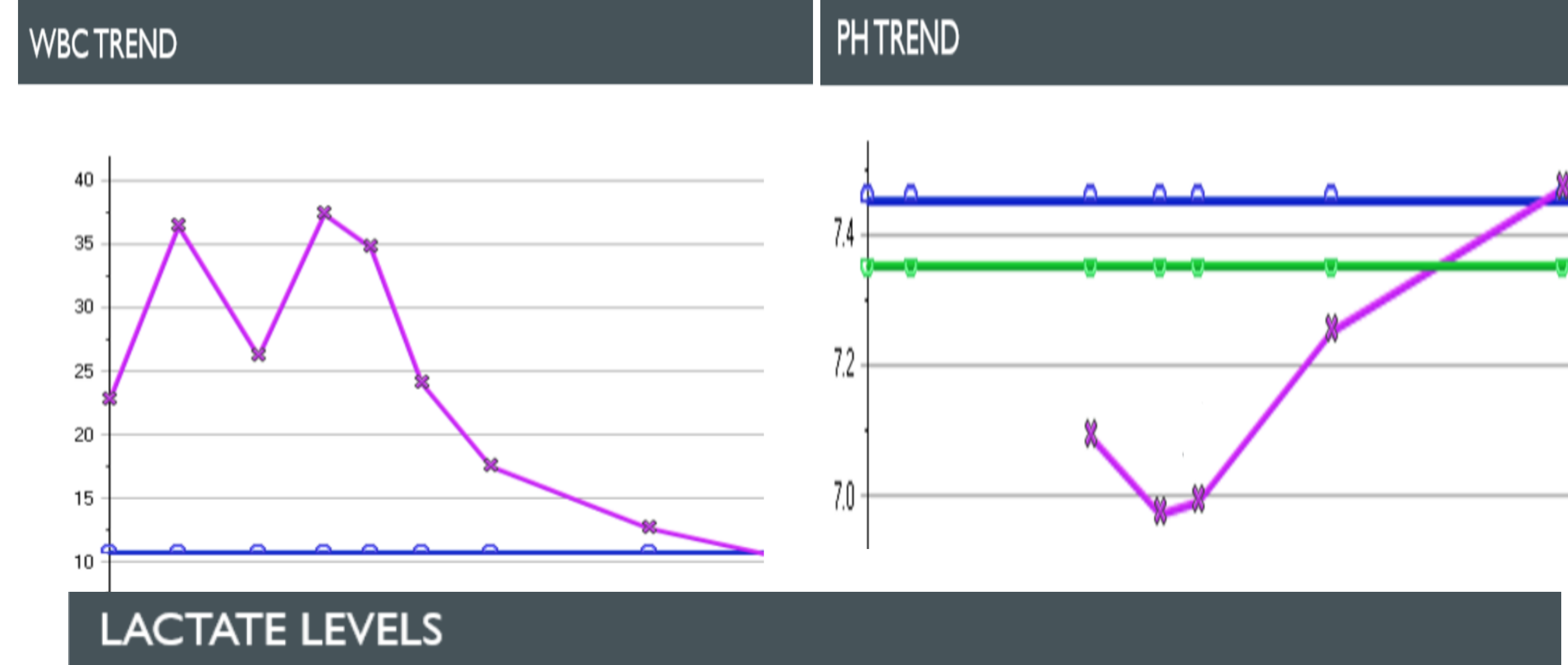
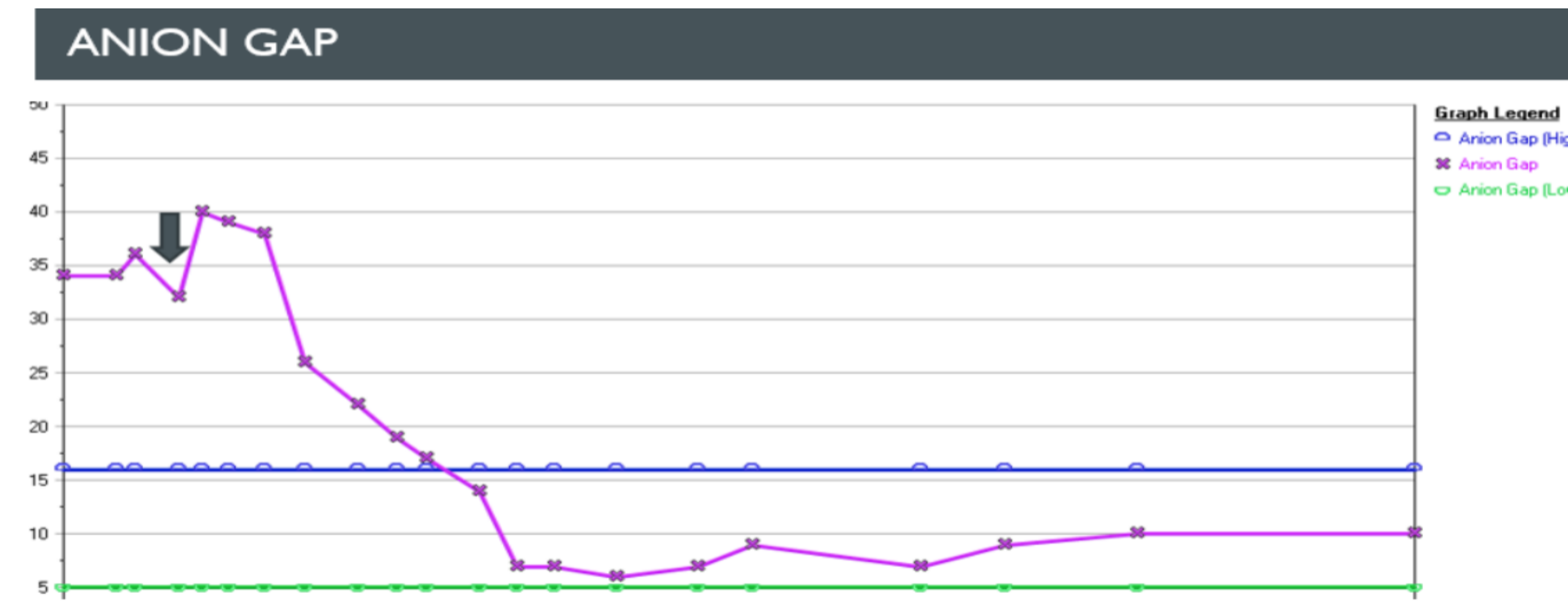
## Case Description:

A 57-year-old known diabetic female with a history of chronic back pain presented to the emergency room complaining of worsening back pain for the last three days. After an initial assessment, she was given pain medications after which she developed severe respiratory distress, became hypotensive, and subsequently unresponsive. She was intubated and started on vasopressors in the intensive care unit. Her home medications included metformin 500 mg bid and lisinopril 10 mg daily. Initial labs revealed marked leukocytosis with a WBC of 22.7 K/uL and creatinine of 1.8 mg/dL. Furthermore, an ABG showed a pH of 6.86 and lactate levels came back at 24.0 mmol/L confirming a high anion gap acidosis. All imaging studies, cultures, urinalysis, liver function tests, and troponins came back within normal limits effectively ruling out other causes for the lactic acidosis.

On the second day, the patient remained intubated and pressor dependent with worsening acidosis as lactate trended up and further declining creatinine levels. She remained hypotensive and acidotic despite aggressive hydration and bicarbonate replacement therapy and so was subsequently sent to be dialyzed. However, she remained severely acidotic immediately post-hemodialysis. The following day, the patient made a remarkable recovery with rapid resolution of acidosis and normalization of lactate levels. She was then extubated and was discharged without further incidence on day five.

## Figures:

ARROW INDICATES POINT OF HEMODIALYSIS



## Discussion:

The only plausible explanation for this patient's lactic acidosis was her use of metformin. Such incidences are exceptionally rare--a Cochrane Systemic Review of over 200 trials found the incidence of lactic acidosis to be 5.1 per 100,000 patients on metformin for diabetes mellitus management versus 5.8 in patients on non-metformin anti-diabetic agents.

## References:

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