

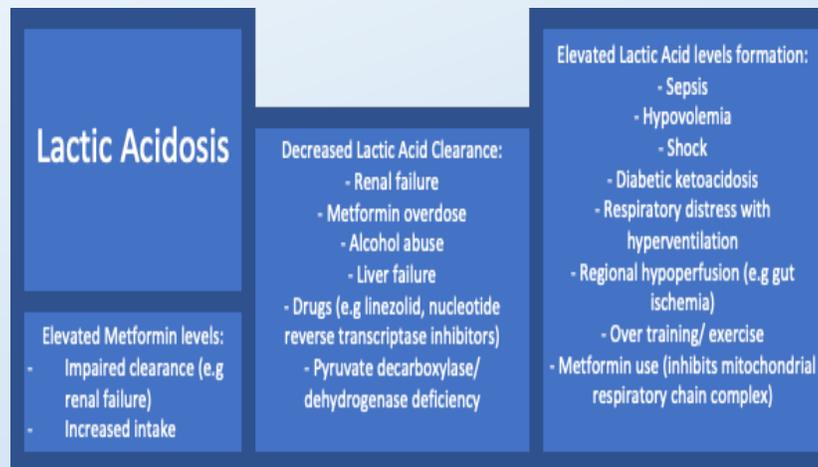
# UNEXPECTED LACTIC ACIDOSIS WITH METFORMIN DISRUPTING REHABILITATION STAY: A CASE REPORT.

## Background

- Metformin is an oral, commonly prescribed medication for type II diabetes.<sup>1</sup>
- It works by decreasing hepatic production and intestinal absorption of glucose and increases insulin sensitivity.
- Metabolic lactic acidosis is a known but rare side effect of metformin with an incidence of 0.95 per 1000 patient years.

## Case Description

- A 72-year-old female with metformin associated lactic acidosis (MALA) was admitted to inpatient rehab after sustaining bilateral subarachnoid hemorrhages and multiple fractures from a motor vehicle accident.
- Past medical history included hypertension, and diabetes managed with metformin, sitagliptin and glipizide.
- Being a polytrauma patient, adequate glycemic control was necessary for wound healing and participation in physical/occupational therapy (PT/OT).



## Hospital Course

- During her rehabilitation stay, she developed nausea and vomiting that began to interfere with her PT/OT. She was unable to participate in therapy.
- Subsequent workup revealed an elevated creatinine level of 3.1 (baseline 0.6) without a history of renal dysfunction.
- Sitagliptin and glipizide were held, and intravenous fluid was given.
- Her creatinine continued to trend upwards.
- No pre-renal, renal, or post obstructive lesions were identified. Subsequently, her metformin was also held.
- Her lactic acid levels were found to be elevated, 17.5, and creatinine was 5.3.
- She was briefly intubated for labored breathing and metabolic acidosis.
- Her creatinine normalized after hemodialysis.

## Discussion

- The classic triad of MALA is renal failure, lactic acidosis and elevated metformin concentrations.<sup>2</sup> Other causes of lactic acidosis such as sepsis, cardiogenic shock, hypoperfusion, ischemic bowel must be ruled out.
- In our case despite thorough work up, no other definitive etiology for her severe lactic acidosis or ARF was identified. Our patient was diagnosed with MALA though disproportionate to the degree of her acute renal failure (ARF).
- The exact mechanism and role of metformin in the setting of MALA is controversial. Some state that metformin itself does not cause lactic acidosis and rather due to the underlying conditions that may cause acidosis. However, there are cases of lactic acidosis from metformin with no other underlying risk factors.

## Conclusion

- MALA is rare but can be life-threatening and rehab physicians should be aware of the possibility of MALA in the setting of acute kidney injury.

## References

1 Flory, James, and Kasia Lipska. "Metformin in 2019." JAMA vol. 321,19 (2019): 1926-1927. doi:10.1001/jama.2019.3805

2 Vural, Habibe Zehra et al. "Metformin-Associated Lactic Acidosis Developed as a Result of a Suicidal Attempt." Sisli Etfal Hastanesi tip bulteni vol. 54,2 252-256. 15 Jun. 2020, doi:10.14744/SEMB.2018.35582

