Letters to the Editor

Role of empagliflozin in chronic lithium toxicity

Aust Prescr 2022;45:158 https://doi.org/10.18773/austprescr.2022.062

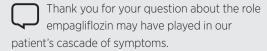
Regarding the Medicinal Mishap 'Chronic lithium toxicity', I wonder if the role that empagliflozin played in the patient's cascade of symptoms was considered.¹ Acidosis can occur in the setting of reduced oral intake or hypovolaemia. Interestingly, a case report² suggests that lithium concentrations may be reduced in patients taking empagliflozin, although there is no mention of this in the product information for empagliflozin.

Vicki Dyson Pharmacist, Shepparton, Vic.

REFERENCE

- Reimann F, Whyte I. Chronic lithium toxicity. Aust Prescr 2022;45:93-4. https://doi.org/10.18773/ austorescr.2022.024
- Armstrong GP. Empagliflozin-mediated lithium excretion: a case study and clinical applications. Am J Case Rep 2020;21:e923311. https://doi.org/10.12659/ajcr.923311

lan Whyte and Frank Reimann, the authors of the article, comment:



While the patient's diarrhoea and neurological findings could not be related to empagliflozin, the biochemical abnormalities were consistent with euglycaemic ketoacidosis. Empagliflozin can produce this complication in the presence of

physiological stress.² However, the patient's blood ketone concentrations were only mildly raised, and the large anion gap was better explained by renal failure. Further, the abnormalities had normalised by 48 hours without administration of insulin or glucose solutions.

The case report highlights a potential role of empagliflozin in facilitating lithium excretion.³ Although sodium-glucose co-transporter 2 (SGLT2) inhibitors can acutely increase lithium renal clearance by decreasing proximal sodium reabsorption, the effect is transient and, within a month, compensated for by a rise in plasma renin activity and aldosterone.⁴ This makes it unlikely that the patient's long-term empagliflozin was affecting his lithium clearance. Additionally, for SGLT2 inhibitors to exert an effect on the renal tubule, sufficient kidney function would have been required.

In the context of acute illness and severe kidney injury, most of the patient's regular medicines could have caused mishaps and required sick-day plans.

REFERENCES

- Reimann F, Whyte I. Chronic lithium toxicity. Aust Prescr 2022;45:33-4. https://doi.org/10.18773/ austprescr.2022.024
- Kerridge R, Whyte I, Prior F, Luu J, Story DA. The good, the bad, and the ugly: sodium-glucose cotransporter-2 inhibitors (gliflozins) and perioperative diabetes. Anaesth Intensive Care 2018;46:155-8. https://doi.org/ 10.1177/0310057x1804600202
- Armstrong GP. Empagliflozin-mediated lithium excretion: a case study and clinical applications. Am J Case Rep 2020;21;e923311. https://doi.org/10.12659/ajcr.923311
- Zanchi A, Burnier M, Muller ME, Ghajarzadeh-Wurzner A, Maillard M, Loncle N, et al. Acute and chronic effects of SGLT2 inhibitor empagliflozin on renal oxygenation and blood pressure control in nondiabetic normotensive subjects: a randomized, placebo-controlled trial. J Am Heart Assoc 2020;9:e016173. https://doi.org/ 10.1161/jaha.119.016173



The Fditorial Executive Committee welcomes letters. which should be less than 250 words. Before a decision to publish is made, letters which refer to a published article may be sent to the author for a response. Any letter may be sent to an expert for comment. When letters are published, they are usually accompanied in the same issue by any responses or comments. The Committee screens out discourteous. inaccurate or libellous statements. The letters are sub-edited before publication. Authors are required to declare any conflicts of interest. The Committee's decision on publication is final.

