

LETTER TO PRIMARY CARE (GPS, PRACTICE NURSES, COMMUNITY PHARMACISTS)

Dear Colleague,

**Risk of Diabetic Ketoacidosis in patients with Type 2 Diabetes taking SGLT2 inhibitors  
(Dapagliflozin/Forxiga, Canagliflozin/Invokana, Empagliflozin/Jardiance and Ertugliflozin/Steglatro)**

**What is the problem?**

There have been case reports of Diabetic Ketoacidosis (DKA) in patients taking SGLT2 inhibitors. These were severe enough to require hospitalisation. These were not classical DKAs as the majority of these cases occur **in patients with type 2 diabetes** and occurred even **in the presence of normal or low blood glucose concentrations**, which can delay the diagnosis. These episodes of DKA were triggered in some cases by stress (e.g. illness and surgery); however in some cases no trigger was found.

**What do I need to know?**

- SGLT2 inhibitors can be initiated by prescribers in primary care. There is a [checklist](#) to assist with this. Please contact the Oxfordshire Community Diabetes Team via [diabetesdialogue@nhs.net](mailto:diabetesdialogue@nhs.net) or the hospital Diabetes and Lipids email advice line via [oxon.diabetes\\_lipidsadvice@nhs.net](mailto:oxon.diabetes_lipidsadvice@nhs.net) if you have any queries around SGLT2 inhibitors.
- Most of these agents **should not be used in patients who have Type 1 Diabetes**, Maturity Onset Diabetes of the Young (**MODY**) and the patients who are insulin deficient. However, dapagliflozin has recently been licensed for use in Type 1 Diabetes. Prescribing can be continued by GP if initiated by a specialist (OCDEM).
- All patients who are currently taking or are started on an SGLT2 inhibitor should be given the **enclosed Patient Information Leaflet** to warn them about the risk of DKA, the symptoms of DKA and when to seek medical help.
- All patients on SGLT2 inhibitors who present with **symptoms or signs suggestive of DKA** (e.g. nausea, vomiting, anorexia, abdominal pain, excessive thirst, difficulty breathing, confusion, unusual fatigue or sleepiness) should **have their blood ketone concentrations checked** as part of their initial assessment **regardless of their blood glucose concentration**.

- It is recommended that all GP practices **have access to a blood ketone meter** (e.g. GlucoMen Areo 2k or GlucoRx HCT) **and ketone test strips**. This is particularly important if you have a patient on one of this class of drugs as well as patients with Type 1 Diabetes Mellitus. Testing Blood ketone is more accurate and provides real time result as opposed to testing urinary ketones.

If blood ketone concentrations are **1 mmol/l or higher, please contact the on call diabetes service** via the Oxford University Hospitals NHS Foundation Trust switchboard (via 0300 304 7777) stating that you have a patient **in whom you are concerned about “SGLT2 inhibitor induced diabetic ketosis”**. This service is available 24 hours per day.

- All patients who are **undergoing any surgery or procedure** which will require them to be **nil by mouth** should **stop SGLT2 inhibitors** 72 hours prior to the surgery. SGLT2 inhibitors can be restarted 7 days after discharge or when clinically stable (whichever is later).

Please be aware that **DKA is a life threatening condition** and needs urgent treatment.

#### **Other SGLT2 Inhibitor Warnings**

- In general, if a patient is taking metformin or an SGLT2 inhibitor and are vomiting or have diarrhoea, advise them to stop the medication until they have recovered
- If Fournier’s gangrene is suspected, stop the SGLT2 inhibitor and start treatment urgently (including antibiotics and surgical debridement). Fournier’s gangrene is a rare but potentially life-threatening infection that requires urgent medical attention. See [MHRA warning](#).
- Canagliflozin may increase the risk of lower-limb amputation (mainly toes) in patients with type 2 diabetes. Evidence does not show an increased risk for the other SGLT2 inhibitor, but the risk may be a class effect. Preventive foot care is important for all patients with diabetes. Consider stopping the SGLT2 inhibitor if the patient develops new foot complications such as infection, skin ulcers, osteomyelitis, or gangrene. See [MHRA warning](#).

Many Thanks