

Practical considerations for the use of SGLT2 inhibitors in patients with cardio, renal and metabolic conditions*

Who is suitable for SGLT2 inhibitor treatment?



Adults¹⁻⁴ and children aged ≥ 10 years^{1,2} with T2D



Adults with symptomatic chronic HF^{1,2}



Adults with CKD^{1,2}

SGLT2 inhibitors are a convenient treatment for patients with cardio, renal and metabolic conditions¹⁻⁴

SGLT2 inhibitors should not be used in patients¹⁻⁴:



Oral



Once daily

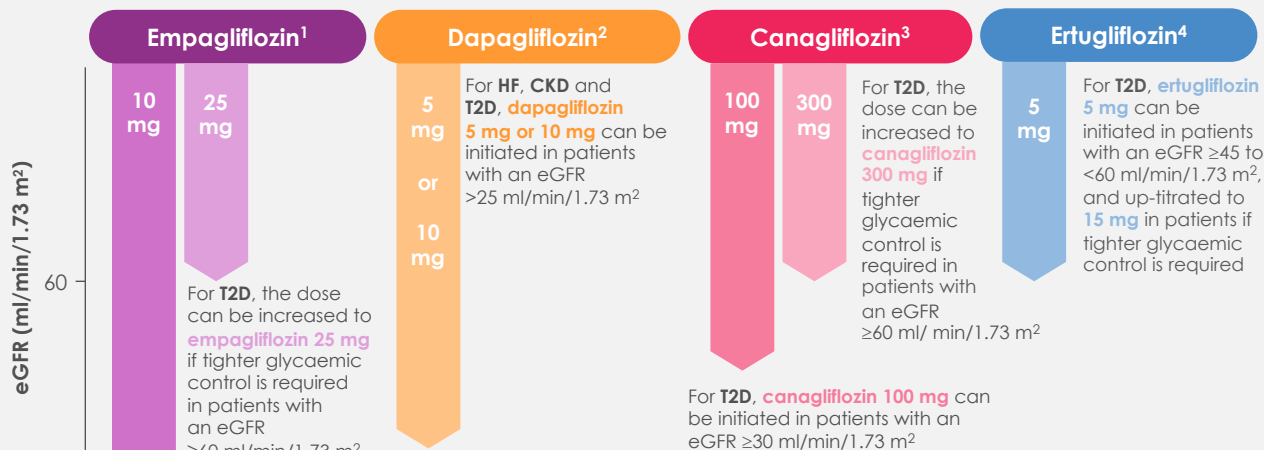


With or without food



- ✗ With type 1 diabetes
- ✗ Who have had previous diabetic ketoacidosis while on SGLT2 inhibitor treatment[†]
- ✗ With severe hepatic impairment
- ✗ Who are pregnant/breast-feeding

When initiating an SGLT2 inhibitor, assess kidney function by eGFR



Once initiated, SGLT2 inhibitor may be continued even if eGFR falls below 20 ml/min/1.73 m², unless it is not tolerated or kidney replacement therapy is initiated⁵

Ertugliflozin should be discontinued⁴ when eGFR is persistently less than 30 ml/min/1.73 m²

Initial eGFR decrease



A small, transient eGFR decrease after initiation of SGLT2 inhibitor treatment may be expected and does not equal acute kidney injury or kidney failure⁶⁻¹⁰

An eGFR decrease of $>30\%$ is uncommon and should prompt consideration of alternative causes of worsening kidney function⁷

Treatment is at the discretion of the HCP. Always check local prescribing information for all SGLT2 inhibitors for full details

*Defined as T2D, CKD and/or chronic HF. †Unless another clear precipitating factor is identified and resolved¹⁻⁴

BMI, body mass index; CKD, chronic kidney disease; eGFR, estimated glomerular filtration rate; HCP, healthcare professional; HF, heart failure; SGLT2, sodium-glucose co-transporter 2; T2D, type 2 diabetes

1. Jardiance® (empagliflozin) summary of product characteristics; 2. AstraZeneca. Forxiga® (dapagliflozin) summary of product characteristics; 3. Janssen International. Invokana® (canagliflozin) summary of product characteristics; 4. Merck Sharp & Dohme B.V. Steglato™ (ertugliflozin) summary of product characteristics; 5. Kidney Disease: Improving Global Outcomes (KDIGO) Diabetes Work Group. *Kidney Int* 2024;105:S117; 6. Zannad F et al. *Eur J Heart Fail* 2022;24:1829; 7. Adamson C et al. *Circulation* 2022;146:438; 8. You K et al. *Kidney Int Rep* 2022;7:1463; 9. Kraus BJ et al. *Kidney Int* 2021; 99:750; 10. Gierd N & Zannad F. *J Intern Med* 2023;293:550

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How do you manage concomitant medications?



SGLT2 inhibitors can be used in combination with most other drugs without adjustments, including cardiovascular and chronic kidney disease therapies, and most glucose-lowering medications¹⁻⁴



SGLT2 inhibitor use has been associated with decreased background diuretic dosing.⁵⁻⁷ When combining with other drugs with diuretic effect (e.g. ARNis), volume status should be monitored through blood pressure measurements and signs/symptoms of hypotension^{1-4,8}



In patients with T2D, adjusting the dose of insulin or SU may be required to reduce the risk of hypoglycaemia¹⁻⁴

When to temporarily pause SGLT2 inhibitor treatment?



SGLT2 inhibitor treatment should be **temporarily paused** to minimise risk of complications when your patient:



has an acute serious medical illness¹⁻⁴



has a condition that leads to volume depletion or dehydration¹⁻⁴



is undergoing a prolonged period of fasting⁹

Ensure dose stabilisation prior to the fasting period and increase fluid intake during non-fasting hours⁹



is undergoing major surgery^{1-4,10}

Interrupt SGLT2 inhibitor treatment 72 hours before all major surgeries^{1,10}

Treatment with SGLT2 inhibitors may be restarted when the patient's condition has stabilised. Engage in conversation with the multidisciplinary care team who discontinued medication^{1-4,11}

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ARNi, angiotensin receptor-neprilysin inhibitor; CKD, chronic kidney disease; eGFR, estimated glomerular filtration rate; HCP, healthcare professional; HF, heart failure; SGLT2, sodium-glucose co-transporter 2; SU, sulphonylurea; T2D, type 2 diabetes

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How do you manage potential side effects?

SGLT2 inhibitors have an **established safety profile and are generally well tolerated in a broad range** of patients¹⁻⁴

Very common
≥1/10

Common
≥1/100 to <1/10

Uncommon
≥1/1000 to <1/100

Rare
≥1/10,000 to <1/1000



Genital infections



Urinary tract infections



Volume depletion[†]



Hypoglycaemia (when used with SU or insulin)



Diabetic ketoacidosis

Practical tips

Guidance

Genital infections⁵

Provide practical hygiene advice

For mild to moderate genital tract infections, use topical or appropriate oral treatments

Urinary tract infections¹⁻⁵

Encourage maintenance of good personal hygiene

- Treat with standard oral antibiotics
- For complicated urinary tract infections, consider temporary interruption of treatment

Volume depletion¹⁻⁴

Educate patients on symptoms

- Monitor volume status and electrolytes in conditions that may lead to fluid loss
- If fluid loss occurs, consider temporary interruption of treatment

T2D

Hypoglycaemia in patients with T2D⁶

Be mindful of hypoglycaemia if the patient is on other glucose-lowering agents

Reversed by oral rapid-acting glucose or glucagon

In patients without T2D, SGLT2 inhibitors are not associated with an increased risk of hypoglycaemia^{7,8}

Diabetic ketoacidosis in patients with T2D^{1-4,9}

Educate patients on symptoms and "sick day advice"

If suspected or diagnosed, immediately stop SGLT2 inhibitor treatment and seek hospital medical attention

In patients without T2D, there is no evidence of an increased risk in diabetic ketoacidosis with SGLT2 inhibitors¹⁻⁴

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*Defined as T2D, CKD and/or chronic HF. †Volume depletion ranges from very common (empagliflozin¹) to common (ertugliflozin[†]) and uncommon (canagliflozin³ and dapagliflozin²)

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3. Janssen International, Invokana® (canagliflozin) summary of product characteristics; 4. Merck Sharp & Dohme B.V., Steglato™ (ertugliflozin) summary of product characteristics; 5. Wilding J et al.

Diabetes Ther 2018;9:1757; 6. ADA Professional Practice Committee. Diabetes Care 2022;45:S83; 7. Anker SD et al. Circulation 2021;143:337; 8. Petrie MC et al. JAMA 2020;323:1353; 9. American

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International guidelines recommend the use of SGLT2 inhibitors for their benefits across the cardio, renal and metabolic spectrum^{*,1-10} to improve glycaemic control, and reduce the risk of cardiovascular death, hospitalisation for heart failure and kidney disease progression¹¹⁻¹⁴

How can clinical benefits be maximised while ensuring patient well-being and safety?

Provide patients with continuous education regarding^{2,11-15}:



Lifestyle recommendations, e.g. diet and alcohol consumption



Explain rationale of SGLT2 inhibitor prescription and provide clear information about the cardio, renal and metabolic benefits of SGLT2 inhibitors^{16,17}



Possible side effects, including how to reduce their risk and associated management (see previous pages)



Situations when medication might need to be temporarily stopped (see previous pages)



What to do if a dose is missed, i.e. take as soon as remembered but avoid taking a double dose within the same day

What should you consider at follow-ups during continued treatment^{1,4,11,13,18}



Assess the clinical and hemodynamic status of the patient and monitor appropriate laboratory parameters according to the indication



Optimise multidisciplinary care and collaboration between different specialties



Assess if any changes are needed for concomitant medication



Provide patients with information to support shared decision-making regarding all aspects of clinical management



If tighter glycaemic control is needed in patients with T2D, consider increasing the dose of SGLT2 inhibitor, according to the label[†]

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*Defined as T2D, CKD and/or chronic HF. †Dose increase available to empagliflozin 25 mg or canagliflozin 300 mg¹¹⁻¹³

CKD, chronic kidney disease; HCP, healthcare professional; HF, heart failure; SGLT2, sodium-glucose co-transporter 2; T2D, type 2 diabetes

1. Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group. *Kidney Int* 2024;105: 2. American Diabetes Association. *Diabetes Care* 2025;48:S1; 3. de Boer IH et al. *Diabetes Care* 2022;45:3075; 4. Davies MJ et al. *Diabetes Care* 2022;45:2753; 5. Seidu S et al. *Prim Care Diabetes* 2022;16:223; 6. McDonagh TA et al. *Eur Heart J* 2023;44:3627; 7. McDonagh TA et al. *Eur Heart J* 2021;42:3599; 8. Heidenreich PA et al. *Circulation* 2022;145:e895; 9. McDonald M et al. *Can J Cardiol* 2021;37:531; 10. Marx M et al. *Eur Heart J* 2023;44:4043; 11. Jardiance® (empagliflozin) summary of product characteristics; 12. AstraZeneca. Forxiga® (dapagliflozin) summary of product characteristics; 13. Janssen International. Invokana® (canagliflozin) summary of product characteristics; 14. Merck Sharp & Dohme B.V. Steglato™ (ertugliflozin) summary of product characteristics; 15. Liew A et al. *Nephrology (Carlton)* 2023;28:415; 16. The EMPA-KIDNEY Collaborative Group. *N Engl J Med* 2023;388:117; 17. Packer M et al. *N Engl J Med* 2020;383:1413; 18. Heidenreich PA et al. *J Am Coll Cardiol* 2022;79:e263.