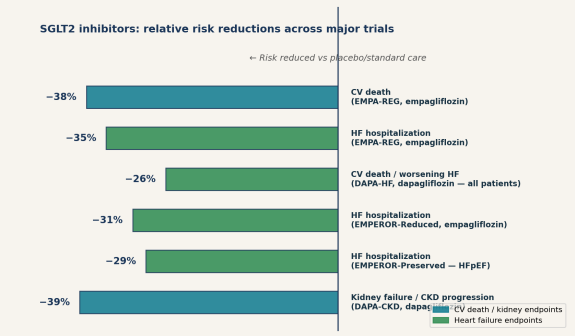
Understanding SGLT2 Inhibitors

Farxiga (dapagliflozin), Jardiance (empagliflozin) — Heart, kidney, and diabetes protection in one pill

Started for diabetes. Now proven to protect hearts and kidneys — even without diabetes.



Online: https://go.riasalimd.com/sglt2i-guide

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Last Updated: August 2026

Names & Terms You Will Hear

Term	Meaning
SGLT2 inhibitors	A class of pills that block a kidney protein. This causes the body to pass extra sugar and sodium in urine.
Farxiga (dapagliflozin)	One of the two most-used SGLT2 inhibitors. Approved for heart failure, type 2 diabetes, and chronic kidney disease.
Jardiance (empagliflozin)	The other major SGLT2 inhibitor. Approved for heart failure, type 2 diabetes, and reducing the risk of heart death.
SGLT2 protein	A protein in the kidney that normally pulls sugar and sodium back into the blood. These pills block that protein.
Glucosuria	Sugar in the urine. This is the intended effect. Passing sugar in urine removes calories and pulls fluid along with it.
Natriuresis	Sodium leaving through urine. This reduces fluid buildup and helps the heart. It works differently from a water pill.
eGFR	A blood test that measures kidney function. Doctors use it to decide when and how to start SGLT2 inhibitors.

What Is SGLT2 Inhibitors?

- SGLT2 inhibitors block a protein in the kidney. That protein normally pulls sugar and sodium back into the blood. Blocking it lets sugar and fluid leave through urine.
- Farxiga (dapagliflozin) and Jardiance (empagliflozin) are the most widely used. Both are approved for heart failure. Both also have data for HFpEF (heart failure with preserved pumping).
- These drugs started as diabetes pills. Now doctors prescribe them for heart failure even in patients without diabetes. The heart and kidney benefits do not depend on blood sugar.
- They are not water pills. They do not work the same way as furosemide. The fluid loss is gradual and gentle. It also protects the kidney tubules.
- Both come as once-daily tablets taken with or without food: dapagliflozin 10 mg, empagliflozin 10 mg (or 25 mg for diabetes).

Jardiance (empagliflozin) 10 mg tablets, shown from both sides. One face carries the manufacturer's logo; the other is marked "S10." Image: Wikimedia Commons (CC BY-SA 4.0).

Why It Matters

- In DAPA-HF (4,744 patients), dapagliflozin cut the risk of CV death or worsening heart failure by 26%. Patients with and without diabetes had the same benefit.
- In EMPEROR-Reduced and EMPEROR-Preserved, empagliflozin cut HF hospital stays by 25 to 31%. This held true for both types of heart failure.
- EMPEROR-Preserved (2021) was the first drug trial to show a clear benefit in HFpEF. No drug had done this before. This finding changed the guidelines.
- SGLT2 inhibitors cut kidney failure risk by 30 to 40% (DAPA-CKD trial). For patients with diabetes and kidney disease, guidelines now recommend them along with finerenone (KERENDIA).
- Heart failure hospital stays cost the U.S. over $30 billion per year. They are the top cause of readmission. SGLT2 inhibitors are one of the few drug classes proven to keep patients out of the hospital.

Treatment Options

- Heart failure (HFrEF): dapagliflozin 10 mg or empagliflozin 10 mg, once daily. Both are the highest (Class I) guideline recommendation in 2022 AHA/ACC/HFSA guidelines.
- Heart failure with preserved pumping (HFpEF): empagliflozin 10 mg daily (Class IIa). Dapagliflozin is also approved based on trial data.
- Type 2 diabetes with heart disease: either drug at 10 mg daily lowers heart attack and HF hospital risk. Empagliflozin 25 mg may be used for extra blood sugar control.
- Kidney disease with type 2 diabetes: dapagliflozin 10 mg daily, no matter what the HbA1c is. The kidney benefit does not depend on blood sugar.
- Start when eGFR is 20 to 25 or higher. Do not start below this level. There is less benefit and a higher risk of DKA. In some cases, your doctor may continue it at lower eGFR to protect the kidneys.
- Skip the pill on sick days. If you are vomiting, have diarrhea, or cannot eat for more than 24 hours — hold the pill and call us. Low fluid plus this drug can cause a dangerous acid buildup (DKA).
- Weigh yourself every morning. Use the same scale at the same time. Call us if you gain 3 to 5 pounds over 2 to 3 days.

Risks, Benefits, and Alternatives

Every choice has trade-offs. Use this table to start the shared decision conversation.

Option	Risks	Benefits	Alternatives
Dapagliflozin (Farxiga)	Genital yeast infections (women more than men; about 8%). Urinary tract infections. Dehydration. Rare acid buildup (DKA), mostly in insulin-dependent diabetes under stress. Fournier gangrene (extremely rare).	26% lower risk of CV death or worsening HF (DAPA-HF). 39% lower risk of kidney failure or CV death (DAPA-CKD). Weight loss 3 to 6 lb. Blood pressure drops 2 to 4 mmHg.	Empagliflozin (same drug class). Loop diuretic (helps fluid only, no survival benefit). Spironolactone (raises potassium more). No extra therapy.
Empagliflozin (Jardiance)	Same side effects as dapagliflozin. Genital yeast infections. Dehydration. Rare acid buildup (DKA). More frequent urination in the first few weeks.	38% lower risk of CV death (EMPA-REG in T2DM). 29 to 31% fewer HF hospital stays in both types of heart failure. First drug to help HFpEF (EMPEROR-Preserved). Kidney protection.	Dapagliflozin (strong kidney trial data). Loop diuretic. Finerenone (for kidney disease with T2DM). No extra therapy.
Loop diuretic (furosemide, torsemide) alone	Electrolyte problems (low potassium, magnesium, sodium). Kidney function changes. Volume loss. No proven survival benefit in large trials. No proven reduction in HF hospital stays.	Relieves swelling and shortness of breath quickly. Low cost. Works fast in a crisis.	Adding an SGLT2 inhibitor to a loop diuretic is the standard of care. They work by different paths and are more effective together.

Option	Risks	Benefits	Alternatives
No add-on heart failure therapy	Higher rate of HF hospital stays (about 20 to 25% per year in moderate HF). Faster loss of kidney and heart function over time. Worse quality of life.	No drug cost or side effects.	SGLT2i plus ACE/ARB/ARNI plus beta-blocker plus MRA is the four-pillar standard for HFrEF. SGLT2i is the newest pillar, added after 2021.

Common Misconceptions

Myth	Reality
SGLT2 inhibitors are just diabetes drugs — I don't need them for my heart failure.	These drugs started as diabetes pills, but their heart failure benefit has nothing to do with blood sugar. In DAPA-HF, patients without diabetes had the same benefit as those with diabetes. They are now a top-level heart failure drug.
Jardiance and Farxiga are the same drug.	They are different molecules. The trial data overlaps but is not the same. Dapagliflozin (Farxiga) has stronger kidney trial data (DAPA-CKD). Empagliflozin (Jardiance) was the first drug to help HFpEF (EMPEROR-Preserved). It also has the heart death data from EMPA-REG. Your cardiologist picks based on your needs.
SGLT2 inhibitors are just like water pills — I'll be running to the bathroom constantly.	The fluid loss is slow and steady. You may lose 1 to 2 lb in the first few weeks. This is not the sharp, sudden effect of furosemide. Most patients see slightly more urination for the first week or two. It then returns to normal.
I can keep taking SGLT2 inhibitors when I have a stomach bug or can't eat.	Sick days make this drug risky. If you are vomiting, have diarrhea, or cannot keep food down for more than 24 hours — hold the pill and call us. Low fluid plus this drug raises the risk of a dangerous acid buildup called euglycemic DKA.
Genital yeast infections mean I have to stop the medication.	Most yeast infections in this area get better fast with one over-the-counter treatment. Good hygiene and keeping the area dry helps prevent them from coming back. Call us — you rarely need to stop the drug.
SGLT2 inhibitors can damage my kidneys.	Your eGFR may drop 2 to 5 points in the first few weeks. This is expected and not damage. It levels off within 2 to 4 weeks. Long-term, these drugs protect kidney function better than any drug class we had before. Do not stop for the early dip.

Possible Complications

Knowing what can go wrong helps you spot problems early. Most complications are uncommon, especially with treatment.

Where / What	What Can Happen
Genital yeast infections	The most common side effect. It affects about 5 to 10% of women and 3 to 4% of men. It is usually mild. An over-the-counter antifungal cream clears it up fast. Good hygiene and keeping the area dry helps prevent it from coming back.
Acid buildup (euglycemic DKA)	Rare but serious. It is more likely in people who use insulin during illness, surgery, or stress. Blood sugar may look normal — you need a blood ketone test to confirm it. Hold this drug during long illness, surgery, or very low-carb diets.
Dehydration and low blood pressure	This drug has a mild fluid-reducing effect. It can cause dizziness in the first few weeks or in older patients on many blood pressure drugs. It usually gets better on its own. Call us if it does not.
Early kidney number dip (eGFR)	Your eGFR may fall 2 to 5 points in the first 4 weeks. This is a normal pressure change, not damage. It levels off and is linked to better kidney function long-term. Do not stop the drug for this alone.
Urinary tract infections	The risk is slightly higher because sugar in the urine can feed bacteria. If you have burning, frequent urination, or fever, let us know. We will guide you on whether you need an antibiotic.
Fournier gangrene	Extremely rare. This is a severe infection of the genital skin and tissue. The first sign is strong genital pain that seems worse than it looks. Go to the ER right away — this needs surgery.

Points to Know

If you remember nothing else, remember these key points.

- Take it once daily, with or without food. Try to take it at the same time each day.
- Weigh yourself every morning — same scale, same time, same clothes. Call us if you gain 3 to 5 lb over 2 to 3 days.
- Skip it on sick days. If you are vomiting, have diarrhea, have a fever, or cannot eat for more than 24 hours — hold the pill and call us.
- Your kidney number (eGFR) may dip in the first 2 to 4 weeks. This is normal. Do not stop without calling us.
- Watch for genital yeast infections. They are more common in women but can happen in men. Good hygiene and keeping the area dry helps prevent them.
- Tell your dentist, surgeon, or ER that you take Farxiga or Jardiance before any procedure or hospital stay.
- If you also take insulin or a sulfonylurea, watch for low blood sugar. The drugs together can lower blood sugar more than expected.
- Get a kidney function test (eGFR and urine albumin) each year so we can track your benefit and adjust your dose.

When to Call Us - and When to Call 911

If you are not sure, call. We would rather hear from you twice than miss a real problem.

- Nausea, vomiting, or belly pain with fruity breath or extreme thirst — call 911. These can be signs of DKA (acid buildup).
- Genital pain, swelling, redness, or fever — call us today. There is a rare risk of severe skin infection.
- Weight gain of 3 to 5 lb over 2 to 3 days — call us today. This may mean fluid is building up.
- Dizziness, lightheadedness, or fainting — call us. You may be dehydrated or have low blood pressure.
- Severe pain or swelling in the genital area — call us right away. Fournier gangrene is very rare but serious.
- Vomiting, diarrhea, or inability to eat — hold the pill and call us.
- Before any surgery, procedure, or hospital stay — call us. We usually hold the pill 3 to 4 days before planned surgery.
- Major weight loss without trying, or passing very large amounts of urine — call us for lab tests.

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Trusted Resources

The links below are the trusted resources Dr. Ali used to write this guide and that he recommends you visit for more information. Each is a clickable link in the digital version and a Short.io tracked URL on the printed version.

- Cleveland Clinic — SGLT2 Inhibitors - Patient overview of how SGLT2i work and what to expect.
- American Heart Association — Heart Failure Medications - AHA patient page on heart failure drug classes including SGLT2i.
- American Diabetes Association — SGLT2 Inhibitors - ADA overview of oral diabetes medications including SGLT2i.
- National Kidney Foundation — Protecting Your Kidneys - Patient guidance on CKD risk reduction including SGLT2i role.

Sources Used to Build This Guide

Every recommendation in this guide is grounded in one or more of the studies, guidelines, or trusted resources below. Short links are tracked so Dr. Ali can see which references patients are reading; nothing personally identifying is captured.

- EMPA-REG OUTCOME — Empagliflozin and CV outcomes in T2DM (Zinman et al, NEJM 2015) *[Clinical Trial]*
  First major SGLT2i CV outcomes trial: empagliflozin reduced CV death by 38%, HF hospitalization by 35%, and renal progression in T2DM with established CV disease.
- DAPA-HF — Dapagliflozin in Heart Failure (McMurray et al, NEJM 2019) *[Clinical Trial]*
  Landmark RCT: dapagliflozin reduced the primary endpoint of worsening HF or CV death by 26% regardless of diabetes status. Established SGLT2i for HFrEF without diabetes.
- EMPEROR-Reduced — Empagliflozin in HFrEF (Packer et al, NEJM 2020) *[Clinical Trial]*
  Confirmed DAPA-HF findings for empagliflozin: 25% RRR in CV death or HF hospitalization regardless of diabetes status. Together define the HFrEF class effect.
- EMPEROR-Preserved — Empagliflozin in HFpEF (Anker et al, NEJM 2021) *[Clinical Trial]*
  First positive drug trial in HFpEF: empagliflozin reduced HF hospitalizations by 29%. Pivotal for the class's HFpEF approval and discussion.
- DAPA-CKD — Dapagliflozin in Chronic Kidney Disease (Heerspink et al, NEJM 2020) *[Clinical Trial]*
  Dapagliflozin reduced kidney failure, CV death, or worsening kidney function by 39% in CKD regardless of diabetes. Anchors the kidney protection discussion.
- ACC/AHA HF Guideline 2022 (Heidenreich et al, JACC 2022) *[Guideline]*
  SGLT2i received Class I recommendation for HFrEF and Class IIa for HFpEF in the 2022 AHA/ACC/HFSA Heart Failure guideline update. Establishes position in treatment algorithm.
- Cleveland Clinic — SGLT2 Inhibitors *[Clinical]*
  Patient-friendly overview of how SGLT2i work, their benefits, and common side effects across all indications.
- American Heart Association — Diabetes Medications and Heart Failure *[Clinical]*
  AHA patient education on SGLT2i role in heart failure management, positioning alongside diuretics and other HF therapies.

About This Guide

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Version: 2026-08-15

Reviewer note: Reviewed against AHA/ACC 2022 HF guideline, Cleveland Clinic SGLT2i page, and Farxiga/Jardiance manufacturer materials. Ours adds: multi-trial visual comparing all four pivotal outcomes trials, explicit 'works without diabetes' framing, head-to-head comparison table of dapagliflozin vs empagliflozin approvals, eGFR thresholds for use, and the DKA sick-day protocol.

Disclaimer

This guide is for educational purposes only and does not replace medical advice from your physician. Recommendations may not apply to every patient. Always follow the specific instructions of Dr. Ali and your care team. In an emergency call 911 or go to the nearest emergency department.

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