Patient Case:
Patients With T2D and Early-Onset Kidney Disease

73-Year-Old Woman

- Long-standing type 2 diabetes
- Hyperlipidemia

Current Medications

- Rosuvastatin 10 mg daily
- Metformin 1000 mg bid
- Dulaglutide 1 mg SC Q week

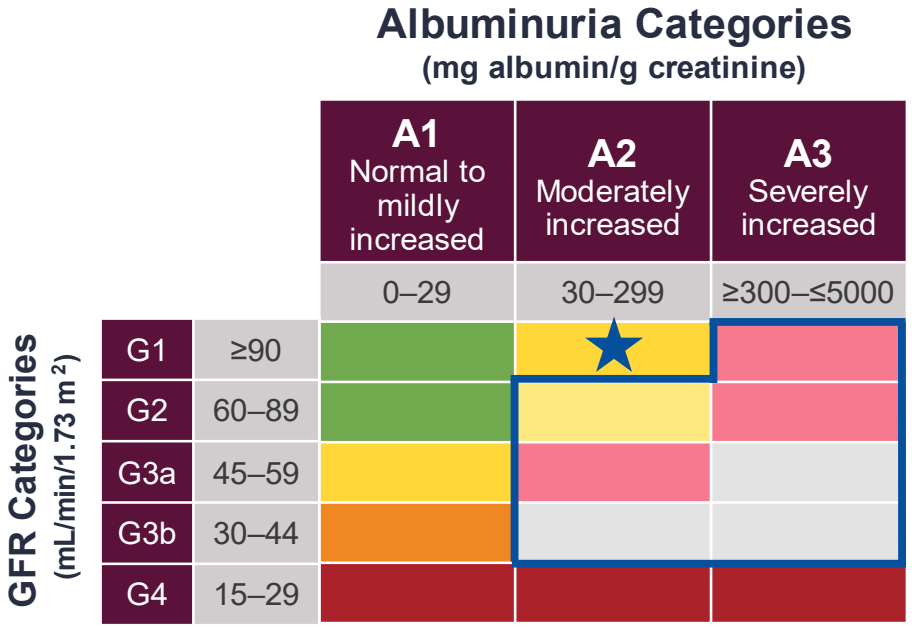
Patient Case (cont'd)

Recent Lab Results

- HbA1c 7.5%
- Potassium 3.9 mg/dL
- Creatinine 0.64 mg/dL
- eGFR > 90 mL/min
- UACR 147 mg/g

Patient Course

- Started on empagliflozin
- 2 weeks later she developed a urinary tract infection which was treated
- 4 weeks later she developed a genital mycotic infection which was treated, and she discontinued the medication
- **Finerenone 20 mg** was started
- Labs 6 weeks later reveal **potassium of 4.3** and **creatinine of 0.7**

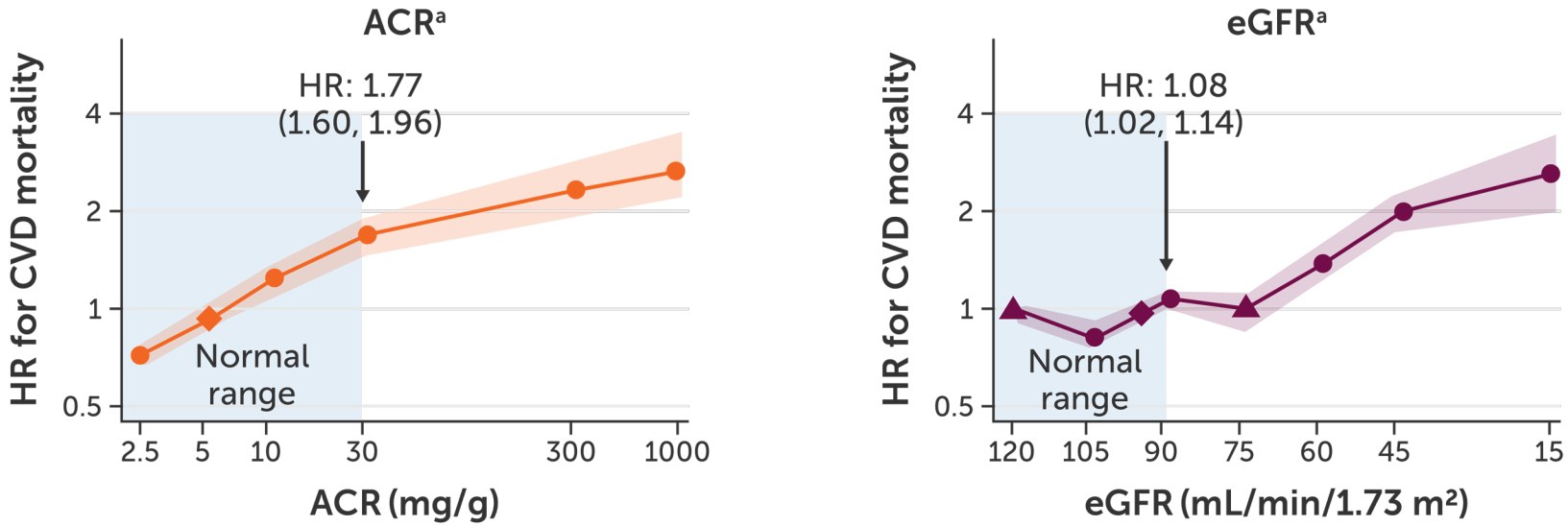


3-Month Follow-Up

UACR improved from 147 mg/g to 96 mg/g

ACR Is an Independent and Better Predictor of CV Mortality Than eGFR Across the Full Range of Renal Function

CV Mortality



Independent of each other and traditional risk factors, ACR ≥10 mg/g was significantly associated with increased CV mortality, but eGFR was not until <60 mL/min/1.73 m²

[a]Adjusted for each other (ACR or eGFR), age, gender, race, CVD history, systolic blood pressure, diabetes, smoking, and total cholesterol.
ACR, albumin-creatinine ratio; CV, cardiovascular; CVD, cardiovascular disease; eGFR, estimated glomerular filtration rate; HR, hazard ratio.
Chronic Kidney Disease Prognosis Consortium, et al. *Lancet*. 2010;375(9731):2073-2081.

ADA/KDIGO Consensus Guidelines: Managing Patients on Nonsteroidal MRAs

Serum potassium monitoring during treatment with finerenone

K^+ ≤4.8 mmol/L

- Initiate finerenone
  - 10 mg daily if eGFR 25-59 mL/min per 1.73 m^2
  - 20 mg daily if eGFR ≥60 mL/min per 1.73 m^2
- Monitor K^+ at 1 month after initiation and then every 4 months
- Increase dose to 20 mg daily, if on 10 mg daily
- Restart 10 mg daily if previously held for hyperkalemia and K^+ now ≤5.0 mmol/L

K^+ 4.9-5.5 mmol/L

- Continue finerenone 10 mg or 20 mg
- Monitor K^+ every 4 months

K^+ >5.5 mmol/L

- Hold finerenone
- Consider adjustments to diet or concomitant medications to mitigate hyperkalemia
- Recheck K^+
- Consider reinitiation if/when K^+ ≤5.0 mmol/L

ADA, American Diabetes Association; eGFR, estimated glomerular filtration rate; K^+, potassium; KDIGO, Kidney Disease: Improving Global Outcomes; MRA, mineralocorticoid receptor antagonist.

Kidney Disease: Improving Global Outcomes (KDIGO) Diabetes Work Group. *Kidney Int.* 2022;102(5S):S1-S127.
de Boer IH, et al. *Diabetes Care*. 2022;45(12):3075-3090.

2023 Focused Update of the 2021 ESC Guidelines for the Diagnosis and Treatment of Acute and Chronic Heart Failure

Recommendations for the prevention of heart failure in patients with type 2 diabetes mellitus and chronic kidney disease

Recommendations	COR	LOE
In patients with T2DM and CKD,[c] finerenone is recommended to reduce the risk of HF hospitalization.	I	A

CKD, chronic kidney disease; COR, class of recommendation; ESC, European Society of Cardiology; LOE, level of evidence; T2DM, type 2 diabetes mellitus.
[c]CKD was defined as follows: an eGFR 25-75 mL/min/1.73 m^2 and a urinary albumin-to-creatinine ratio ≥200-5000 mg/g in DAPA-CKD; an eGFR 20-45 mL/min/1.73 m^2 or an eGFR 45-90 mL/min/1.73 m^2 with a urinary albumin-to-creatinine ratio ≥200 mg/g in EMPA-KIDNEY; an eGFR 25-60 mL/min/1.73 m^2, a urinary albumin-to-creatinine ratio 30-300 mg/g, and diabetic retinopathy, or an eGFR 25-75 mL/min/1.73 m^2 and a urinary albumin-to-creatinine ratio 300-5000 mg/g in FIDELIO-DKD; and an eGFR 25-90 mL/min/1.73 m^2 and a urinary albumin-to-creatinine ratio 30 to <300 mg/g, or an eGFR >60 mL/min/1.73 m^2 and a urinary albumin-to-creatinine ratio 300-5000 mg/g in FIGARO-DKD.
McDonagh TA, et al. *Eur Heart J*. Published online August 25, 2023. doi:10.1093/eurheartj/ehad195

Patient Case:

Patients With T2D and Progressive Kidney Disease

66-Year-Old Man

- Type 2 diabetes for 23 years
- Hypertension, atrial fibrillation, hyperlipidemia, obesity

Current Medications:

Metformin ER 1000 mg daily

Empagliflozin 10 mg daily

Semaglutide 7 mg daily

Glargine 14 units subcutaneously at bedtime

Irbesartan 300 mg daily

Metoprolol 25 mg daily

Edoxaban 30 mg daily

Ezetimibe/Rosuvastatin 10/40 mg daily

Vitals: BP 134/82 mmHg, HR 58 bpm, BMI 36 kg/m^2

Patient Case (cont'd)

Recent Lab Results

- HbA1c 6.8%
- LDL-C 69 mg/dL
- TG 96 mg/dL
- Potassium 4.4 mg/dL
- Creatinine 1.51 mg/dL
- eGFR 51 mL/min
- UACR 405 mg/g

Additional Patient Data

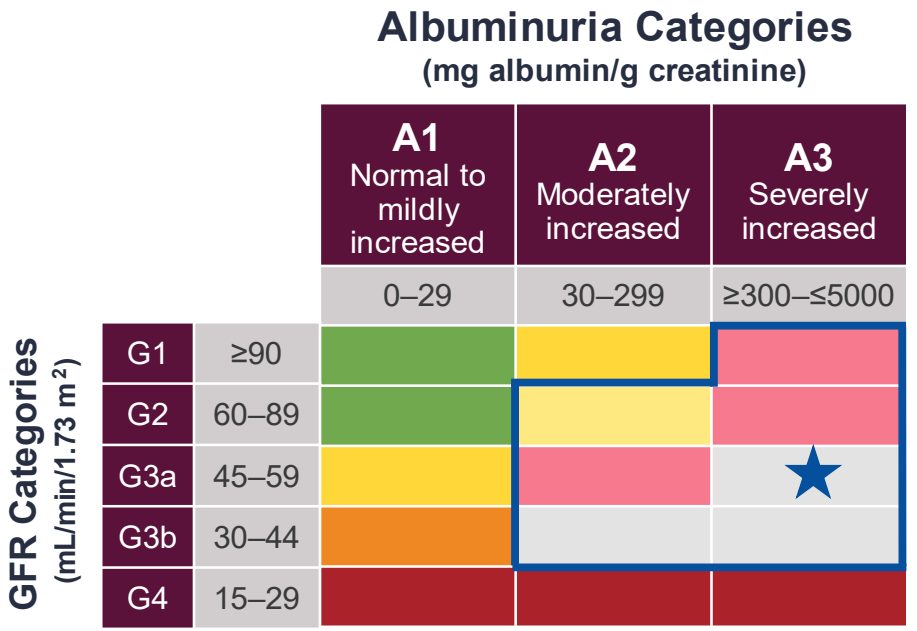
Diabetes with CKD 3a and albuminuria in the presence of multiple comorbidities

Started **finerenone 10 mg** daily

Labs 4 weeks later reveal potassium of 4.6 mg/dL and eGFR of 49 mL/min

Increased finerenone dose to 20 mg daily

Labs repeated 5 weeks later indicate potassium 4.7 mg/dL and eGFR 49 mL/min



3-Month Follow-Up

Patient is tolerating his medications well

Hopes to take fewer drugs in the future

BP is 130/78 mmHg (down from 134/82)

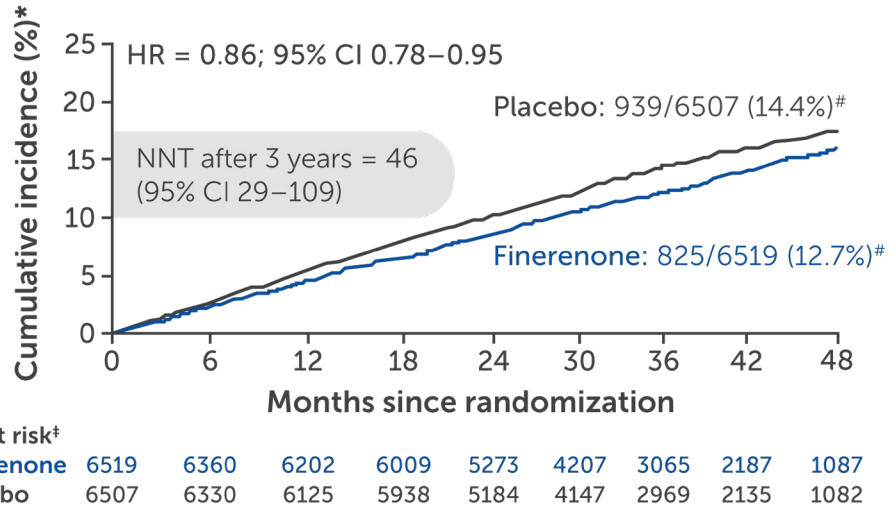
BMI 29.9 kg/m^2 (down from 36)

UACR is 273 mg/g (down from 405 mg/g previously)

FIDELITY: Reduction in Risk of Composite CV and Kidney Outcomes

CV composite

Time to CV death, nonfatal MI, nonfatal stroke, or HHF



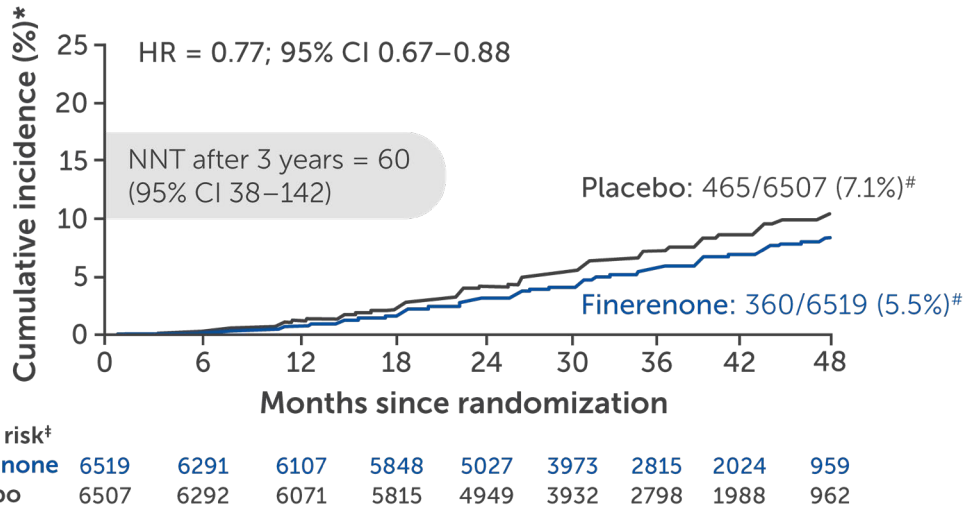
No. at risk‡

Finerenone	6519	6360	6202	6009	5273	4207	3065	2187	1087
Placebo	6507	6330	6125	5938	5184	4147	2969	2135	1082

14% reduced risk of CV morbidity and mortality versus placebo (HR = 0.86; 95% CI 0.78–0.95); *P* = 0.0018

Kidney composite

Time to kidney failure,§ sustained ≥57% decrease in eGFR from baseline, or kidney-related death



No. at risk‡

Finerenone	6519	6291	6107	5848	5027	3973	2815	2024	959
Placebo	6507	6292	6071	5815	4949	3932	2798	1988	962

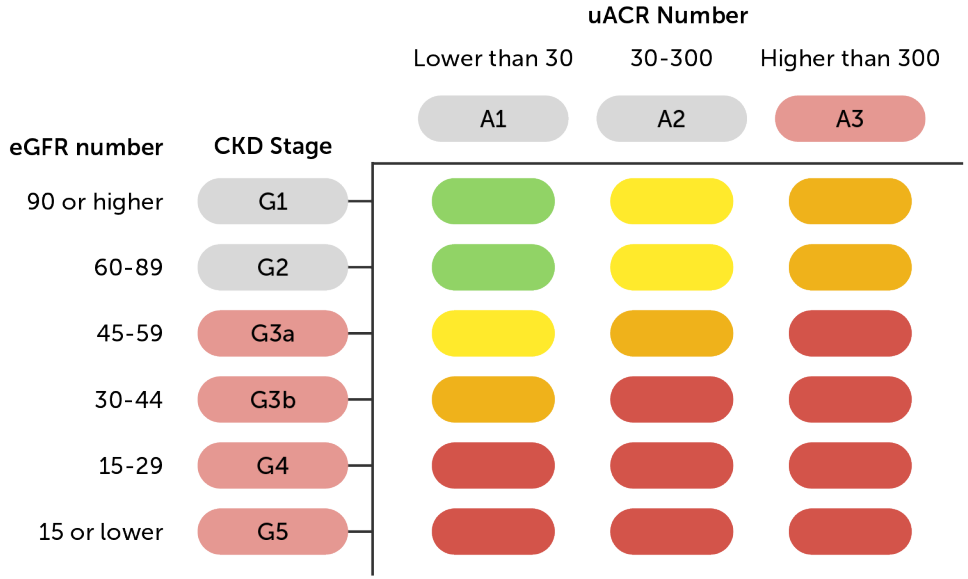
23% reduced risk of CKD progression* versus placebo (HR = 0.77; 95% CI 0.67–0.88); *P* = 0.0002

* cumulative incidence calculated by Aalen-Johansen estimator using deaths due to other causes as competing risk; # number of patients with an event over a median of 3.0 years of follow-up; ‡ at-risk subjects were calculated at start of time point; § ESKD or an eGFR <15 mL/min/1.73 m^2
CKD; chronic kidney disease; CV, cardiovascular; eGFR, estimated glomerular filtration rate; HHF, heart failure hospitalization; HR, hazard ratio; MI, myocardial infarction; NNT number needed to treat.

Agarwal R, et al. *Eur Heart J*. 2022;43:474-484.

Kidney Numbers and the CKD Heat Map

If you do have chronic kidney disease, then your doctor will use the **CKD Heat Map** to find out your risk for CKD getting worse and your risk for heart disease.



On *the left side* of the map, your eGFR number matches up with a CKD stage. A higher eGFR number is better because it means you have a lower CKD stage.

eGFR Number	CKD Stage
90 or higher	G1
60-89	G2
45-59	G3a
30-44	G3b
15-29	G4
15 or lower	G5

A **Green** box means you do NOT have chronic kidney disease, or that you are at the lowest risk for CKD getting worse. **Yellow** means increased risk for CKD getting worse. **Orange** means high risk for CKD getting worse. **Red** means the highest risk for CKD getting worse.

On the top of the map, your uACR number matches up with a uACR level. A lower uACR is better because that means less albumin in the urine.

uACR Number	uACR Level
Lower than 30	A1, normal – mildly increased
30-300	A2, moderately increased
Higher than 300	A3, severely increased

CKD, chronic kidney disease; GFR, glomerular filtration rate; uACR, urine albumin-creatinine ratio.

National Kidney Foundation. Kidney numbers and the CKD heat map - educate your patients. September 29, 2022. Accessed June 12, 2023. https://www.kidney.org/content/kidney-numbers-and-ckd-heat-map-educate-your-patients

Guideline Recommendations for Reducing CVD Risk

- RASi
- SGLT2i
- Finerenone

ReachMD

Avoiding Clinical Inertia

- Talk with your patient about what to expect from the drug you're prescribing
- Inform them of the positive effects
- Discuss the adverse effects
- Remind them of follow-up potassium and eGFR monitoring

ReachMD

That's where the elegance of medicine is, is detecting disease before it's obvious.

Pam Taub, MD

KEY TAKEAWAY

…important to check urinary albumin, but please don't forget to get a creatinine and get an estimated GFR. Because the same way that we have patients who have albuminuria and have a normal GFR, we do have patients who have no albuminuria but have a reduced eGFR.

Luiza Caramori, MD

KEY TAKEAWAY

Check the kidney of all of your patients with both eGFR and also albuminuria; think in both. Keep in mind the risks your patients have because of the kidney and act when you need for treat this disease risk and reduce the risk of your patients.

Ana María Cebrián, MD

KEY TAKEAWAY

Aggressive treatment with the multiple agents that we have available is paramount. And don't be afraid of the side effects like hyperkalemia—just have a strategy for close monitoring.

Pam Taub, MD