Transforming Heart and Kidney Care:

Kerendia in patients with CKD and T2D

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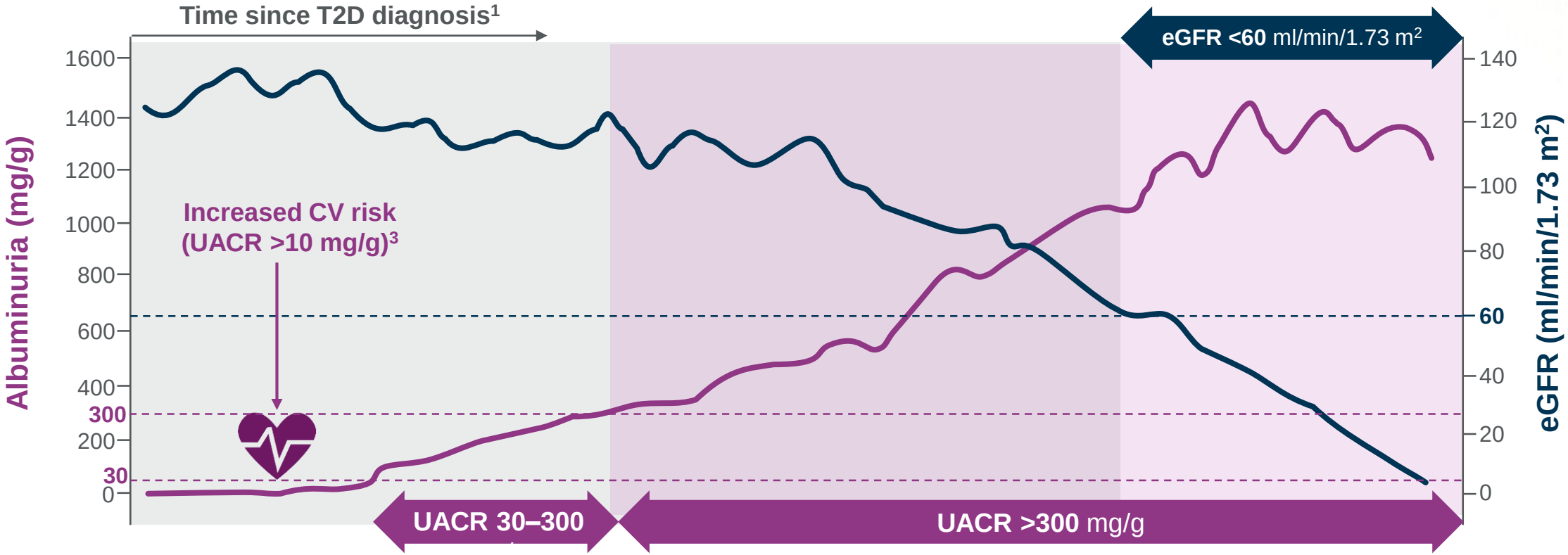
Albuminuria can often be detected before eGFR decline and increases CV risk[1–3]



CV, cardiovascular; eGFR, estimated glomerular filtration rate; T2D, type 2 diabetes; UACR, urine albumin-to-creatinine ratio

1. Afkarian M. *Pediatr Nephrol* 2015;30:65–74; 2. Alicic RZ, *et al. Clin J Am Soc Nephrol* 2017;12:2032–2045; 3. Fox CS, *et al. Lancet* 2012;380:1662–1673

Late Diagnosis and CKD Progression in Patients With T2D Burden Both the Patient and the Healthcare System[1]

Impact of **CKD associated with T2D** versus **T2D alone**

More **MI CASES**[2,a]

~2x

More **HF CASES**[2,a]

~5x

Greater risk of **HHF**[3,b]

~3–6x

More **CV DEATHS**[4,c]

~3x

T2D and moderately to severely increased albuminuria versus **T2D and normal albuminuria**

Higher rates of **ER SERVICES**[5,d]

2–4%

Higher rates of **INPATIENT ADMISSIONS**[5,d]

4–10%

Higher rates of **RECEIVING DIALYSIS**[5,d]

4–40x

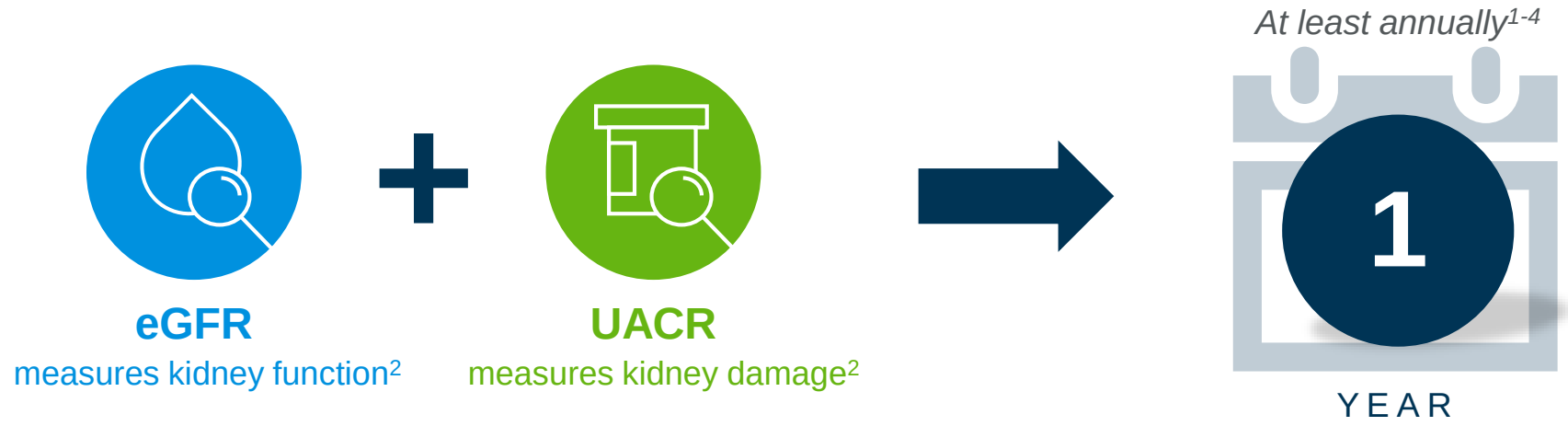
Early intervention may help reduce downstream cardiorenal risks[6,7]

[a]Data from a cross-sectional analysis of self-reported patient data collected between 2007-2012 from 2006 adult patients with T2D in NHANES.[2] [b]Randomized, double-blind, placebo-controlled SAVOR TIMI 53 trial conducted from 2010-2013 in 16,492 patients with T2D and a HbA1c of 6.5%-12.0% within 6 months of randomization and either a history of ASCVD or multiple CVD risk factors. Baseline UACR was available in 15,760 patients.[3] [c]This study used data from NHANES III participants aged ≥20 years, who participated in a health examination and had available data on medications used, serum creatinine, and urine albumin and creatinine concentrations. Of these, the only participants who were included were those who had follow-up mortality data through 2006 (15,046 of 15,762 of NHANES III participants, 95.5%); 1430 (9.5%) of the 15,046 participants had T2D.[4] [d]Data was derived from Truven Health MarketScan databases from 2004-2014, with 23,235 patients being selected for analysis. Patients had T2D, were at least 18 years old, and were separated into normoalbuminuria (<30 mg/g UACR), microalbuminuria (30-300 mg/g UACR), and macroalbuminuria (>300 mg/g UACR) groups.[5]

ASCVD, atherosclerotic cardiovascular disease; CKD, chronic kidney disease; CV, cardiovascular; CVD, cardiovascular disease; ER, emergency room; HbA1c, glycated hemoglobin; HF, heart failure; HHF, hospitalization for heart failure; MI, myocardial infarction; NHANES, National Health and Nutrition Examination Survey; NHANES III; Third National Health and Nutritional Examination Survey; T2D, type 2 diabetes; UACR, urinary albumin-to-creatinine ratio.

1. KDIGO. *Kidney Int Suppl.* 2013;31):1-150. **2.** Wu B, et al. *BMJ Open Diabetes Res Care*. 2016;4(1):e000154. **3.** Scirica BM, et al. *JAMA Cardiol*. 2018;3(2):155-163. **4.** Afkarian M, et al. *J Am Soc Nephrol.* 2013;24(2):302-308. **5.** Zhou Z, et al. *Diabetes Ther*. 2017;8(3):555-571. **6.** American Diabetes Association. Section 11. *Diabetes Care.* 2023;46(Suppl 1):S191-S202. **7.** Handelsman Y, et al. *J Diabetes Complications*. 2023;37(2):108389.

Guidelines Recommend Both eGFR and UACR Testing at Least Annually in All Patients With T2D[1-4]



eGFR
measures kidney function[2]

UACR
measures kidney damage[2]

ADA, KDIGO, and AACE Guidelines:

- ✓ Recommend using **both eGFR and UACR** to properly **identify, stage, and monitor CKD** in patients with T2D, **as eGFR alone may miss the earlier stages of CKD[1-4]**
- ✓ Support routine eGFR and albuminuria screening to **assess early CVD risk** in patients with CKD associated with T2D[1-4]

AACE, American Association of Clinical Endocrinology; ADA, American Diabetes Association; CKD, chronic kidney disease; eGFR, estimated glomerular filtration rate; KDIGO, Kidney Disease Improving Global Outcomes; T2D, type 2 diabetes; UACR, urine albumin-to-creatinine ratio.

1. American Diabetes Association. Section 11. *Diabetes Care.* 2023;46(Suppl. 1):S191-S202. **2.** KDIGO. *Kidney Int Suppl*. 2013;3(1):1-150.
3. de Boer IH, et al. *Diabetes Care*. 2022;45(12):3075-3090. **4.** Blonde L, et al. *Endocr Pract*. 2022;28(10):923-1049.

ADA 2023 Guidelines Recommend Reducing Very High Albuminuria Levels to Slow CKD Progression

TREATMENT RECOMMENDATION **11.6** (Level of Evidence: B)

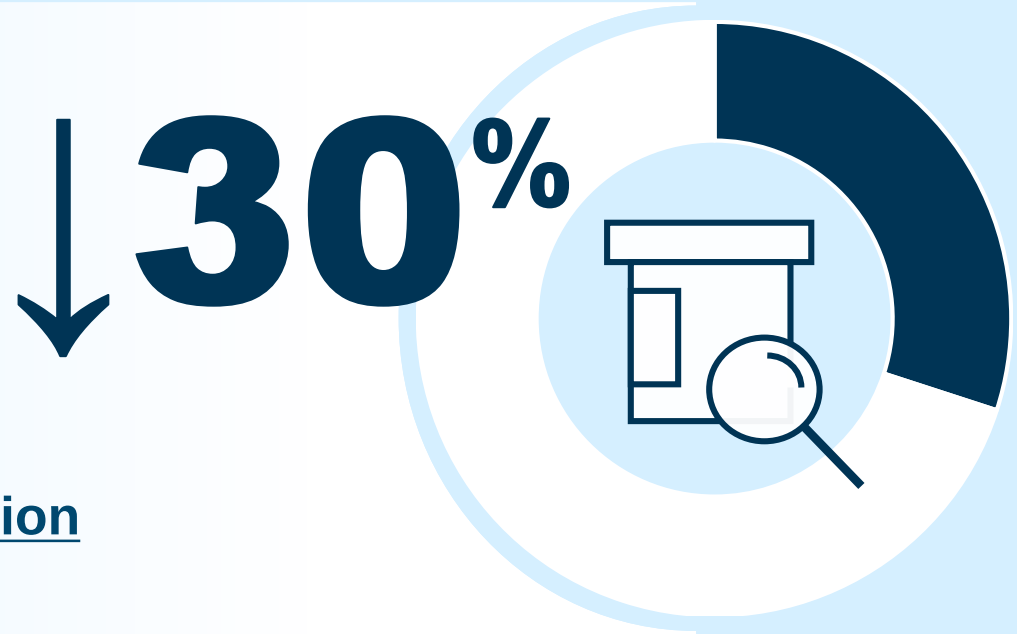
In people with CKD who have

≥300 mg/g urinary albumin,

a reduction of 30% or greater

in mg/g urinary albumin is

recommended to **slow CKD progression**



ADA, American Diabetes Association; CKD, chronic kidney disease.

American Diabetes Association. Section 11. *Diabetes Care*. 2023;46(Suppl 1):S191-S202.

The ADA 2024 guidelines recognise the KDIGO recommendations for patient referral to nephrology by patient risk category

The ADA included a KDIGO heatmap for risk of CKD progression and referrals in 2022– this has been maintained in 2024[1,2]

Individuals should be referred to a nephrologist if they have continuously increasing urinary albumin levels and/or decreasing eGFR and/or if the eGFR is <30 ml/min/1.73 m^2

CKD is classified based on: • Cause (C) • GFR (G) • Albuminuria (A)				Albuminuria categories Description and range		
				A1	A2	A3
				Normal to mildly increased	Moderately increased	Severely increased
				<30 mg/g <3 mg/mmol	30–299 mg/g 3–29 mg/mmol	≥300 mg/g ≥30 mg/mmol
GFR categories (mL/min/1.73 m²) Description and range	G1	Normal or high	≥90	Screen 1	Treat 1	Treat and refer 3
	G2	Mildly decreased	60–89	Screen 1	Treat 1	Treat and refer 3
	G3a	Mildly to moderately decreased	45–59	Treat 1	Treat 2	Treat and refer 3
	G3b	Moderately to severely decreased	30–44	Treat 2	Treat and refer 3	Treat and refer 3
	G4	Severely decreased	15–29	Treat and refer* 3	Treat and refer* 3	Treat and refer 4+
	G5	Kidney failure	<15	Treat and refer 4+	Treat and refer 4+	Treat and refer 4+

Low risk (if no other markers of kidney disease, no CKD)
Moderately increased risk
High risk
Very high risk

The GFR and albuminuria grid depicts the risk of CKD progression, frequency of visits and referral to nephrology according to GFR and albuminuria
Please refer to the slide notes for additional information on the KDIGO heat map figure
*Referring clinicians may wish to discuss with their nephrology service, depending on local arrangements regarding treating or referring
ADA, American Diabetes Association; CKD, chronic kidney disease; eGFR, estimated glomerular filtration rate; GFR, glomerular filtration rate; KDIGO, Kidney Disease: Improving Global Outcomes

1. American Diabetes Association. *Diabetes Care* 2022;45(Suppl 1):S175–S184; 2. American Diabetes Association. *Diabetes Care* 2024;47(Suppl 1):S219–S230

Recent clinical guidelines for the management of CKD in patients with T2D recommend a combination of drug therapies to optimally reduce risks,[1–3] with finerenone recommended as a core treatment pillar[4]

European Society of Hypertension

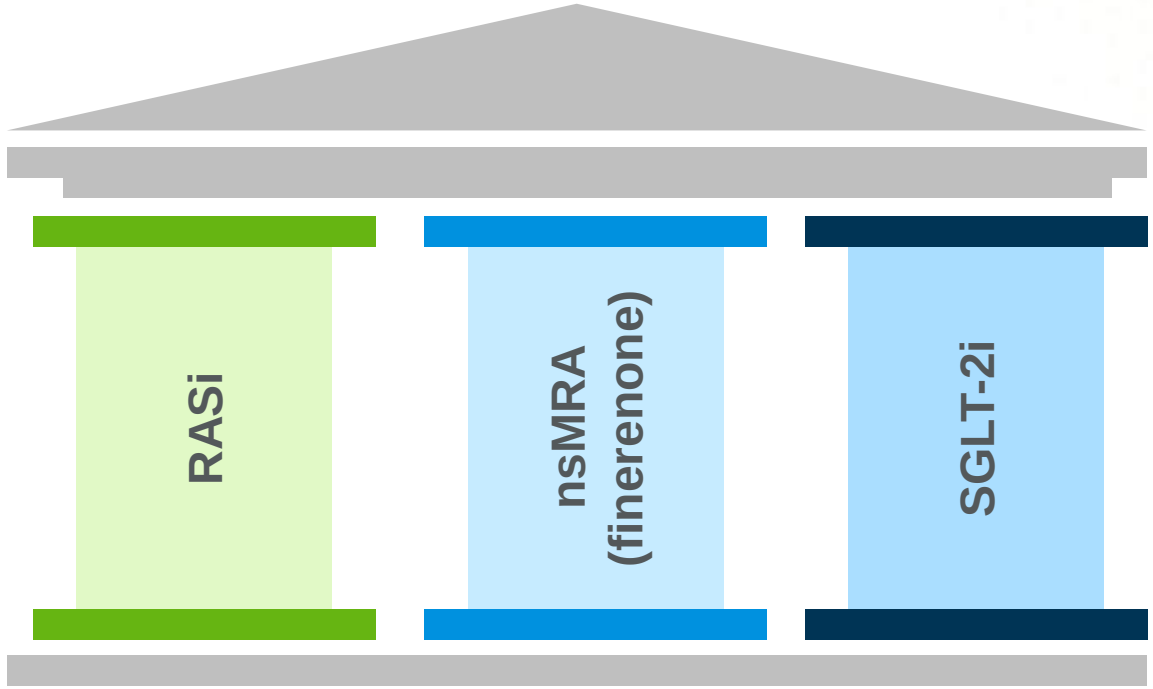
ESC European Society of Cardiology

ADA KDIGO Consensus 2022

ERA ERBP European Renal Best Practice

KDIGO Kidney Disease Improving Global Outcomes

American Diabetes Association



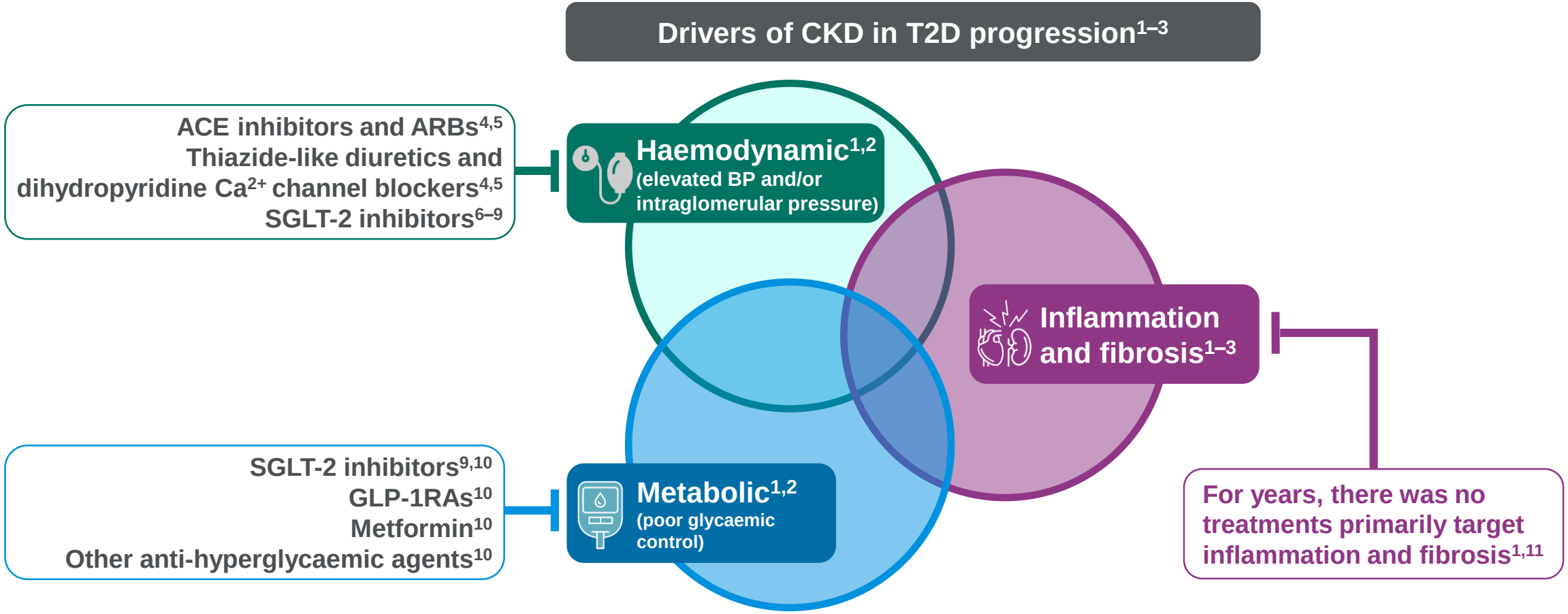
To optimise risk reduction, **the three-pillar drug therapy should be combined with** glycaemic control, blood pressure control, lipid control, smoking cessation, proper nutrition and regular exercise[4]

Finerenone is indicated for the treatment of CKD (with albuminuria) associated with T2D in adults

ADA, American Diabetes Association; nsMRA, nonsteroidal mineralocorticoid receptor antagonist; RASi, renin–angiotensin system inhibitor

1. KDIGO Diabetes Work Group. *Kidney Int* 2022;102:S1–S127; 2. American Diabetes Association. *Diabetes Care* 2023;46(Suppl 1):S191–S202; 3. de Boer IH, *et al. Diabetes Care* 2022;45:3075–3090; 4. Blazek O & Bakris GL. *Am Heart J Plus* 2022;19:100187

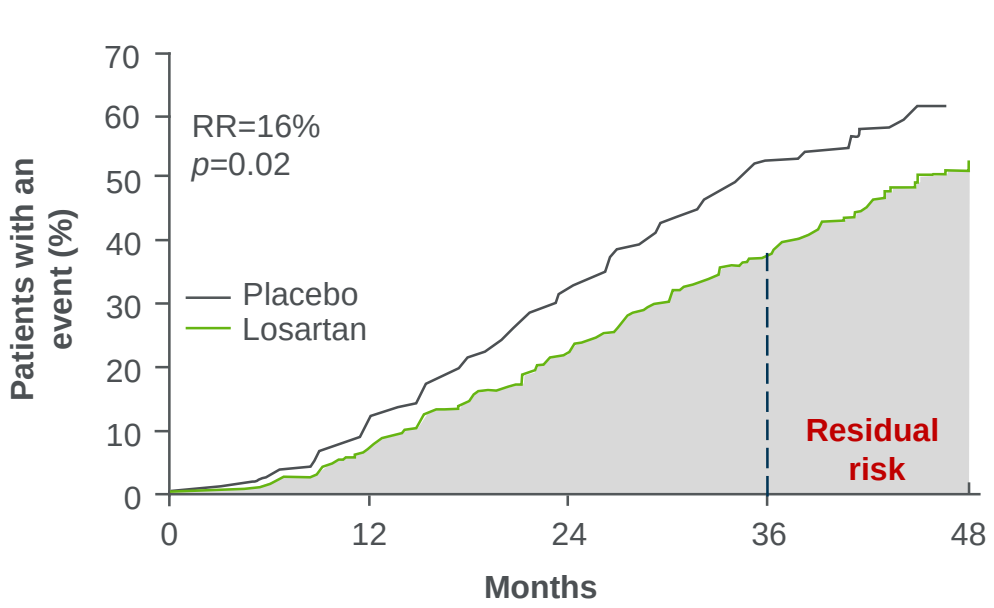
Current therapies primarily target haemodynamic and metabolic factors



1. Alicic RZ, *et al*. *Clin J Am Soc Nephrol* 2017;12:2032–2045; 2. Mora-Fernández C, *et al*. *J Physiol* 2014;18:3997; 3. Bauersachs J, *et al*. *Hypertension* 2015;65:257–263;
4. American Diabetes Association. *Diabetes Care* 2020;43:S135-151; 5. American Diabetes Association. *Diabetes Care* 2020;43:S111–1340; 6. Kidokoro K, *et al*. *Circulation* 2019:140;303–315;
7. Zelniker TA & Braunwald E. *J Am Coll Cardiol* 2018;72:1845–1855; 8. Heerspink HJ, *et al. Circulation* 2016;134:752–772; 9. Zelniker TA & Braunwald E. *J Am Coll Cardiol* 2020;75:422–434; 10. American Diabetes Association. *Diabetes Care* 2020;43:S98–S110; 11. Alicic RZ, *et al. Adv Chronic Kidney Dis* 2018;25:1941–191

Patients with T2D and advanced CKD are at risk of CKD progression when treated with current SoC

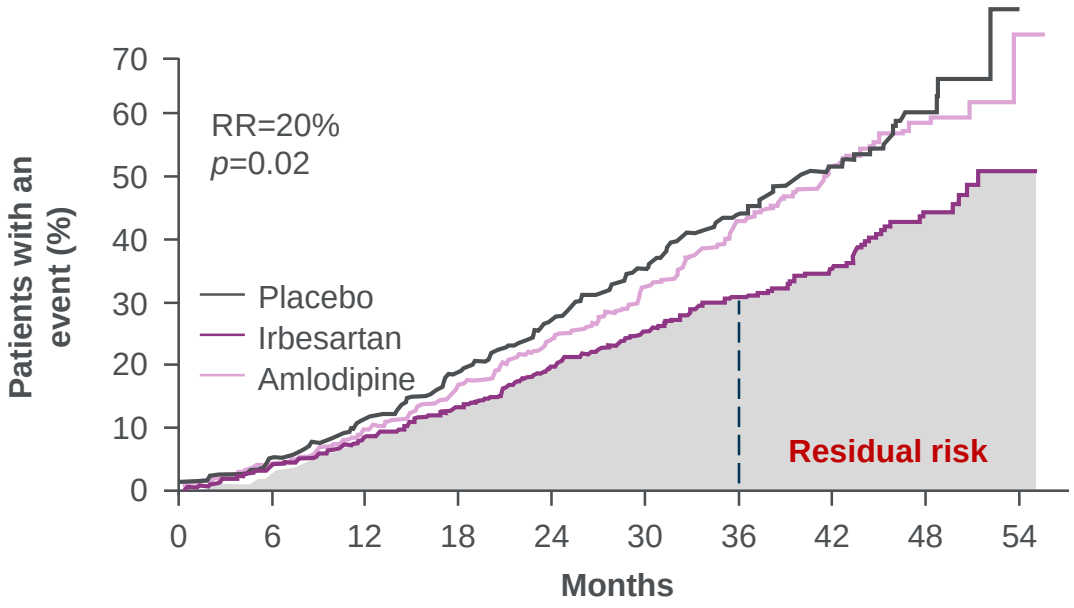
RENAAL: Losartan vs placebo[1]



Patients with severely increased albuminuria: 100%
Median UACR: 1249 mg/g

Primary composite endpoint:
Doubling of SCr, kidney failure or death

IDNT: Irbesartan vs amlodipine vs placebo[2]



Patients with severely increased albuminuria: 100%
Median UACR: 1900 mg/g

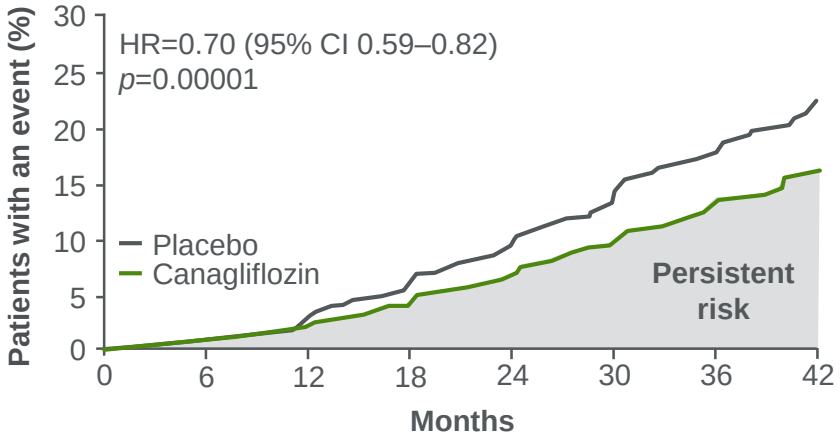
Primary composite endpoint:
Doubling of SCr, kidney failure or death

CKD, chronic kidney disease; T2D, type 2 diabetes; UACR, urinary albumin-to-creatinine ratio; RR, risk reduction; SCr, serum creatinine; SoC, standard of care

1. Brenner BM, *et al. N Engl J Med* 2001;345:861–869; 2. Lewis EJ, *et al. N Engl J Med* 2001;345:851–860

In addition, despite RAAS blockade and SGLT-2 inhibition, patients with T2D and advanced CKD are at persistent risk of CKD progression

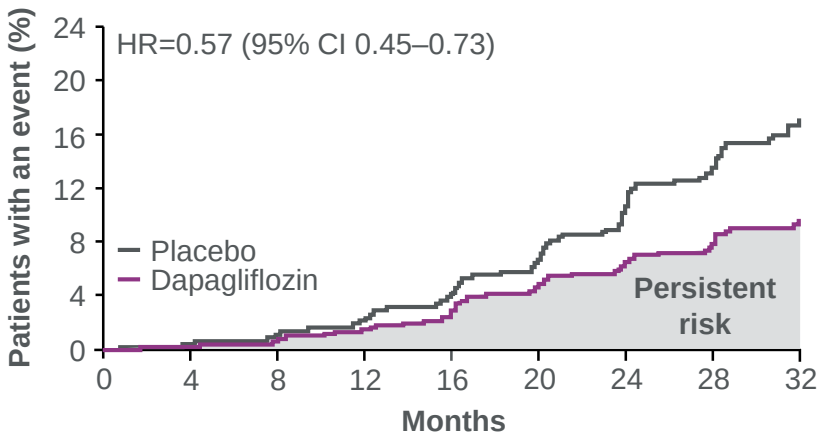
CREDENCE: Canagliflozin vs placebo[2]



Median UACR: 927 mg/g

Primary composite outcome:
Kidney failure, doubling of SCr or death from kidney/CV causes

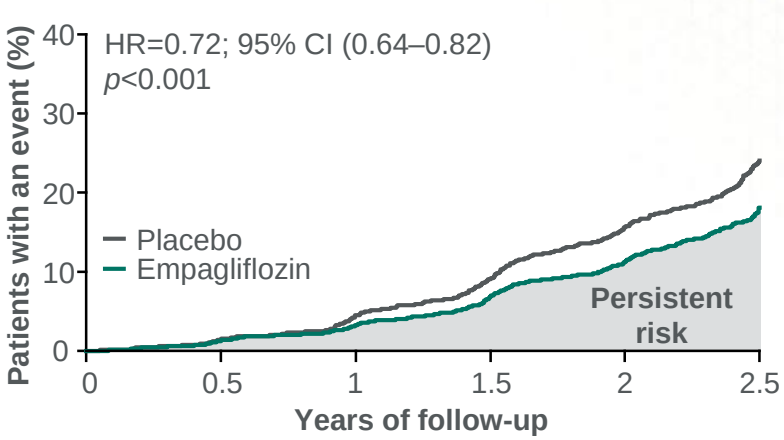
DAPA-CKD: Dapagliflozin vs placebo[3]



Median UACR: 949 mg/g

Secondary composite renal outcome:
Sustained ≥50% eGFR decline, ESKD or renal death

EMPA-KIDNEY: Empagliflozin vs placebo[4]



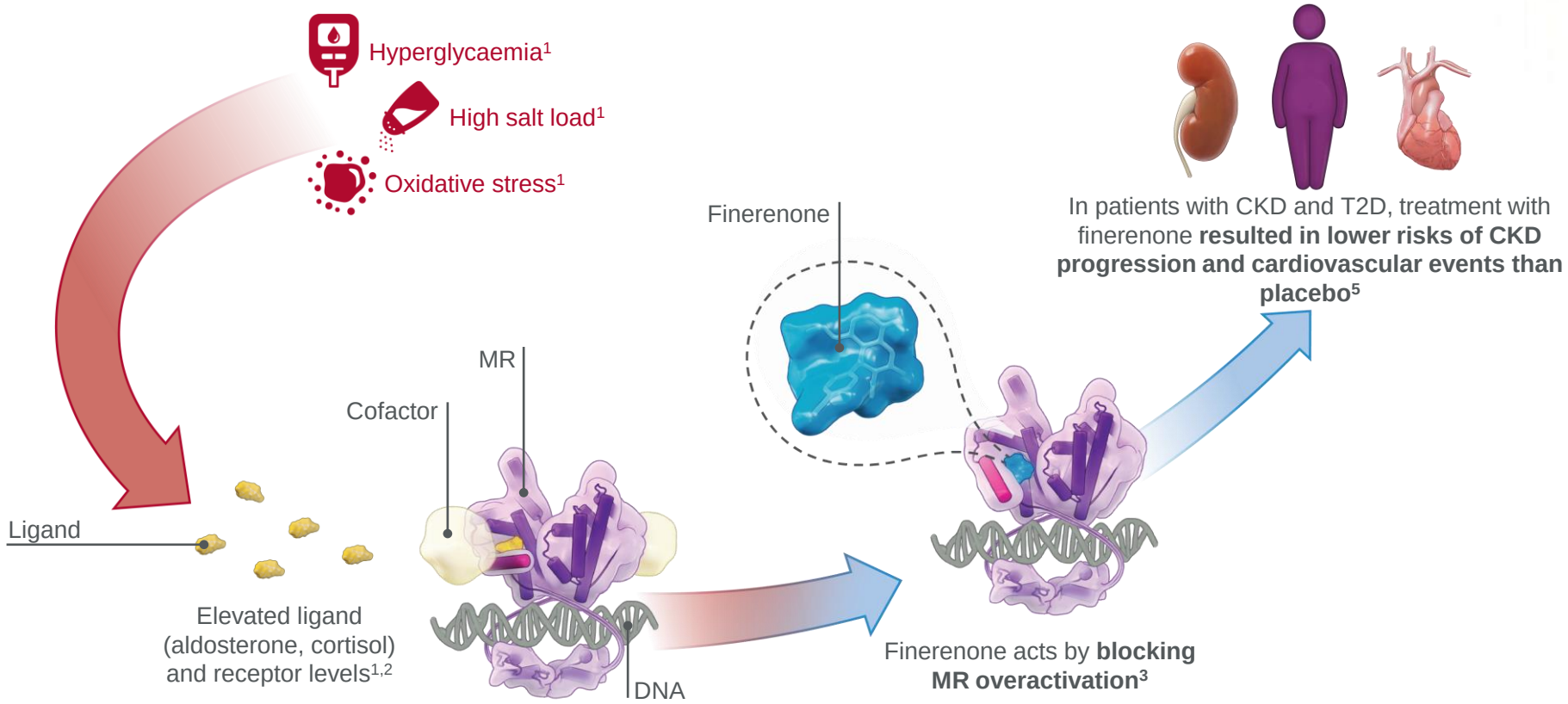
Median UACR: 329 mg/g

Primary cardiorenal outcome:
Sustained ≥40% decline in eGFR; sustained decline in eGFR to <10 ml/min/1.73 m², ESKD or renal/CV death

CKD, chronic kidney disease; CI, confidence interval; eGFR, estimated glomerular filtration rate; ESKD, end-stage kidney disease; HR, hazard ratio; RAAS, renin–angiotensin–aldosterone system; SCr, serum creatinine; SGLT-2i, sodium-glucose co-transporter-2 inhibitor; T2D, type 2 diabetes; UACR, urine albumin-to-creatinine ratio

1. American Diabetes Association. *Diabetes Care* 2022;45(Suppl 1):S175–S184; 2. Perkovic V, *et al*. *N Engl J Med* 2019;380:2295–2306;
3. Wheeler DC, *et al*. *Lancet Diabetes Endocrinol* 2021;9:22–31; 4. The EMPA-KIDNEY Collaborative Group. *N Engl J Med* 2023;388:117–127

Finerenone, a novel, selective, nonsteroidal MRA, blocks MR overactivation



MR overactivation is thought to **contribute to inflammation and fibrosis,** and **sodium retention in cardiorenal disease**[3,4]

Finerenone is approved by the FDA and is indicated to reduce the risk of sustained eGFR decline, ESKD, CV death, non-fatal MI, and HHF in adult patients with CKD associated with T2D. Finerenone is currently under review by other health authorities, including the EMA

1. Buonafine M, *et al. Am J Hypertens* 2018;31:1165–1174; 2. Buglioni A, *et al. Hypertension* 2015;65:45–53; 3. Agarwal R, *et al. Nephrol Dial Transplant* 2020; doi: 10.1093/ndt/gfaa294;
4. Khan NUA & Movahed A. *Rev Cardiovasc Med* 2004;5:71–81; 5. Bakris GL, *et al. N Engl J Med* 2020;383:2219–2229

Non-steroidal Vs Steroidal MRAs

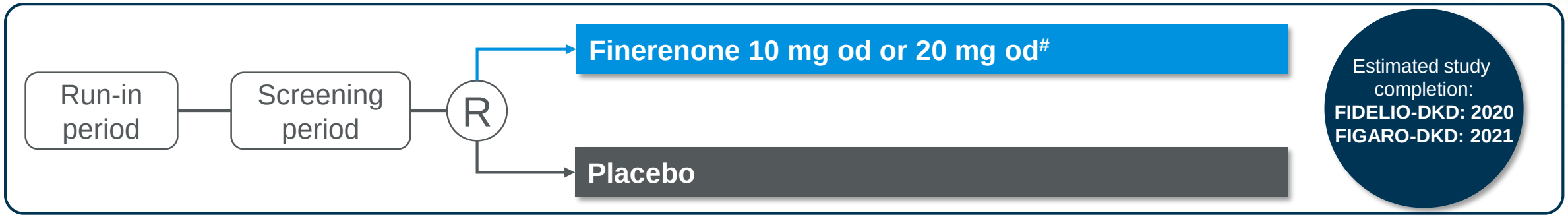
There are several notable differences between finerenone and spironolactone

What is different?	How? (finerenone vs spironolactone)		Why?
Effect on inflammation and fibrosis *(based on preclinical studies)*	**Greater reduction vs spironolactone[1,2]**	**Smaller reduction vs finerenone[1,2]**	Distinct MR antagonist activity due to differences in:[3,4] • Structure • Mode of binding • Cofactor recruitment
Effect on renal electrolyte disturbances *(based on preclinical studies)*	**Lower risk vs spironolactone[5,6]**	**Higher risk vs finerenone[5,6]**	
Risk of sexual side effects (gynaecomastia, erectile dysfunction, dysmenorrhoea)	**No difference vs placebo[7]**	**Increased risk vs placebo[8]**	MR selectivity:[9–12] • Finerenone: High • Spironolactone: Low
Risk of hyperkalaemia	**Lower risk* vs spironolactone[13];** manageable with treatment interruption	**Higher risk* vs finerenone[13];** may be difficult to manage with treatment interruption	Differences in: • MR-mediated gene expression[1,2,5,6,14] • Half-life[13] • Presence/absence of active metabolites[15]
Effect on SBP (reduction)	**Moderate[13]**	**High[13]**	Differences in: • Lipophilicity[6] • Polarity[6] • Ability to penetrate the CNS[6,16]

*Phase II clinical trial of finerenone vs spironolactone in patients with CKD (eGFR 30–60 ml/min/1.73 m^2) and HFrEF

See notes page for references

FIDELIO-DKD and FIGARO-DKD are investigating effects of finerenone on kidney and CV outcomes in patients with CKD and T2D

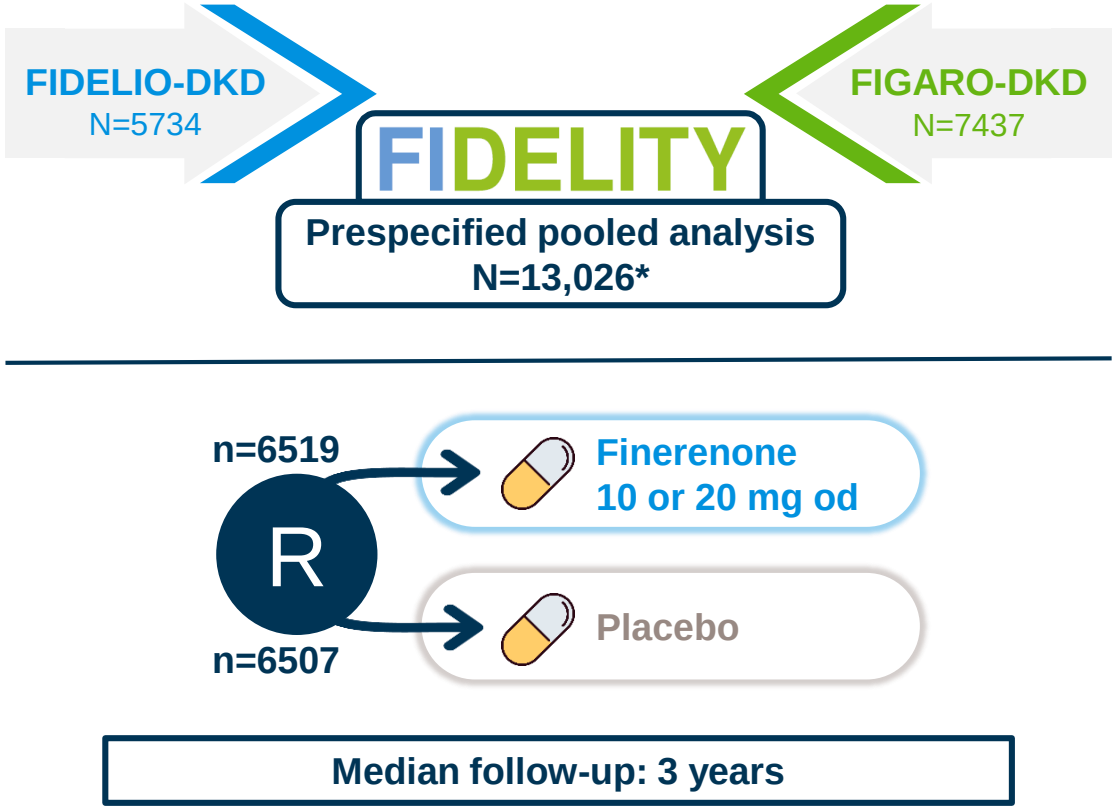


	FIDELIO-DKD[1]	FIGARO-DKD[2]
Clinical efficacy primary endpoint	**Composite endpoint**: time to onset of kidney failure* or decrease of eGFR ≥40% from baseline or death due to kidney disease	**Composite endpoint**: time to CV death, non-fatal MI, non-fatal stroke or hospitalisation for HF
Key secondary endpoints	Same as primary endpoint in **FIGARO-DKD**	Same as primary endpoint in **FIDELIO-DKD**

1. Bakris GL, *et al. Am J Nephrol* 2019;50:333–344; 2. Ruilope LM, *et al. Am J Nephrol* 2019;50:345–356

FIDELITY, a prespecified pooled analysis of two phase III trials, included 13,026 patients with T2D and a wide spectrum of CKD

FIDELITY study design



FIDELITY eligibility criteria

Key inclusion criteria

- Aged ≥18 years with T2D
- **eGFR:** 25–90 ml/min/1.73 m^2 **+ UACR:** 30–<300 mg/g[#]
  or
  eGFR: ≥25 ml/min/1.73 m^2 **+ UACR:** ≥300 mg/g
- Serum [K^+] ≤4.8 mmol/l
- Maximum tolerated dose of ACEi or ARB for ≥4 weeks

Key exclusion criteria

- HFrEF with NYHA class II–IV
- Uncontrolled arterial hypertension
- HbA1c >12%
- Non-diabetic kidney disease, stroke, TIA, ACS or HHF
- UACR >5000 mg/g

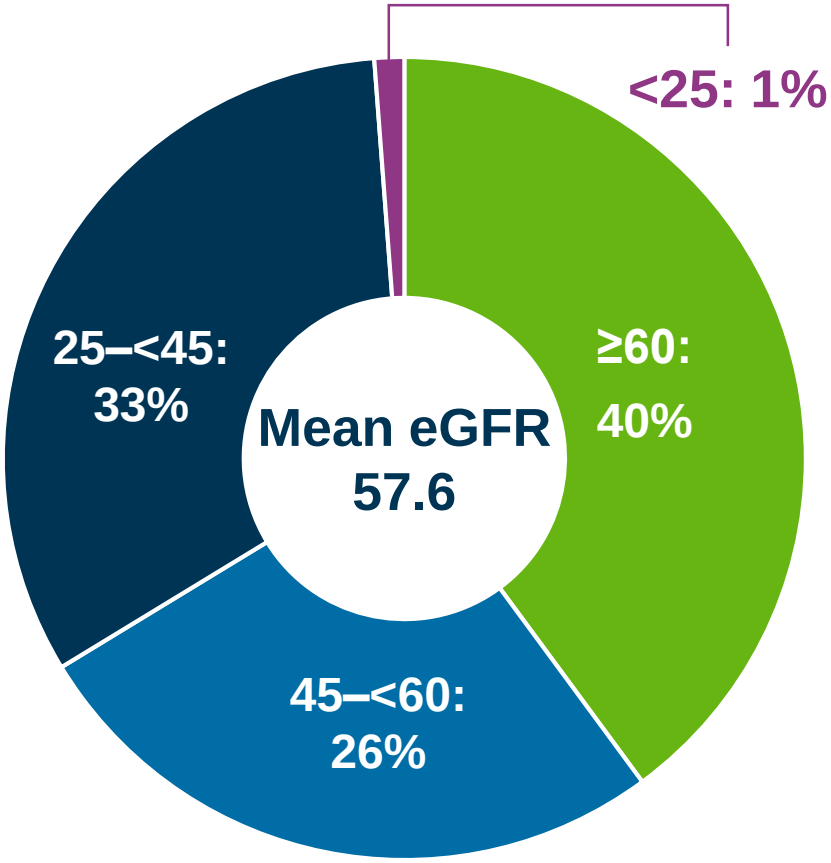
*Prospective exclusion of 145 patients; [#]in FIDELIO-DKD, patients with moderately elevated albuminuria were required to also have diabetic retinopathy
ACEi, angiotensin-converting enzyme inhibitor; ACS, acute coronary syndrome; ARB, angiotensin receptor blocker; HbA1c, glycated haemoglobin; HFrEF, heart failure with reduced ejection fraction; HHF, hospitalisation for heart failure; [K^+], potassium concentration; NYHA, New York Heart Association; od, once daily; R, randomisation; TIA, transient ischaemic attack; UACR, urine albumin-to-creatinine ratio

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

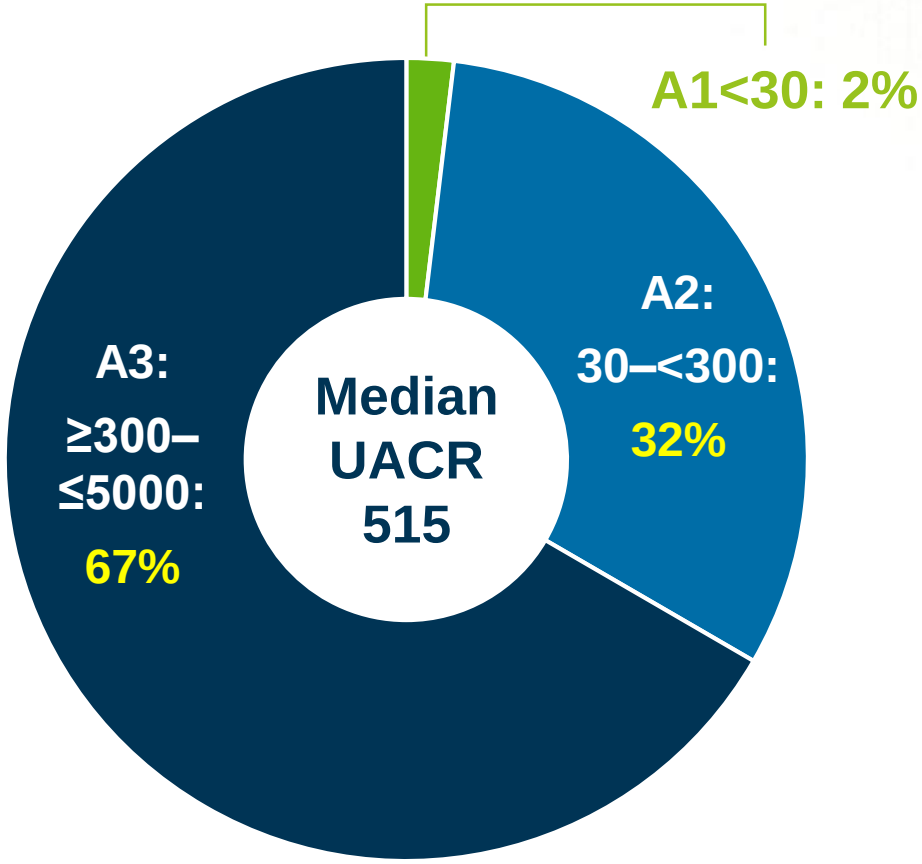
FIDELITY

In FIDELITY, 40% of patients had albuminuric CKD with preserved kidney function (eGFR ≥60 ml/min/1.73 m^2)

Baseline eGFR (ml/min/1.73 m^2)*



Baseline UACR (mg/g)#



*Data were missing for 3 patients; #data were missing for 5 patients

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

FIDELITY

FIDELITY: Pooled analysis of FIDELIO-DKD and FIGARO-DKD trials (CKD stages 1 – 4)

FIDELITY

CV endpoints

Composite CV endpoint
Time to CV death, non-fatal MI, non-fatal stroke, or hospitalisation for HF

14% RRR
NNT=46
HR=0.86; *p*=0.0018

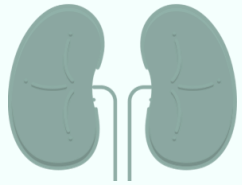
Hospitalisation for heart failure

22% RRR
HR=0.78; *p*=0.003

Kidney endpoints

Composite Kidney endpoint
Time to kidney failure, sustained ≥57% eGFR decline, or kidney-related death

23% RRR
NNT=59
HR=0.77; *p*=0.0002



Dialysis

20% RRR
HR=0.80; *p*=0.04

Median follow-up: 3 Years

Baseline characteristics	
Number of patients	13,026
Gender (M/F)	70%/30%
Age	65 years
HBA1c	7.7%
BP	137/76 mmHg
Prior HF	7.7%
RAS inhibitors (ACEi/ARB)	99.8%
Statins	72.2%

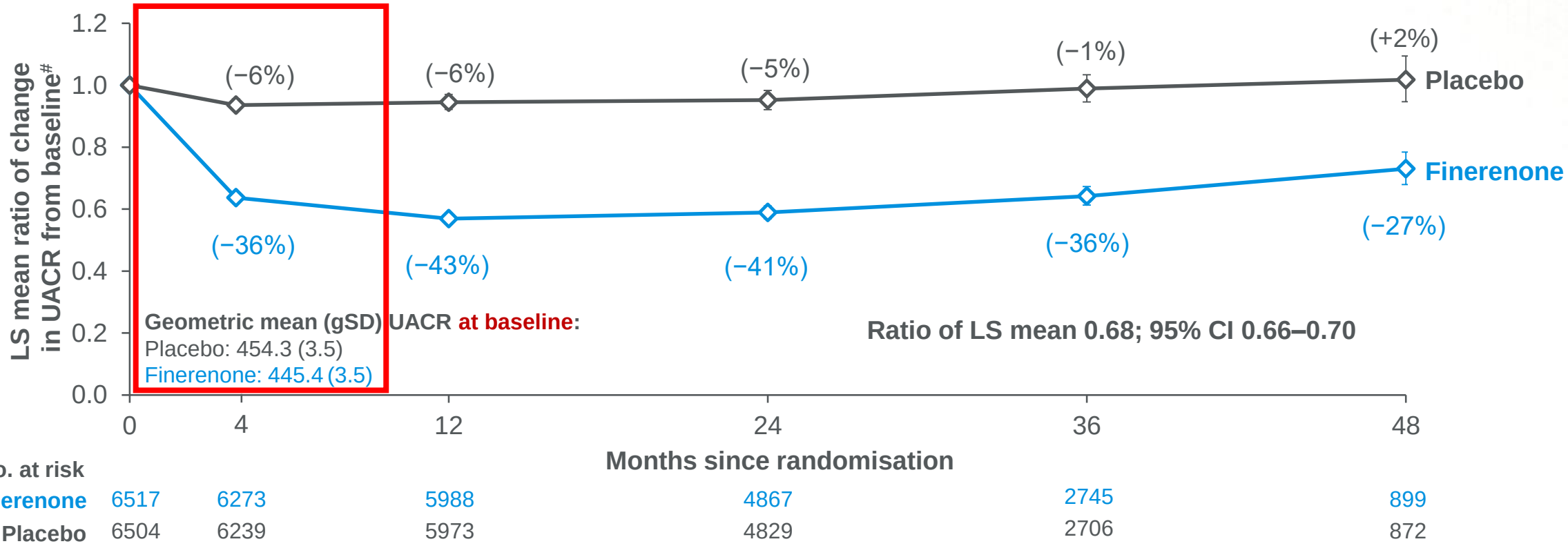
Finerenone is indicated for the treatment of CKD (with albuminuria) associated with T2D in adults

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

FIDELITY

In FIDELITY, finerenone reduced UACR by 32% between baseline and month 4 versus placebo*

A lower mean UACR with finerenone versus placebo was maintained throughout the study



No. at risk						
Finerenone	6517	6273	5988	4867	2745	899
Placebo	6504	6239	5973	4829	2706	872

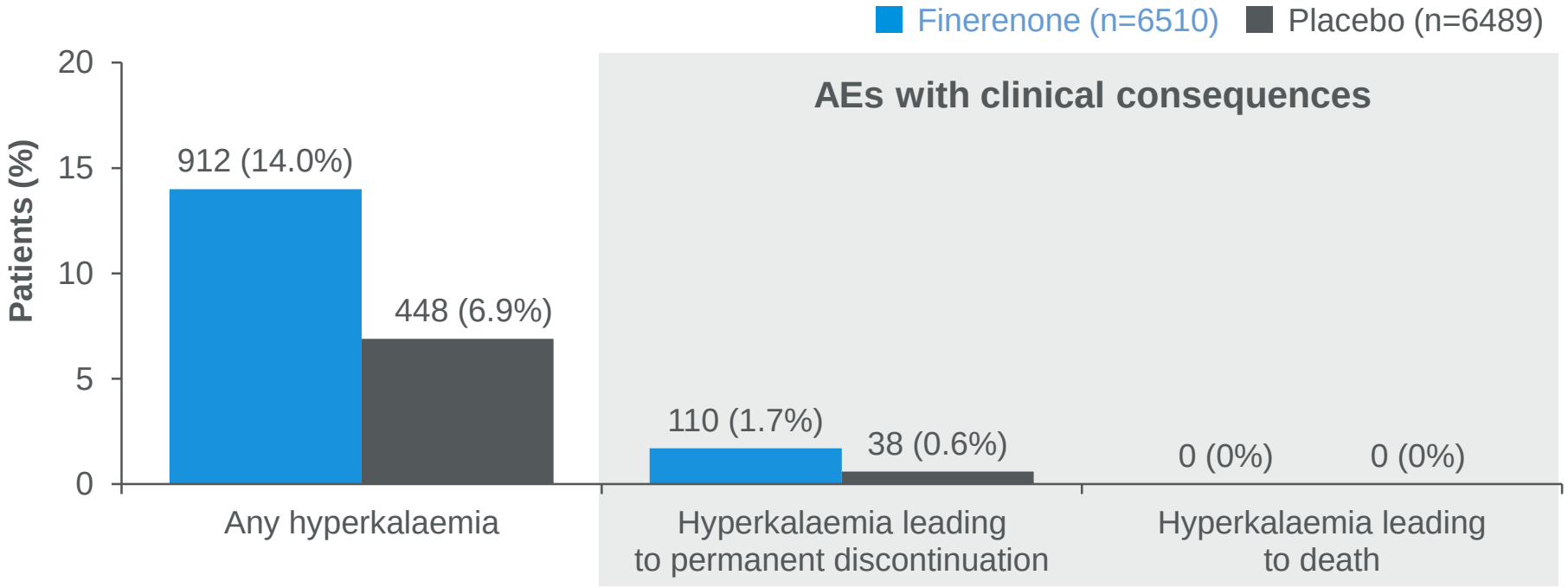
Data in parentheses are mean changes from baseline. *Full analysis set. Mixed model with factors treatment group, region, eGFR category at screening, type of albuminuria at screening, CV disease history, time, treatment*time, study, study*treatment, log-transformed baseline value nested within type of albuminuria at screening and log-transformed baseline value*time as covariate. Separate unstructured covariance patterns are estimated for each treatment group; #data are LS mean ± SD
gSD, geometric standard deviation

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

FIDELITY

Finerenone increased hyperkalaemia, but the clinical impact was minimal[1]

Investigator-reported hyperkalaemia adverse events[1]*



Max difference in mean serum [K⁺] between finerenone and placebo[1]

0.19 mmol/l at month 4

Hyperkalaemia risk factors:[2]
High baseline [K⁺], lower eGFR, higher UACR, ß-blocker use

With a robust [K⁺] management strategy guided by regular serum [K⁺] monitoring,[3] there were no hyperkalaemia-related deaths in ~13,000 people over 3 years' median follow-up

*Investigator-reported AEs using the MedDRA preferred terms 'hyperkalaemia' and 'blood potassium increased'
AE, adverse events; MedDRA, Medical Dictionary for Regulatory Activities

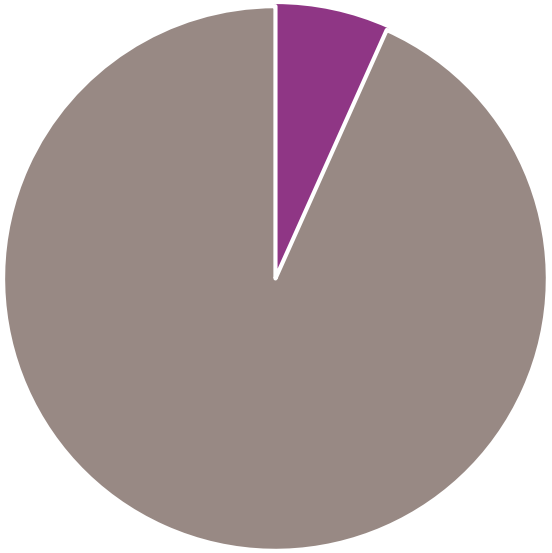
1. Agarwal R, *et al. Eur Heart J* 2022;43:474–484; 2. Agarwal R, *et al*. *J Am Soc Nephrol* 2022;33:225–237;
3. Bakris GL, *et al. N Engl J Med* 2020;383:2219–2229; Supplementary appendix

FIDELITY

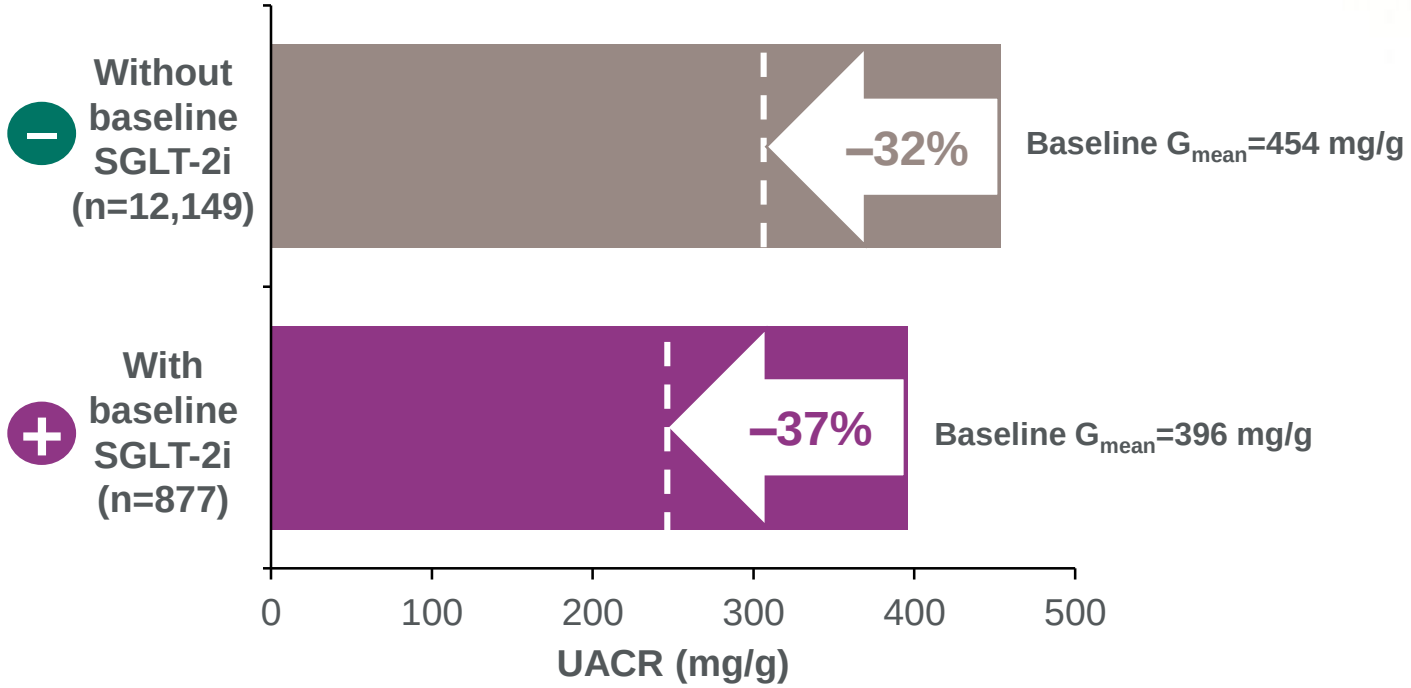
In the FIDELITY SGLT-2i subgroup analysis, finerenone improved UACR in patients with CKD and T2D irrespective of baseline SGLT-2i use[1,2]

SGLT-2i use at baseline

877 (6.7%) patients on an SGLT-2i



Reduction in UACR (%) with finerenone vs placebo



Full analysis set. Mixed model with factors for treatment group, region, eGFR category at screening, type of albuminuria at screening, CV disease history; time, treatment*time, log-transformed baseline value nested within type of albuminuria at screening, and log-transformed baseline value*time as covariates

1. Rossing P, et al Kidney Int Rep 2021; doi.org/10.1016/j.ekir.2021.10.008; 2. Rossing P, *et al. ADA* 2021; poster 14-LB

Finerenone initiators in US clinical practice: A FOUNTAIN report

To describe patient characteristics and **assess the early safety and effectiveness** of finerenone used for the treatment of patients with CKD and T2D **in routine clinical practice**

Data sources	US database*
Study period	July 2021–August 2023
Patients	Adults with CKD[#] and T2D[‡] who **initiated treatment** with finerenone **within the study period**
Design[1,2]	Observational, **retrospective**, longitudinal single-arm cohort study

Key outcomes

- Baseline characteristics including demographics, comorbidities and comedications
- **Incidence rates of hyperkalaemia**
- **Changes in UACR over time**

The data shown here should not be compared with RCT data due to differences in study designs and patient populations

*OM1 RWDC; [#]defined as either having one diagnostic code for CKD stage 2–4 or unspecified stage, two eGFR measurements of 15–60 ml/min/1.73 m^2 separated by at least 90 days, or two UACR measurements >30 mg/g separated by at least 90 days; [‡]T2D was defined as having a diagnostic code for T2D

RWDC, Real-World Data Cloud™

1. Bayer. https://clinicaltrials.gov/study/NCT05703880 [accessed 5 Apr 2024]; 2. Kovesdy C, *et al*. ERA 2024; poster (abstract 2022)

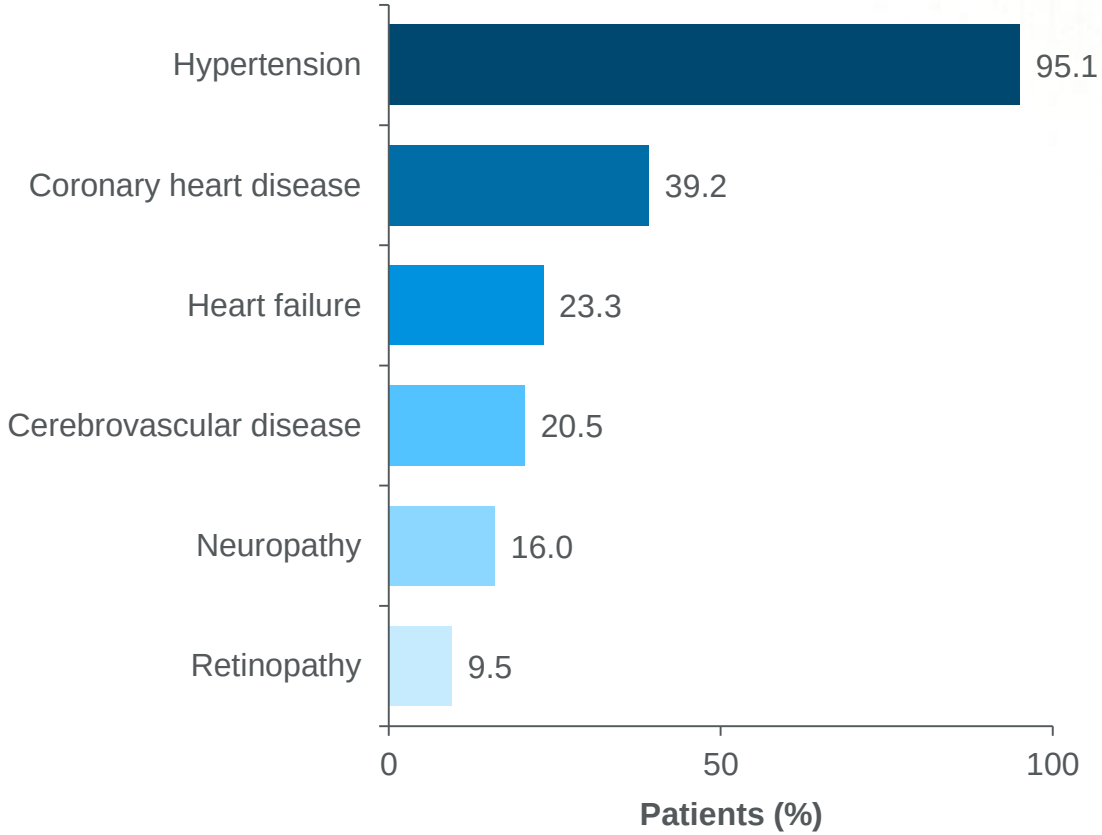
FOUNTAIN
FinerenOne mUlti-database Network for daTA generatIoN

Comorbidities: Nearly all patients with CKD and T2D initiating finerenone in US clinical practice had hypertension

Baseline demographics

Characteristic	Finerenone (N=15,948)
Female, n (%)	7036 (44.1)
Age, mean years ± SD	70.3 (10.1)
Race/Ethnic group*, n (%)	
White	3874 (69.5)
Black/African American	872 (15.6)
Asian	465 (8.3)
Other	365 (6.5)
Calendar year of index, n (%)	
2021 (July–December)	1061 (6.7)
2022	7888 (49.5)
2023 (January–August)	6999 (43.9)

Baseline comorbidities (N=15,948)

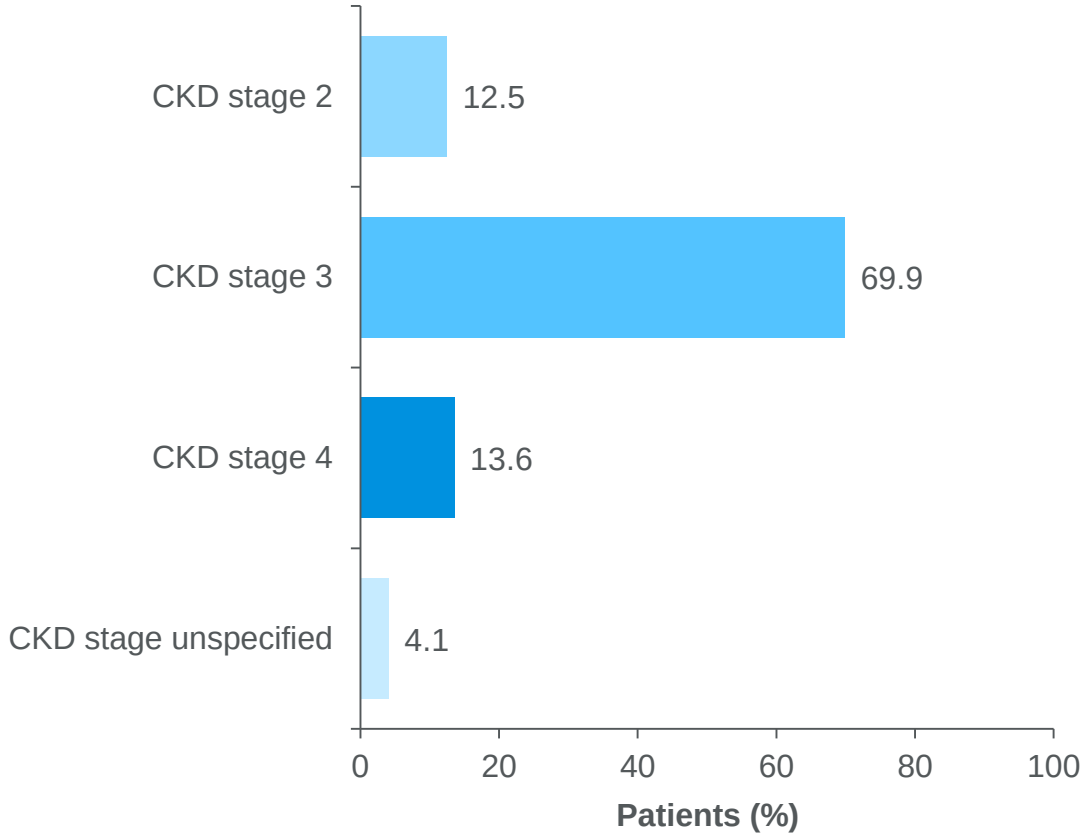


*Patients with unknown or missing information were removed from this analysis

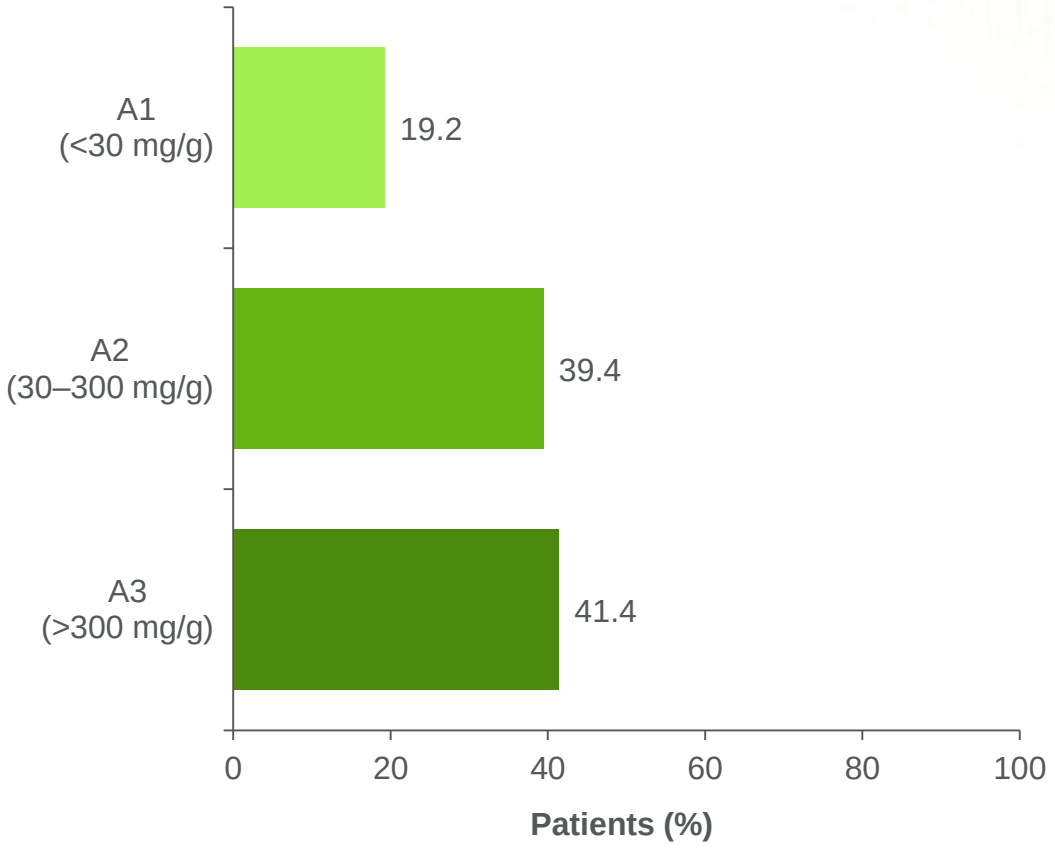
Kovesdy C, *et al*. ERA 2024; poster (abstract 2022)

Comorbidities: In clinical practice, finerenone is predominantly used in CKD stage 3 and albuminuria categories A2 and A3

CKD stage (n=14,566)*



Albuminuria categories (n=3758)#



Patients with missing information were removed from this analysis
*Last available CKD diagnosis code or eGFR measurement prior to finerenone initiation; #last available UACR measurement prior to finerenone initiation
Kovesdy C, *et al*. ERA 2024; poster (abstract 2022)

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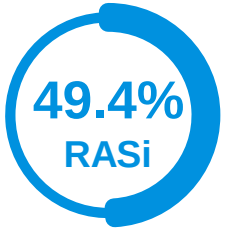
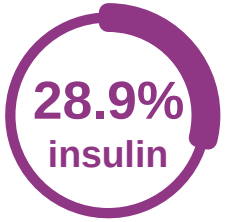
Comedication: Finerenone is initiated in combination with other treatment options, including RASi, SGLT-2i,GLP-1RA and Insulin



patients initiating finerenone used a **RASi** during the baseline period

patients initiating finerenone used an **SGLT-2i** during the baseline period

patients initiating finerenone used a **GLP-1RA** during the baseline period



patients initiating finerenone used **insulin** during the baseline period

Baseline comedications in the 180 days before and including the index date (N=15,948)
RASi, renin–angiotensin system inhibitor
Kovesdy C, *et al*. ERA 2024; poster (abstract 2022)

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Up-titration to the target dose* of finerenone appears to be suboptimal in clinical practice[1]

Prescription at index (N=15,948)

patients are prescribed **10 mg**

patients are prescribed **20 mg**

After 12 months (n=2212)

patients are prescribed **10 mg**

patients are prescribed **20 mg**

*The recommended target dose of finerenone is 20 mg once daily, and this is also the recommended starting dose for patients with eGFR ≥60 ml/min/1.73 m^2. For patients with eGFR ≥25–<60 ml/min/1.73 m^2, the recommended starting dose is 10 mg once daily[2]

1. Kovesdy C, *et al*. ERA 2024; poster (abstract 2022); 2. Bayer AG. KERENDIA® (finerenone) Prescribing Information. 2021. https://labeling.bayerhealthcare.com/html/products/pi/Kerendia_PI.pdf [accessed 8 Apr 2024].

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In clinical practice, the observed incidence of hyperkalaemia after finerenone initiation appeared low

1.96
IR*

Among 15,948 initiators of finerenone, **1.32%** (n=210) had **hyperkalaemia**[#] during follow-up

0.07
IR*

Among 15,948 initiators of finerenone, **7** patients (0.04%) had **hyperkalaemia associated with a hospitalisation**[‡] during follow-up

***E**vents per 100 PY; [#]hyperkalaemia is defined as i) a hospitalisation or emergency department visit with a diagnosis code for hyperkalaemia, or ii) at least 2 serum [K^+] laboratory values >5.5 mmol/l, as follows: two inpatient serum [K^+] values >5.5 mmol/l on the inpatient record within 7 days or one serum [K^+] value >5.5 mmol/l in a non-hospitalised setting and another value in any setting within 7 days, or iii) a serum [K^+] laboratory value >5.5 mmol/l in any setting and the occurrence of an inpatient or outpatient diagnosis code for hyperkalaemia within 3 days; [‡]hyperkalaemia associated with a hospitalisation: a medical diagnosis code or increased serum [K^+] (>5.5 mmol/l) 7 days prior to or after a hospitalisation record
IR, incidence rate; PY, patient-years
Kovesdy C, *et al*. ERA 2024; poster (abstract 2022)

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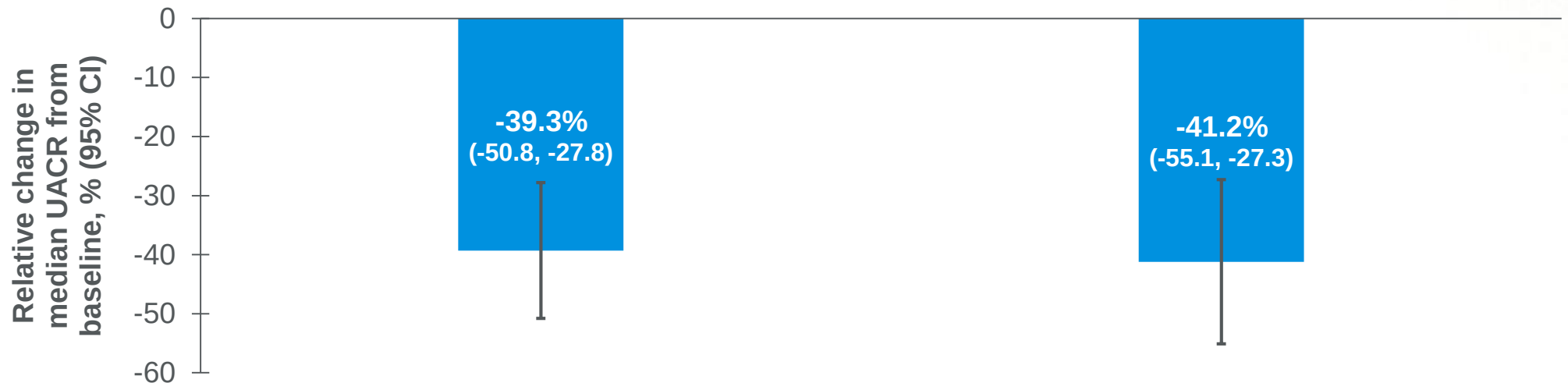
Finerenone was associated with a 39% relative reduction in UACR after 4 months, which was sustained at 12 months (41%)

Relative change in median UACR from baseline



	Baseline	Month 4	Month 12
Number of patients	2137	1617	900
UACR, mg/g, median (Q1–Q3)	**211** (56–750)	**128** (31–551)	**124** (26–544)

Kovesdy C, *et al*. ERA 2024; poster (abstract 2022)

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FinerenOne mUlti-database Network for daTA generatIoN

International Guidelines

Key updates for the treatment of patients with CKD in T2D

CKD, chronic kidney disease; T2D, type 2 diabetes.

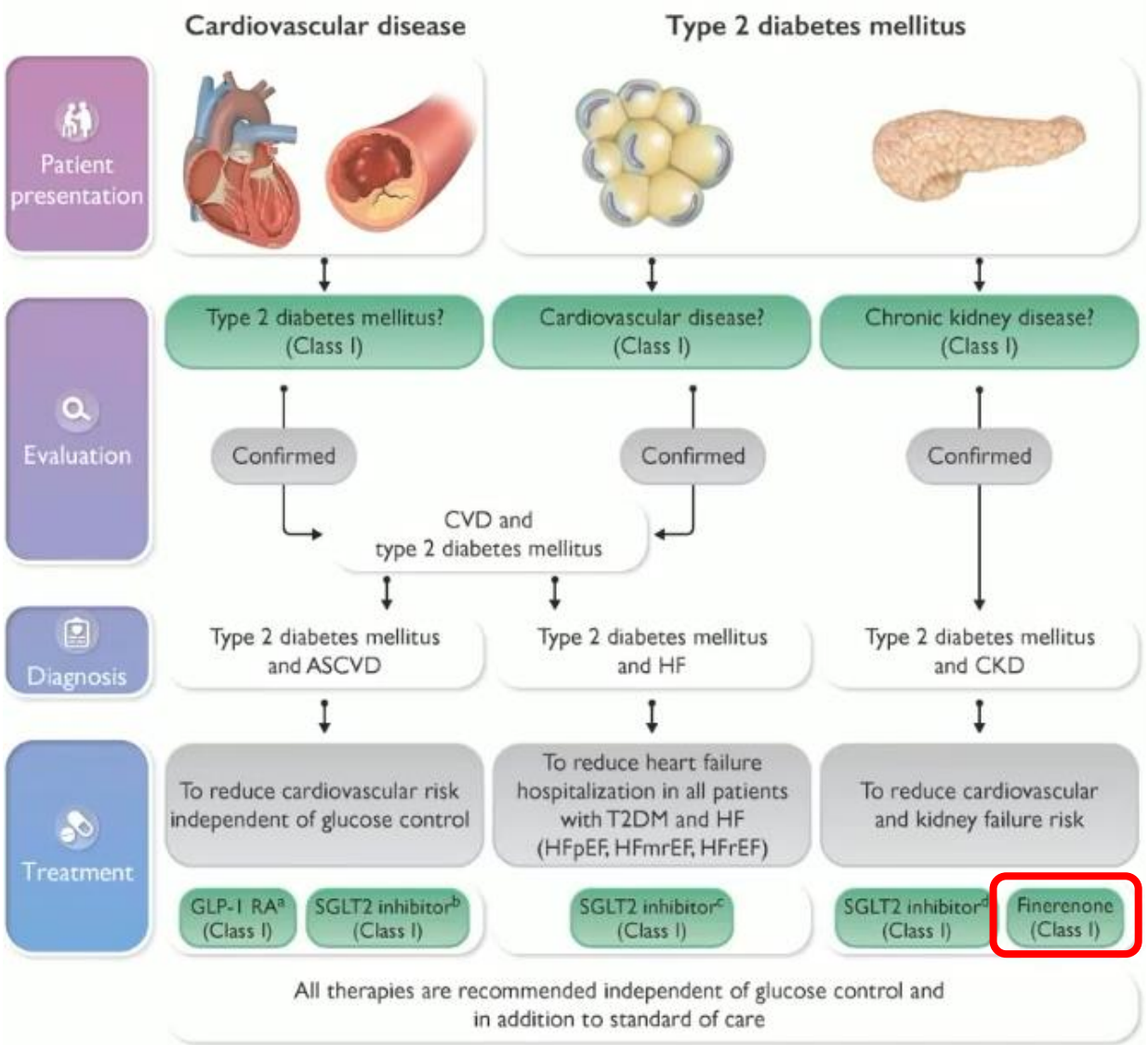
Finerenone is recommended to slow CKD progression and reduce CV events in patients with CKD and T2D

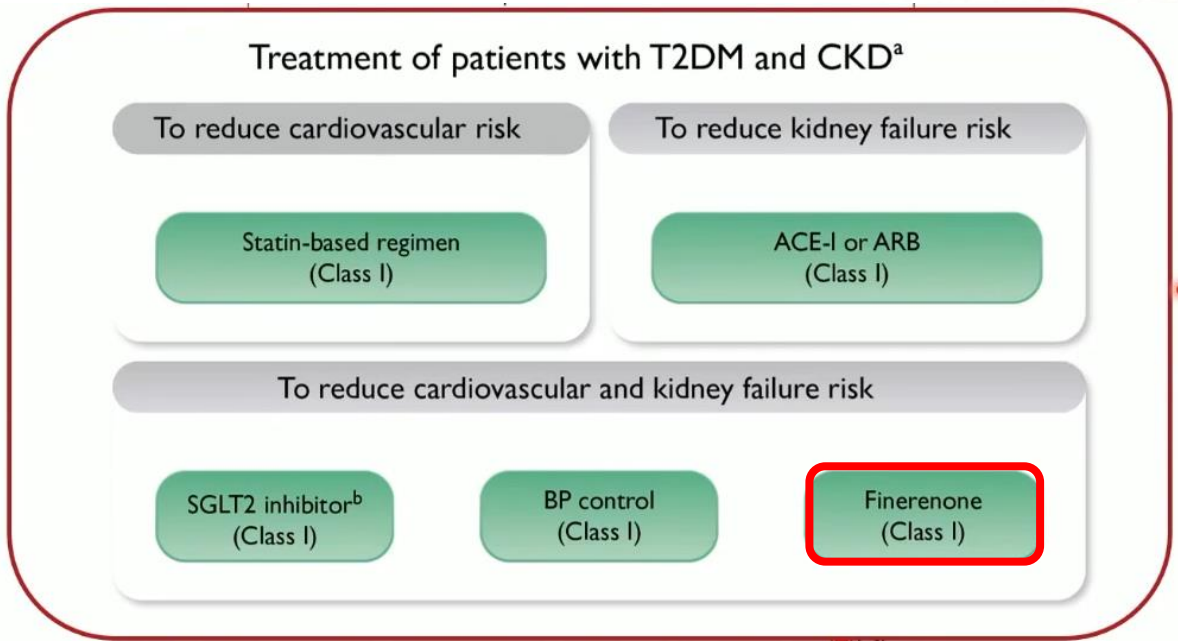
	AACE 2022[1]	KDIGO 2022[2]	ADA 2023[3]	ESH 2023[4]
ACEi/ ARB	**Recommended** for persons with albuminuria (T1D or T2D) **to reduce risk of DKD or CKD in DM progression**	Recommended in patients with **diabetes**, **hypertension** and **albuminuria,** and these medications should be titrated to **the highest approved dose that is tolerated**	Strongly recommended in patients with **UACR ≥300 mg/g** and/or **eGFR <60 ml/min/1.73 m²*** Recommended in patients with **UACR 30–299 mg/g***	**Antihypertensive treatment** in **T2D** is recommended for **macrovascular and microvascular protection** **Recommended** for patients with **CKD** and **UACR >30 mg/g**, titrated to **maximum tolerated dose**
nsMRA	Recommended for persons with T2D, an **eGFR ≥25 ml/min/1.73 m², ** normal serum [K⁺], and albuminuria (**UACR ≥30 mg/g**) despite a maximum tolerated dose of a RASi **IA**	A **nsMRA** with proven kidney and CV benefits is suggested in patients with **T2D, eGFR ≥25 ml/min/1.73 m², normal serum [K⁺]** and albuminuria (**≥30 mg/g**) levels despite maximum tolerated dose of RASi **2A**	Recommended for patients with CKD and albuminuria who are at **increased risk for CV events or CKD progression** to reduce CKD progression and CV events **A**	Finerenone is recommended for patients with **CKD** and **albuminuria** associated with **T2D** if eGFR ≥25 ml/min/1.73² and serum [K⁺] <5.0 mmol/l – the drug has a BP lowering effect **IA**
SGLT-2i	Recommended as foundational therapy for persons with T2D and CKD with **eGFR ≥20 ml/min/1.73m² ** to **reduce progression of CKD and risk of CV disease**	Recommended in **combination with metformin** in patients with **T2D**, **CKD** and an **eGFR ≥20 ml/min/1.73 m²**	Recommended for patients with an **eGFR ≥20 ml/min/1.73 m²** and **UACR ≥200 mg/g** to reduce risk of CKD progression and CV events[#]	Recommended to reduce **cardiac** and **kidney events** in **T2D** – they have a BP lowering effect Recommended for patients with **diabetic** and non-diabetic **nephropathies CKD** if eGFR is at least 20 or 25 ml/min/1.73² *
GLP-1RA	Recommended for persons with T2D and DKD or CKD in diabetes with **eGFR ≥15 ml/min/1.73 m²** for **glycaemic control** and to **reduce risk of ASCVD and progression of albuminuria**	A **long-acting GLP-1RA** is recommended in patients with **T2D** and **CKD** who have **not achieved individual glycaemic targets despite use of metformin/SGLT-2i** or are **unable to use those therapies**	Should be **considered** for **additional CV risk reduction**[‡]	–

*In non-pregnant patients with diabetes and hypertension; [#]for patients with T2D and diabetic kidney disease; [‡]in patients with T2D and diabetic kidney disease, with eGFR ≥25 ml/min/1.73 m²

1. Blonde L, *et al. Endocr Pract* 2022; 28:923–1049; 2. KDIGO. *Kidney Int* 2022;102:S1–S128; 3. American Diabetes Association. *Diabetes Care* 2023;46(Suppl 1):S191–S202;
4. Mancia G, *et al. J Hypertens 2023:* doi:10.1097/HJH.0000000000003480

Key updates in the 2023 ESC guidelines for the management of patients with CKD and T2D

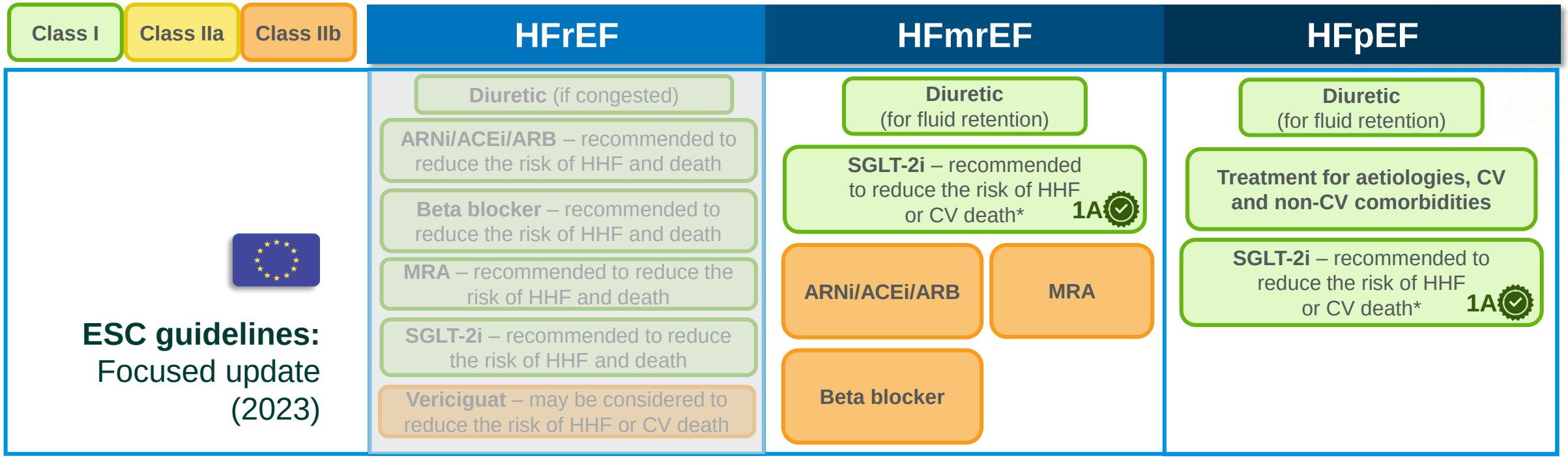




[a]A statinbased regimen reduces CV risk in CKD while ACE-I or ARBs reduce kidney failure risk; SGLT2 inhibitors, BP control, and finerenone reduce both CV risk and kidney failure risk. SGLT2 inhibitors, RAS inhibitors, and finerenone are particularly effective at reducing risk of kidney failure when albuminuria is present [e.g. UACR ≥3 mg/mmol (30 mg/g); stage A2 and A3]. [b]Canagliflozin, empagliflozin, or dapagliflozin

Marx N, *et al. Eur Heart J* 2023;00:1–98

2023 focused update of the 2021 ESC guidelines for the management of HF



Prevention of HF in CKD and T2D

Finerenone – in patients with CKD and T2D recommended to reduce the risk of HHF **1A**

SGLT-2i – in patients with CKD and T2D recommended to reduce the risk of HHF or CV death* **1A**

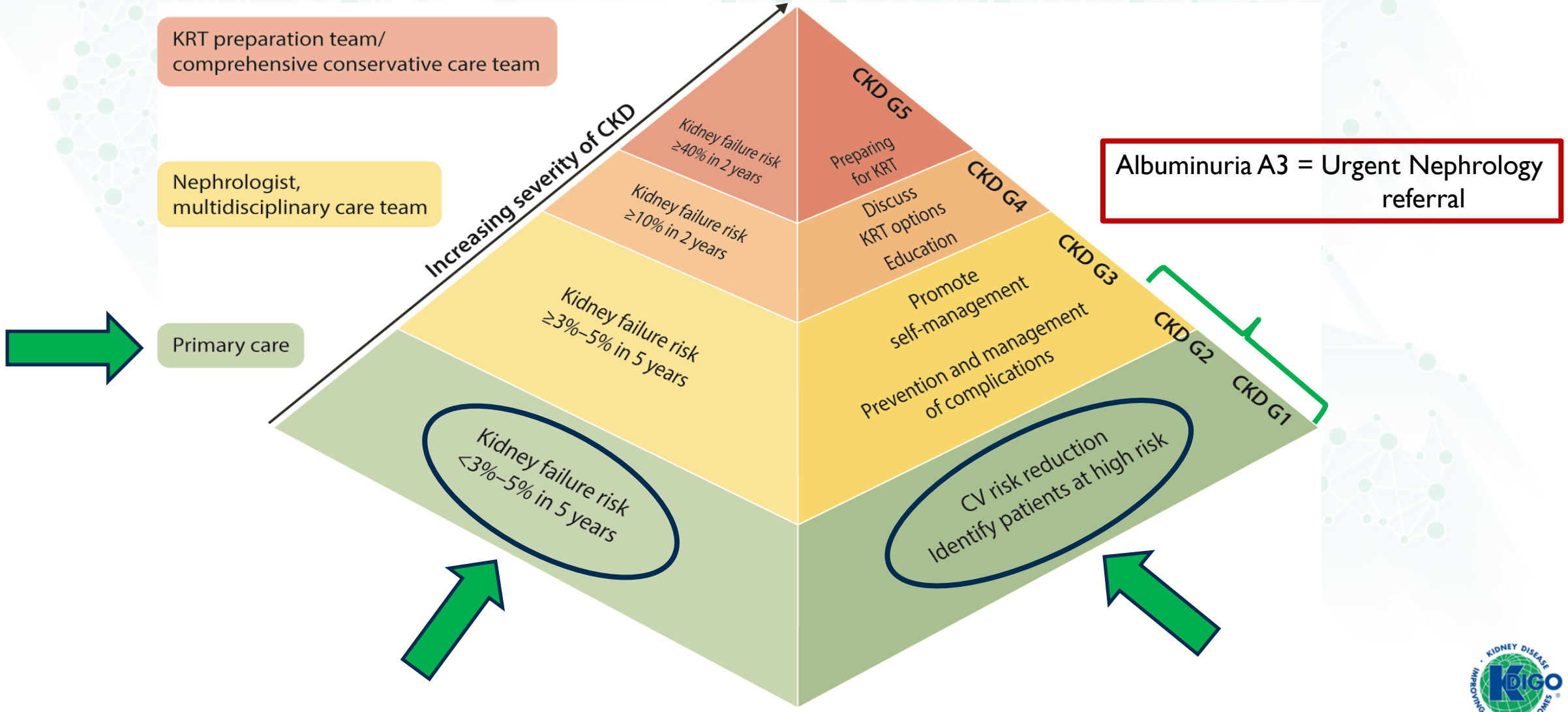
*Dapagliflozin and empagliflozin

ACEi, angiotensin-converting enzyme inhibitor; ARB, angiotensin receptor blocker; ARNi, angiotensin receptor–neprilysin inhibitor; CV, cardiovascular; HFrEF, heart failure with reduced ejection fraction; HHF, hospitalisation for heart failure; SGLT-2i, sodium-glucose co-transporter-2 inhibitor

McDonagh TA, *et al. Eur Heart J* 2023;00:1–13

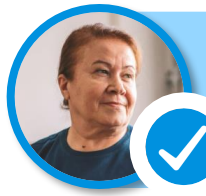
MANAGEMENT OF CKD

"PRIMARY CARE ROLE"



Albuminuria A3 = Urgent Nephrology referral

Prior to initiation of finerenone treatment, serum [K^+] and eGFR must be measured



If serum [K^+] ≤5.0 mmol/l*

Eman's serum [K^+]: 4.3 mmol/l

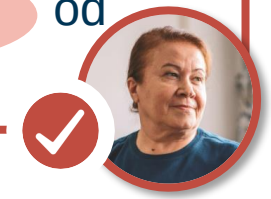
If eGFR ≥25 ml/min/1.73 m^2

Eman's eGFR: 54 ml/min/1.73 m^2

Eman can initiate treatment with finerenone

Starting dose: **10 mg** od

(**if eGFR is <60** ml/min/1.73 m^2)



Target and maximum recommended dose: **20 mg** od

(and starting dose **if eGFR ≥60** ml/min/1.73 m^2)

Treatment can be **maintained** in patients with an **eGFR ≥15 ml/min/1.73 $m^{2\#}$**

*If serum [K^+] is >4.8–5.0, initiation of finerenone may be considered with additional serum potassium monitoring within the first 4 weeks based on patient characteristics and serum [K^+]; #if eGFR falls below 15 ml/min/1.73 m^2, treatment should be discontinued

Bayer AG. KERENDIA® (finerenone) Summary of Product Characteristics. 2023. https://www.ema.europa.eu/documents/product-information/kerendia-epar-product-information_en.pdf [accessed 1 Mar 2023]

After treatment initiation, eGFR and serum [K^+] should be measured periodically and the dose of finerenone should be adjusted accordingly

eGFR after 1 month	Current serum [K^+] (mmol/l)	Finerenone dose adjustment
eGFR decline <30%	≤4.8	10 → 20 ← 20 Increase to* or maintain **20 mg od**
	>4.8–5.5	**Maintain current dose**
	>5.5	**Withhold treatment** Restart at 10 mg od when serum [K^+] is ≤5.0 mmol/l

If at 1 month, Eman's serum [K^+] remains below 4.8 mmol/l and her eGFR has not declined by >30%, her dose of finerenone can be increased to 20 mg od

If Eman's serum [K^+] increases to 5.0 mmol/l, her dose of finerenone should be maintained at 20 mg od

At follow-up, if Eman's serum [K^+] has increased to 5.6 mmol/l, treatment with finerenone should be withheld

Serum [K^+] and eGFR should be remeasured 4 weeks after initiation or after restarting finerenone treatment, or after an increase in dose#

*Maintain 10 mg od if eGFR has decreased by >30% compared with the previous measurement; #Thereafter, serum [K^+] should be remeasured periodically and as needed based on patient characteristics and serum [K^+]

Bayer AG. KERENDIA® (finerenone) Summary of Product Characteristics. 2023. https://www.ema.europa.eu/documents/product-information/kerendia-epar-product-information_en.pdf [accessed 1 Mar 2023]

Thank you!

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