ABCD –Renal Association Clinical Guidelines Update

Dr Peter Winocour MD FRCP

Clinical Director ENHIDE and current ABCD—RA CSG lead

Speaker disclosures

Dr Peter H Winocour has received honoraria for delivering educational meetings and/or attending advisory boards for AstraZeneca, Boehringer Ingelheim,Eli Lilly, MSD, Sanofi, Napp, Novo Nordisk and Vifor Pharmaceuticals

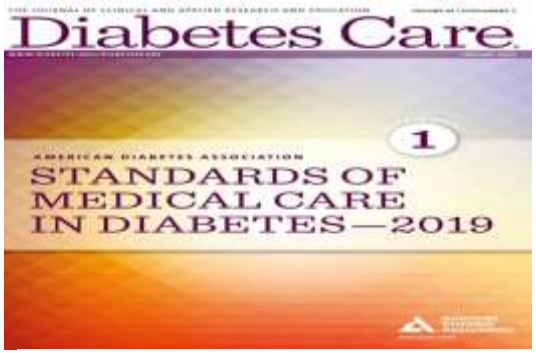
? Brenda from Bristol's view on Diabetes Guidelines

International

EASD-ADA
ESC-EASD
KDIGO
ACC-AHA
ERA-EDTA

National

NICE
PCDS
TREND
SIGN



era edta
LEADING EUROPEAN NEPHROLOGY

Diabetes and CKD are both Common conditions in UK

Chronic Kidney Disease (CKD)

- 4.3 % adult prevalence
- Modelling suggests 7.6% prevalence

Diabetes

- 6.8 % adult prevalence
- Modelling suggests > 8% prevalence
- Projected 10% by 2025

Ageing and Obesity amplify DM and CKD so often co-exist

Obesity prevalence 40-60% amongst DM CKD in the NDA

Amongst individuals with DM aged 80+, over 66% have CKD

Increasing DM prevalence = Increased proportion with CKD

DM is main diagnosis in patients undergoing RRT in the UK

NICE

GFR and ACR categories and risk of adverse outcomes			ACR categories (mg/mmol), description and range		
			<3 Normal to mildly increased	3–30 Moderately increased	>30 Severely increased
			A1	A2	A3
GFR categories (mL/min/1.73 m²), description and range	≥90 Normal and high	G1			
	60–89 Mild reduction related to normal range for a young adult	G2			
	45–59 Mild–moderate reduction	G3a			
	30–44 Moderate–severe reduction	G3b			
	15–29 Severe reduction	G4			
	<15 Kidney failure	G5			

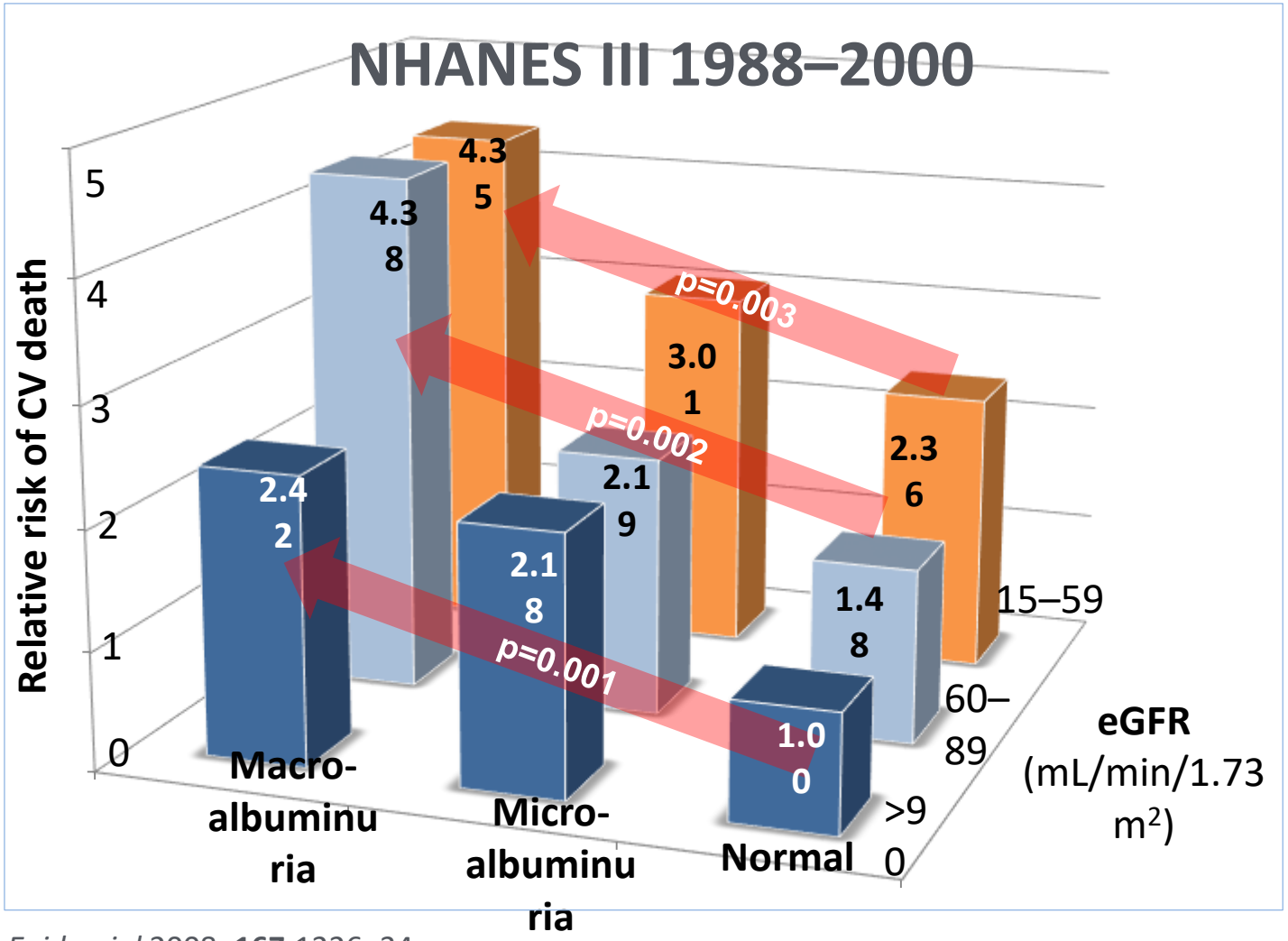
Increasing risk

Increasing risk

ACR=albumin:creatinine ratio; CKD=chronic kidney disease; eGFR=estimated glomerular filtration rate; GFR=glomerular filtration rate. Adapted from: NICE (2014) *Chronic kidney disease: early identification and management of chronic kidney disease in adults in primary and secondary care (CG182)*. Available at: http://www.nice.org.uk/cg182 (accessed: 29.09.2014)

CV mortality increases as renal function declines

Adjusted for age, sex, race/ethnicity, previous CV disease, blood pressure category, use of antihypertensive medication, diabetes mellitus, smoking status, body mass index, physical activity level, low density lipoprotein and high density lipoprotein cholesterol, log triglyceride level, and C-reactive protein category



Astor BC, et al. *Am J Epidemiol* 2008; **167**:1226–34.

A diabetologist's perspective of CKD

CKD is an exemplar of multimorbidity

Images courtesy of Dr. Winocour

Managing Complex DM takes Time

DIABETICMedicine

DOI: 10.1111/dme.13564

Review Article

Diabetes and chronic kidney disease: an increasingly common multi-morbid disease in need of a paradigm shift in care

P. H. Winocour

East and North Herts Institute of Diabetes and Endocrinology (ENHIDE), Howlands Clinic, QEII Hospital, Welwyn Garden City, UK

Accepted 12 December 2017

Abstract

Diabetes is considered the commonest cause of end-stage renal disease. The increasing incidence of obesity and an ageing population, together, will lead to a greater number of people with diabetes associated with chronic kidney disease that could either be secondary to diabetic nephropathy or of different aetiology. Ageing and obesity influence approaches to the management of diabetes and accurate assessment of kidney disease. People with diabetes and chronic kidney disease consume a disproportionate component of expenditure on medical care. Guidelines on managing diabetes and kidney disease do not recognize the complex multi-morbid nature of the process. In addition to managing glycaemia and monitoring renal function, the assessment and management of cardiovascular disease risk factors and cardiovascular disease itself need to be factored into care. People with diabetes and diabetic nephropathy are more vulnerable to retinopathy and foot complications requiring coordinated care. People with diabetes and chronic kidney disease are more prone to anaemia and metabolic bone disease than those without diabetes at similar stages of chronic kidney disease, further increasing their vulnerability to acute complications from cardiovascular disease, foot emergencies and fractures. People with diabetes and chronic kidney disease are also more prone to hospitalization with infections and acute kidney injury. Given the 30–40% prevalence of kidney disease amongst people with diabetes, potentially >2% of the adult population would fit into this category, making it vital that new surveillance models of supported care are provided for those living with diabetes and kidney disease and for primary care teams who manage the vast majority of such people.

Diabet. Med. 35, 300–305 (2018)

15 Pillars of Care

- **Hyperglycaemia**
- **Hypo risk and DM Rx**
- **Obesity**
- **HbA1c** and **Anaemia**

- **CVD - Risk factors**
- **Changing GFR and ACR**

- Sick Day Rules - IP risk
- Feet and Retinal comps
- Metabolic Bone Health
- Smoking Cessation

ABCD Renal Association CSG Guidelines

- Diabetes and Kidney disease (DKD) specific
- Covering the range of CKD in T1 and T2 DM
- Evidence based grading
- Designed for practical use with audit standards
- Updated 2019-2020 in light of recent advances since 2016-current

ABCD- RA Lipid Guideline 2017

GUIDELINES

Management of lipids in adults with diabetes mellitus and nephropathy and/or chronic kidney disease: summary of joint guidance from the Association of British Clinical Diabetologists (ABCD) and the Renal Association (RA)

PATRICK B MARK,[1] PETER WINOCOUR,[2] CAROLINE DAY[3]

Abstract

In diabetes, nephropathy and chronic kidney disease are independent and co-existent harbingers of end stage renal failure as well as increased morbidity and premature mortality due to cardiovascular disease. Whilst lipid management is beneficial in reducing cardiovascular risk in populations with and without diabetes, there is a paucity of national guidance on the utility of this approach in diabetes patients with renal disease. This joint guidance collates the best available evidence and expert opinion (in the absence of clear evidence) to provide 28 guidelines to empower clinicians to deliver optimal lipid management according to renal status in these patients at high cardiovascular risk. The abridged guideline herein provides a practical overview of the full document. The full guidance with detailed rationale is available online.

Br J Diabetes 2017;**17**:xx–xx

Box 1 Differentiating renal disease in diabetes

Nephropathy (DN)	Damage to glomerular capillaries in patients with diabetes mellitus resulting in albuminuria in the absence of other causes of albuminuria
Diabetes mellitus chronic kidney disease (DM CKD)	Presence of structural or functional renal abnormalities, present for >3 months in patients with diabetes mellitus

recommendations for UK diabetologists, nephrologists, general practitioners and other members of the multidisciplinary team involved in the care of adults with diabetes who also have nephropathy (DN) and/or chronic kidney disease (DM CKD) (Box 1).

The abridged guidelines herein provide a practical overview of the full document which should be consulted when designing treat-

Recommendations for lipid-lowering in DM- 2017

- All aged 40+ with normal renal function -? Not new LADA - well controlled DM with high HDLC

- All aged > 30 with persistent raised ACR
- Aged T1 aged 18-30 with persistent albuminuria, especially with other CVD risk factors

- Progressive early CKD (eGFR fall > 5 ml/min/yr)
- All with CKD3 or worse regardless of age

- Continue statins if dialysis commenced
- Commence statins in those starting dialysis if younger patients
- Commence-continue statins after renal Tx

- Fenofibrate only CKD3a for residual dyslipidaemia –microvascular disease

Management of Lipids in adults with Diabetic Kidney Disease – 2019-20 updates

- Recognition of value of lower lipid targets in DM CVD – IMPROVE-IT , ODYSSEY , FOURIER
- Non fasting full lipid profile – repeat fasting if HTg > 4.5 mmol/mol – focus on non HDL C
- Target non HDLC < 2.5 (LDL 2) mmol/l
- Atorvastatin 20 mg start and 40-80 mg option
- Stop criteria for frail elderly-end of life care
- PSCK inhibitors (alirocumab and evolocumab) in DM meeting NICE criteria (LDLC > 5 no CVD , or > 3.5 mmol/l CVD despite maximal tolerated statin therapy)

(Zac Varghese, Mark , Winocour et al)

PSCKI in DM

- LDL lowering 50-60% in FOURIER and ODYSSEY
- Equivalent benefits seen in those with eGFR > or < 60 ml/min

Association of British Clinical Diabetologists (ABCD) and Renal Association clinical guidelines: Hypertension management and renin-angiotensin-aldosterone system blockade in patients with diabetes, nephropathy and/or chronic kidney disease

Summary of recommendations

INDRANIL DASGUPTA,[1] DEBASISH BANERJEE,[2] TAHSEEN A CHOWDHURY,[3] PARIJAT DE,[4] MONA WAHBA,[5] STEPHEN BAIN,[6] ANDREW FRANKEL,[7] DAMIAN FOGARTY,[8] ANA POKRAJAC,[9] PETER WINOCOUR[10]

Abstract

Diabetes is the commonest cause of end-stage renal disease; over a quarter of patients who are on dialysis in the UK have diabetes. Diabetic kidney disease is associated with high cardiovascular morbidity and mortality. Hypertension is a modifiable risk factor for cardiovascular complications and progression of diabetic kidney disease.

The Association of British Clinical Diabetologists and the Renal Association have jointly developed guidelines for management of hypertension through different stages of diabetic kidney disease. Here we present a summary of clinical practice recommendations, audit standards, and areas that require further research.

Br J Diabetes 2017;**17**:160-164

Key words: diabetes, blood pressure, albuminuria, chronic kidney disease, dialysis

[1] Heartlands Hospital, Birmingham
[2] St George's Hospital, London
[3] Royal London Hospital, London
[4] City Hospital, Birmingham
[5] St Heller Hospital, Carshalton
[6] Swansea University, Swansea
[7] Imperial College Healthcare NHS Trust, London
[8] Belfast Health and Social Care Trust, Belfast
[9] West Hertfordshire Hospitals
[10] ENHIDE, QE2 Hospital, Welwyn Garden City

Address for correspondence: Dr Indranil Dasgupta
Consultant Nephrologist, Heartlands Hospital, Bordesley Green East, Birmingham, B9 5SS, UK
Telephone: +44 (0)121 4242158
E-mail: indranil.dasgupta@heartofengland.nhs.uk

https://doi.org/10.15277/bjd.2017.152

Evidence grades for the recommendations

The following evidence grading has been used to determine the strength of the recommendations, the suggested audit standards and the questions for areas that require future research.

1A – Strong recommendation: high-quality evidence
1B – Strong recommendation: moderate-quality evidence
1C – Strong recommendation: low-quality evidence
1D – Strong recommendation: very low-quality evidence
2A – Weak recommendation: high-quality evidence
2B – Weak recommendation: moderate-quality evidence
2C – Weak recommendation: low-quality evidence
2D – Weak recommendation: very low-quality evidence

Introduction

A significant percentage of patients with diabetes develop chronic kidney disease (CKD), and diabetes is also a leading cause of end-stage renal disease.[1] More than a quarter of patients who are on dialysis in the UK have diabetes.[2] Diabetic kidney disease is associated with high morbidity and mortality, which are predominantly related to cardiovascular complications and the progression of kidney disease requiring renal replacement therapy. Hypertension is a modifiable risk factor for cardiovascular complications and progression of CKD.[3]

The recommendations outlined here are for the variety of clinicians who manage patients with diabetic kidney disease, including GPs and specialists in diabetes, cardiology and nephrology. They are intended to harmonise practices of blood pressure monitoring, and pharmacological and non-pharmacological management of hypertension, which may vary considerably.

Recommendations – DM

- Lower BP targets in Younger T1 and Higher in Older T2
- 140/90 mm Hg Normoalb and 130/80 mm Hg Microalb
- ACEI therapy (or ARBs) irrespective of BP if Microalbuminuric - usual target upright BP ≤130/80
- No role for ACEI therapy for BP or renal protection if normotensive, normoalbuminuric, normal eGFR
- No current firm evidence to support dual RAAS blockade
- Salt intake < 5g if HBP
- Sick Day guidance
- At least 6 renal month checks if CKD-raised ACR

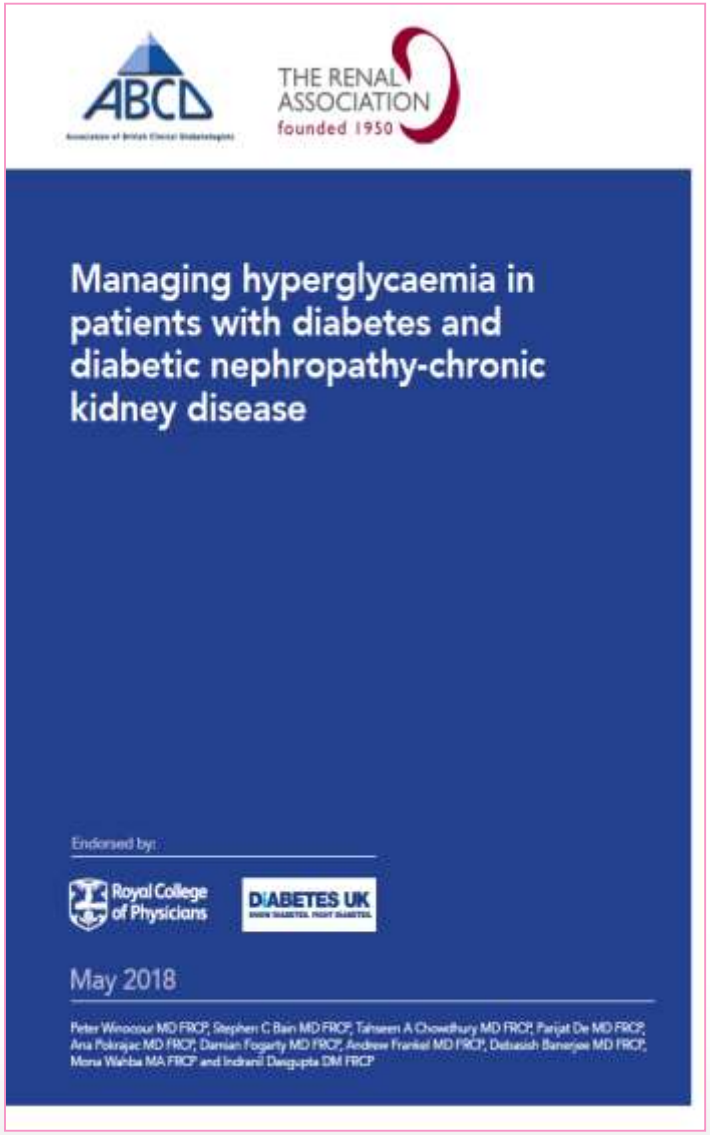
Management of HBP and RAS inhibition in adults with Diabetic Kidney Disease – 2019-20 updates

- Confirm HBP with access to home BPM
- Maintain current BP targets based on standing BP (ACCORD HBP- SPRINT v ESC guidelines)
- Acceptable drop in renal function with ACEI-ARB for BP-CCF of eGFR if <= 30% change
- Potential future role for fineronone in albuminuric DKD
- Potential future role for potassium binders esp in hyperkalaemic DKD G4-5
- Potential future potential of Atrasentan in albuminuric DKD
- (Dasgupta, Banerjee, Chowdhury et al)

Joint ABCD and Renal Association Guideline 2018 – Updating 2019-2020

Peter Winocour
Stephen C Bain
Tahseen A Chowdhury
Parijat De
Ana Pokrajac
Damian Fogarty
Andrew Frankel
Debasish Banerjee
Indranil Dasgupta

British Journal of Diabetes 2018;18:78-89



ABCD-RA Guideline - Glycaemic targets in the prevention and management of diabetic nephropathy and chronic kidney disease

	Glycaemic target	Note
Type 1 Diabetes	48 – 58 mmol/mol (6.5-7.5%)*	Younger patients within 10 years duration of diabetes and variable microalbuminuria-CKD stage 2
	58-62 mmol/mol (7.5-7.8%)	Majority of patients with proteinuria and/or CKD stages 3-4
	58-68 mmol/mol (7.5-8.5%)	**Patients with CKD stage 5 dialysis**
Type 2 Diabetes	48-58 mmol/mol (6.5-7.5%)*	Majority of patients who are aged <40 years, or CKD stages 1-2 (no basis to aim for <52 mmol/mol unless aged <40 years and CKD stages 1-2) + **Diet controlled any age
	52-58 mmol/mol (6.9-7.5%)	CKD stages 3-4 this target may be appropriate with a GLP-1-SGLT-2 inhibitor based treatment regime without insulin
	58-68 mmol/mol (7.5-8.5%)	**For those with CKD stages 3-4 proteinuria^ who are on an insulin or sulphonylurea based regime, and those with CKD stage 5 who are on dialysis**

***Confirmatory blood glucose or flash monitoring if concern of hypoglycaemia and/or anaemia**

**** Over 20% of DKD (esp elderly) solely diet controlled DM with HbA1c 42-48 and no hypoglycaemia**

^ Recognition of cardiorenal benefits with certain Rx beyond glycaemic lowering

Blood glucose lowering treatments DKD

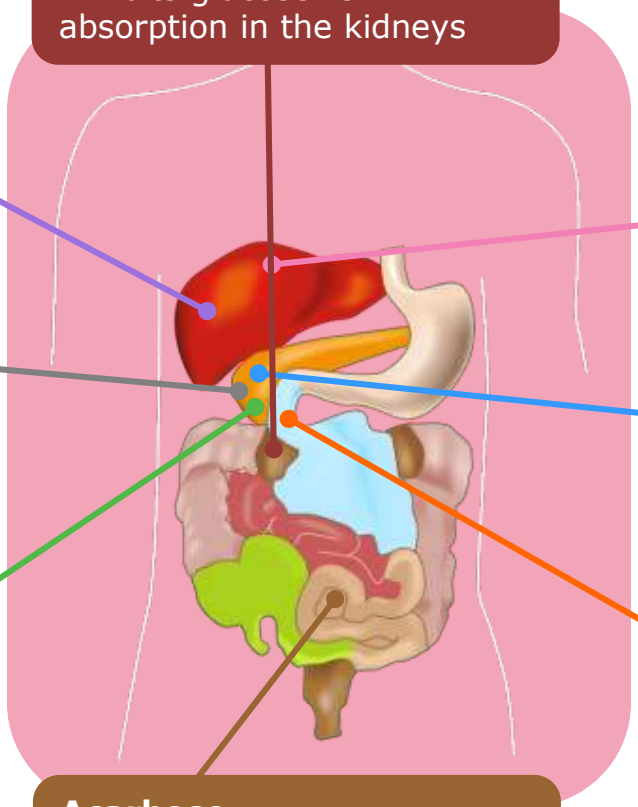
Diet- Weight Loss – Bariatric Procedures

SGLT2 inhibitor
Inhibits glucose re-absorption in the kidneys

Metformin
Decreases hepatic glucose production and increases glucose uptake

GLP-1 receptor agonist
Improves glucose-dependent insulin secretion, suppresses glucagon secretion, slows gastric emptying

Sulphonylureas and meglitinides
Increase insulin secretion from pancreatic β-cells



Acarbose
Delay intestinal carbohydrate absorption

Pioglitazone
Increases insulin sensitivity and glucose uptake in skeletal muscle. Decrease lipolysis in adipose tissue and decrease hepatic glucose output

Insulin
Increases glucose uptake in skeletal muscle

DPP-4 inhibitors
Prolong GLP-1 action, stimulate insulin secretion, suppress glucagon release

Glycaemic therapies in DKD – Cautions and Contra-Indications

- Moderate-Severe retinopathy – Pioglitazone (maculopathy) and Semaglutide
- Prior osteoporotic fractures- Pioglitazone
- Active foot disease with vascular comps or sepsis – Gliflozins
- Cardiac failure – Pioglitazone , Saxagliptin
- Active biliary disease - GLP1 analogues
- Documented DKA – Gliflozins
- Recurrent Urosepsis – Gliflozins

Illogical combination therapy in DKD

- Insulin and Sulphonylureas with CKD4-5
- SGLT2I and pioglitazone with active metabolic bone disease
- Insulin and pioglitazone with documented CCF-fluid retention
- GLP1 and gliptins

Sick Day Guidance -Diabetes Medicines to Stop Temporarily

- **Metformin**

- **SGLT2 inhibitors** : names ending in '**flozin'** e.g. canagliflozin , dapagliflozin,empagliflozin

- **GLP1 analogues** (injectable): names ending in '**tide'** e.g. liraglutide , dulaglutide, lixisenatide, semaglutide

- **ACE inhibitors**: names ending in **'pril'** e.g. ramipril, lisinopril, perindopril
- **ARBs** : names ending in **'sartan**' e.g. candesartan , losartan , irbesartan
- **NSAIDs** : anti-inflammatory pain killers e.g. ibuprofen , naproxen , diclofenac
- **Diuretics** : 'water pills' – e.g. frusemide , bendrofluomethazide , indapamide, bumetanide

Metformin

- If eGFR > 30 with dose reduction at eGFR < 45
- Misleading eGFR in Obesity
- Withdraw if radiographic contrast media
- Assess B12 deficiency esp. if anaemia and /or neuropathy
- May confer mortality benefit in DKD*

*Charytan et al , Diabetes Obese Metab 2019 : 21:1199-1208

ENHIDE
East and North Herts Institute of Diabetes and Endocrinology

Sulphonylureas-Glitinides

- Increased risk hypoglycaemia – CBGM vital
- Weight gain with higher dosage
- Submaximal dosage of gliclazide if eGFR < 45
- Glitinides shorter acting for erratic eating patterns with dose reduction if CKD4
- Extreme caution in combination with insulin
- No increased CVD in DKD in CARMELINA v gliptins

Insulin

- Common use in CKD , highest risk for hypoglycaemia and weight gain
- Expect reduction in dosage as eGFR falls – CBGM vital
- Analogue basal and ultra fast acting insulins where hypoglycaemia an issue
- No clear evidence of benefit with alternative basal insulin

Pioglitazone

- Avoid if heart failure , macular oedema
- Avoid with insulin in most CKD
- Discontinue-Avoid if hip fracture
- Extended analyses exclude bladder cancer risk
- Theoretical role throughout range of CKD
- Potential reduction in ACS and CVA events

Gliptins

- Role at all stages of CKD
- Potential increase in hospitalisation with heart failure with saxagliptin and alogliptin .
- Update - Linagliptin and Sitagliptin have clearer role and safety data in CKD and reduce progression of albuminuria but not hard renal end points

GLP1 analogues – new role in DKD

- Daily or weekly injectable incretin modulators
- Weight reduction
- Licensed in CKD 3-4*
- Evidence of atherothrombotic CVD protection in DKD when high CVD risk with daily liraglutide* and weekly albiglutide, semaglutide* and dulaglutide*.
- Renal benefits mainly confined to reduction in development and progression of albuminuria
- Dulaglutide - ?? Reduction in > 40% eGFR decline in sensitivity analysis in REWIND over 5.4 years

Gliflozins – A paradigm shift in DKD management

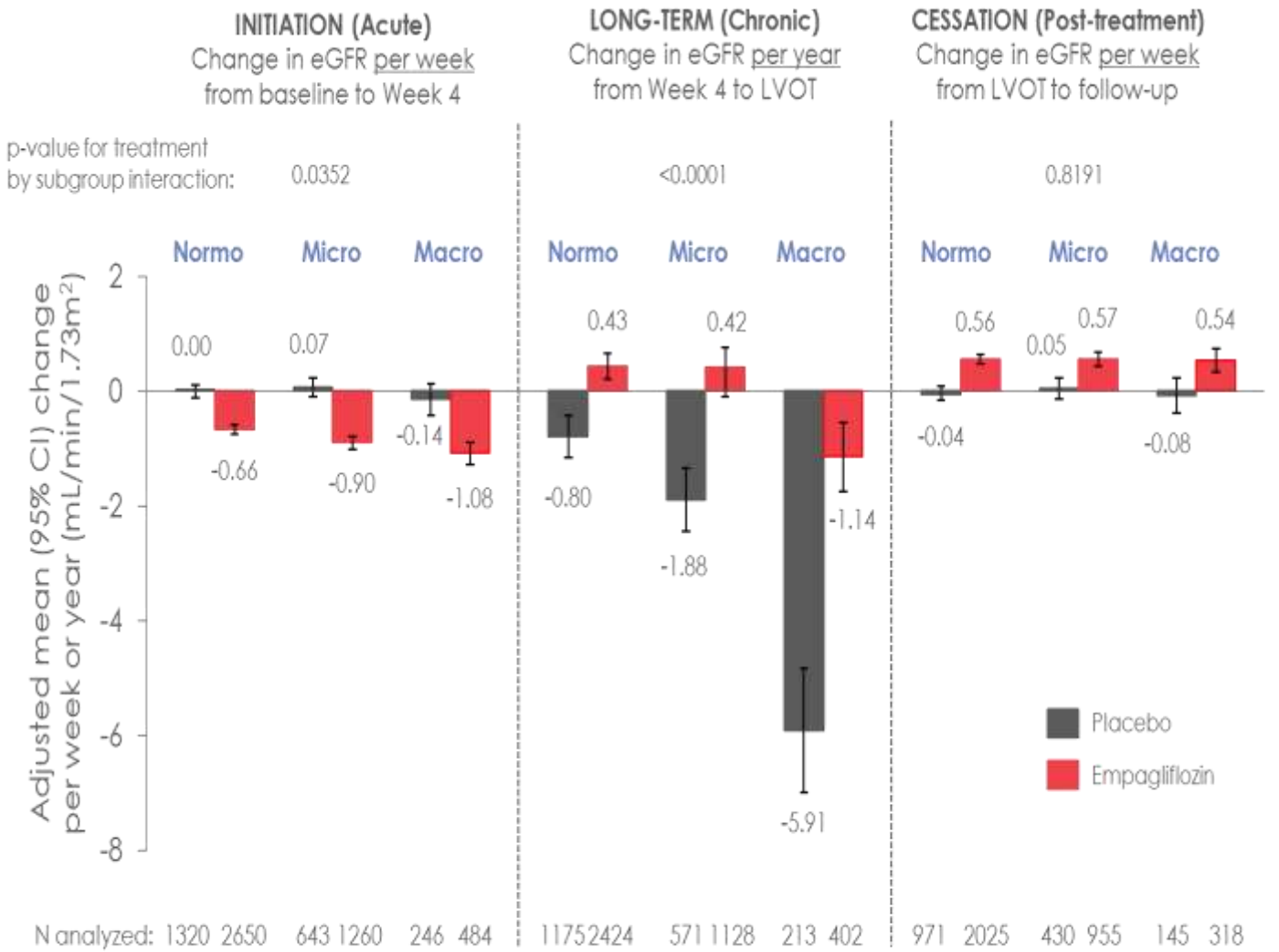
- **2018 guidelines :**
- Current UK license - eGFR > 60 , maintained > 45 ml/min
- Additional BP and weight reduction
- Trial evidence with canagliflozin, dapagliflozin and empagliflozin of improved cardio-renal outcomes esp. where CVD /eGFR < 90

Effects of Empagliflozin versus Placebo on Cardiorenal Outcomes in People with Type 2 Diabetes and Proteinuric Diabetic Kidney Disease: Insights from EMPA-REG OUTCOME®

Christoph Wanner, Bernard Zinman, Maximilian von Eynatten, Audrey Koitka-Weber, Isabella Zwiener, Sibylle J. Hauske

Poster presented at the International Society of Nephrology World Congress of Nephrology 2019 (ISN-WCN 2019), 12–15 April 2019, Melbourne, Australia (poster number SAT-305)

Slopes in subgroups: UACR



Source: Wanner C *et al. J Am Soc Nephrol* 2018;29:2755-2769

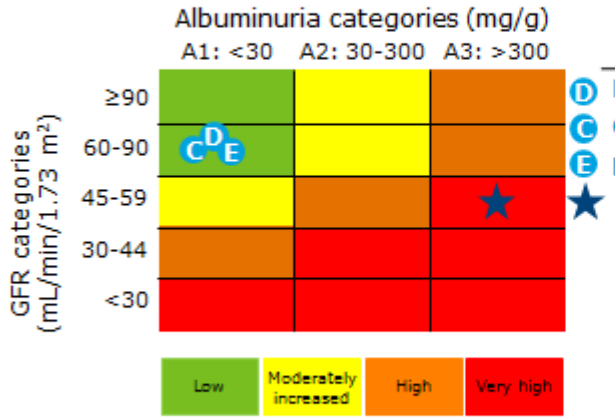
EMPA-REG OUTCOME®

CREDENCE

Canagliflozin and Renal Events in Diabetes with Established Nephropathy Clinical Evaluation

CREDENCE

Higher Renal Risk Population in CREDENCE



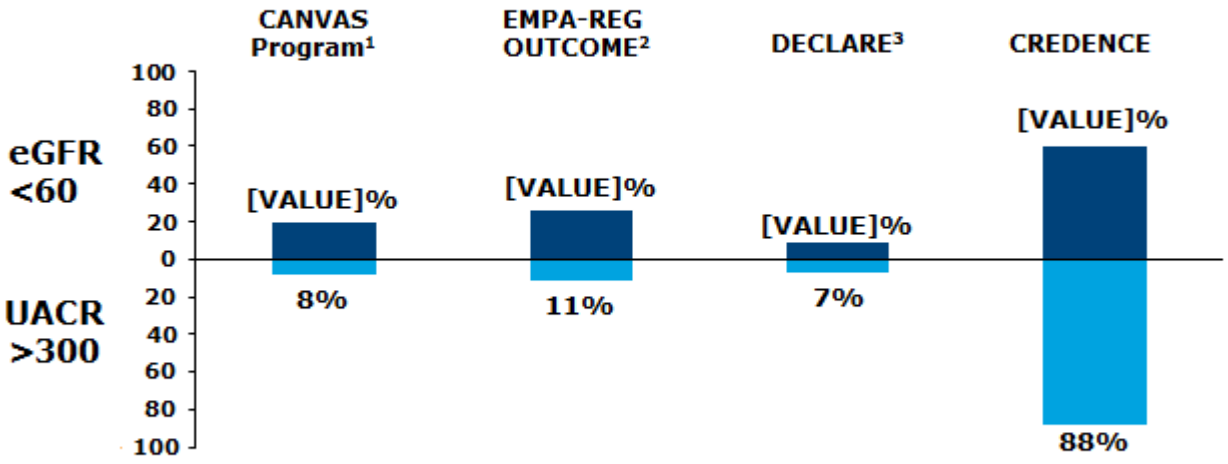
	Mean eGFR (mL/min/1.73 m²)	Median UACR (mg/g)
D DECLARE	85	13
C CANVAS Program	76	12
E EMPA-REG OUTCOME	74	18

Sustained RRT Events

DECLARE	Not reported
CANVAS Program	18
EMPA-REG OUTCOME	11

CREDENCE

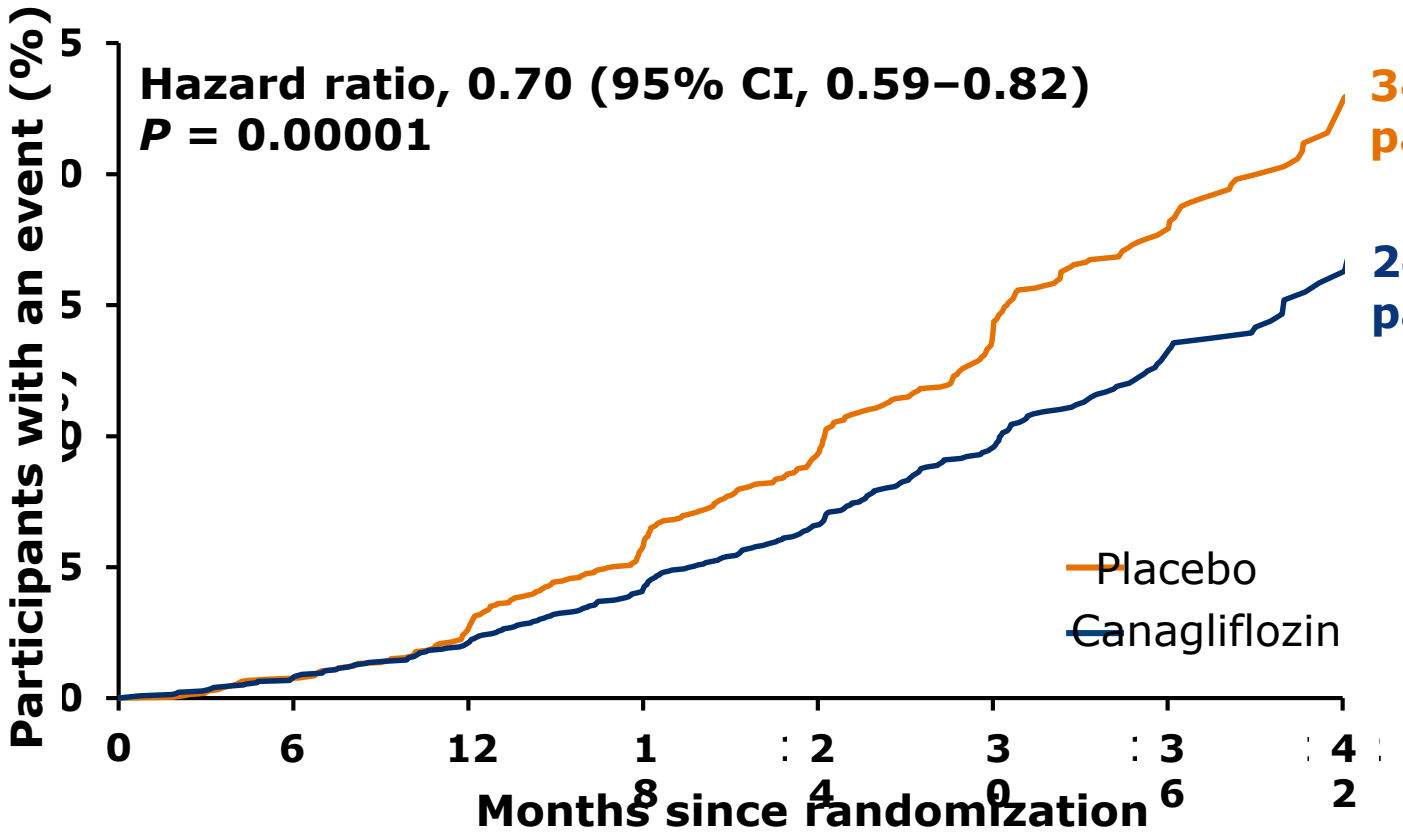
Lower Baseline Renal Function in CREDENCE Participants



1. Neal B, et al. *N Engl J Med*. 2017;377(7):644-657.
2. Zinman B, et al. *N Engl J Med*. 2015;373(22):2117-2128.
3. Rao I, et al. *Diabetes Obes Metab*. 2018;20(5):1102-1110.

CREDENCE

Primary Outcome: ESKD, Doubling of Serum Creatinine, or Renal or CV Death



No. at risk								
Placebo	2199	2178	2132	2047	1725	1129	621	170
Canagliflozin	2202	2181	2145	2081	1786	1211	646	196

CREDENCE

Renal Outcomes

The DECLARE TIMI-58 Trial

DECLARE baseline characteristics

DECLARE included patients with T2D and either:

Multiple (≥2) risk factors
- ≥55-year-old males and ≥60-year-old females plus
- at least one of the following: dyslipidemia, hypertension or current smoking

≥40 years old with established atherosclerotic CV disease:
- ischemic heart disease,
- peripheral artery disease, or
- cerebrovascular disease

Baseline Characteristics	Dapa (N=8,582)	Placebo (N=8,578)
Age, years, mean (SD)	63.9 (6.8)	64.0 (6.8)
BMI, kg/m^2, mean (SD)	32.1 (6.0)	32.0 (6.1)
HbA_{1c}, %, mean (SD)	8.3 (1.2)	8.3 (1.2)
eGFR, mean (SD)	85.4 (15.8)	85.1 (16.0)
Multiple risk factors, n (%)	10,186 (59.4%)	
Est CV disease, n (%)	6,974 (40.6%)	

The patients in the DECLARE[1,2] trial had better baseline renal function than the EMPA-REG OUTCOME[3] or CANVAS[4] trials*

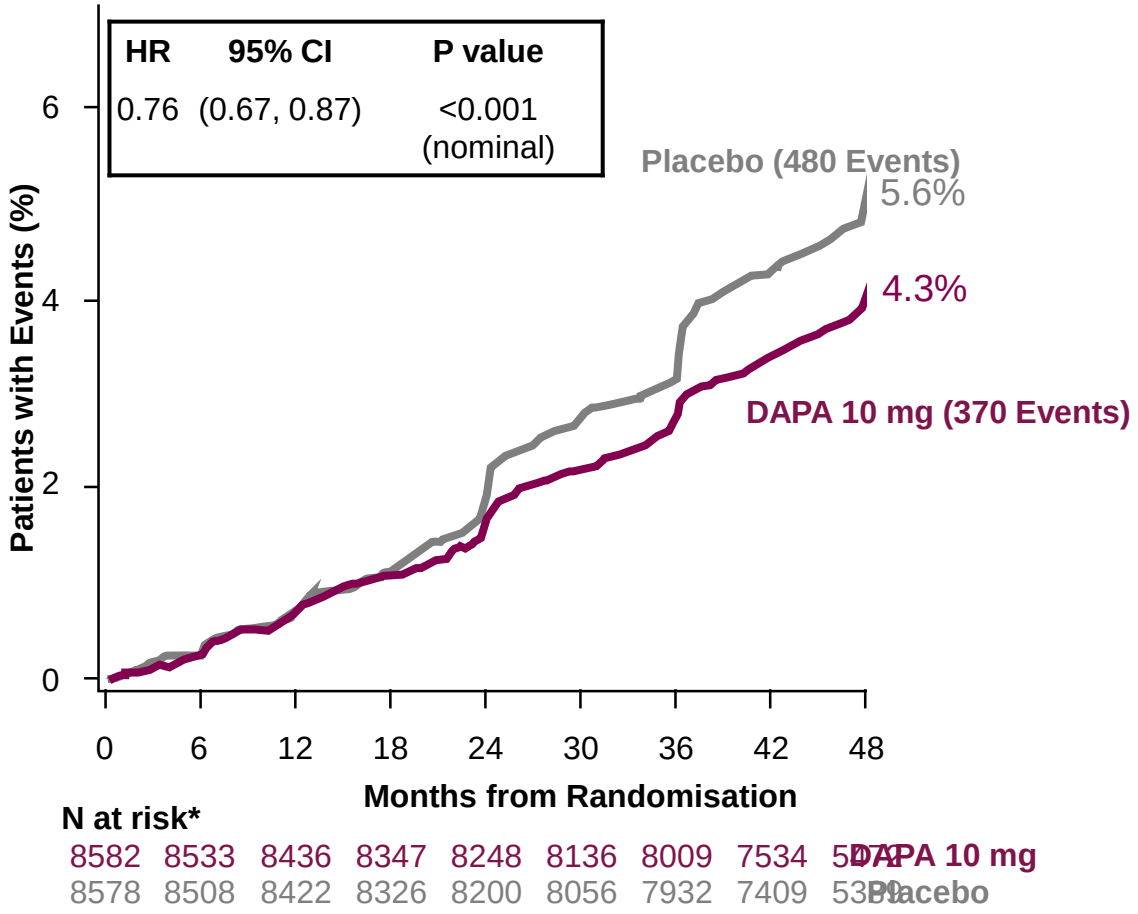
	DECLARE	CANVAS	EMPA-REG
eGFR, mean (mL/min/1.73 m^2)	85.2	76.5	74.1
Micro-/macro-albuminuria (%)	30.2	30.2	40.6

BMI, body mass index; CV, cardiovascular; CVD, cardiovascular disease; Dapa, dapagliflozin; eGFR, estimated glomerular filtration rate; HbA_{1c}, glycated hemoglobin; SD, standard deviation; T2D, type 2 diabetes.

1. Raz I, et al. *Diabetes Obes Metab.* 2018;20:1102-1110. 2. Wiviott SD et al. Online ahead of print. *N Engl J Med.* 2018 . 3. Zinman B, et al. *N Engl J Med.* 2015;373:2117-2128. 4. Neal B, et al. *N Engl J Med.* 2017;377:644-657.

* eGFR Calculations:
DECLARE CKD EPI
CANVAS MDRD
EMPA-REG MDRD

DECLARE Secondary Endpoint: Renal composite endpoint



Renal Composite †

†Renal composite endpoint defined as

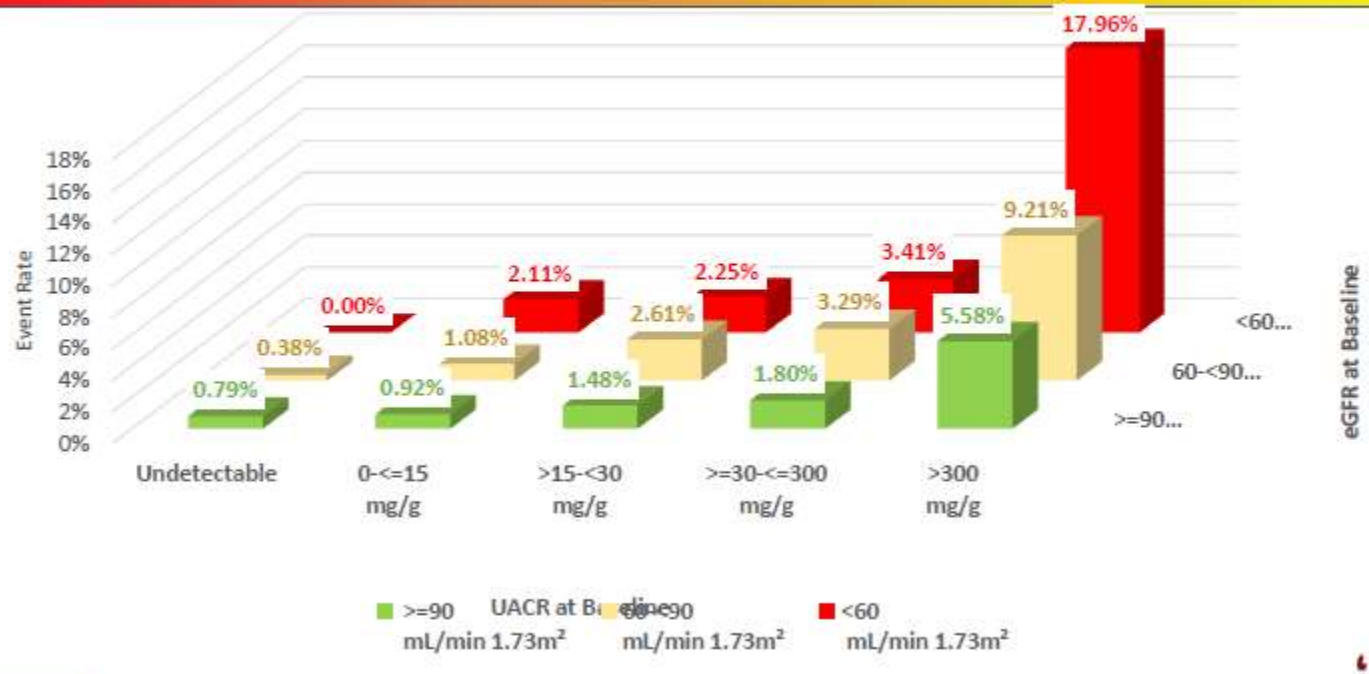
- sustained confirmed eGFR decrease ≥ 40% to eGFR < 60 ml/min/1.73m^2 and/or
- ESRD (dialysis ≥ 90 days or kidney transplantation, sustained confirmed eGFR < 15 ml/min/1.73m^2) and/or
- renal or CV death

eGFR calculated using CKD-EPI equation

CV, cardiovascular; CKD, chronic kidney disease; Dapa, dapagliflozin; eGFR, estimated glomerular filtration rate; ESRD, end-stage renal disease; HR, hazard ratio

Wiviott SD et al. Online ahead of print. *N Engl J Med*. 2018 3

Renal-Specific Composite Outcome according to eGFR and UACR subgroups



UACR at Baseline

BRIGHAM HEALTH
BRIGHAM AND WOMEN'S HOSPITAL
HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

ADA 2019 Renal Oral Presentations 244-

Gliflozins – A paradigm shift in DKD management .
Interpreting and utilising the renal outcome data.

- FDA, Canadian and other countries have now agreed licensed extensions for gliflozins
- Gliflozins reduce the development (DECLARE) and progression of DKD (CANVAS, CREDENCE, DECLARE and EMPA-REG) across the range of renal function down to an eGFR > 30
- The absolute risk and absolute benefits are greatest in albuminuric DKD
- The cardiorenal outcomes are independent of blood glucose lowering effects and use of RAAS blockade ? impact of diuretics
- The achieved HbA1c in cardiorenal outcome trials was 61-65 mmol/mol

Gliflozins – A paradigm shift in DKD management- 2020 ABCD RA recommendations

- The SGLT2I evidence base for cardiorenal protection strongly suggests a class effect confirmed in meta-analysis*
- Differing study designs showed primary DKD prevention in DECLARE, evident reductions in hard renal outcomes in albuminuric DKD in CREDENCE, and effective renal outcomes in established CVD in EMPA-REG .
- Gliflozins should be considered for glycaemic control but independently reduce the development and progresion of DKD
- In line with recent FDA guidance, ABCD RA recommend use of gliflozins for both glycaemic control and renal benefit where eGFR is > 30, especially with increased albuminuria
- Reduced dosage (100 mg Canagliflozin and Empaglifozin 10 mg) may be reasonable for renal benefits when eGFR 30—45
- * Neuen et al , Lancet Diabetes Endo 2019

Gliflozins – A paradigm shift in DKD management n 2020 ABCD RA recommendations - tips

- Do not routinely check renal function within 6-8 weeks of commencing SGLT2I – it is expected to fall transiently and stabilise
- Pre-Rx urinalysis – exclude UTI
- Consider loop diuretic dose reduction if no overt fluid overload
- Avoid in acute foot with infection or ischaemia, past DKA
- Suspend if acute illness, starvation pre procedure-surgery
- In acute setting check glucose and blood ketones if acute illness on gliflozin

Gliflozins – A paradigm shift in DKD management
2020 ABCD RA recommendations

- Currently no recommendation to **convert** if stable glycaemic control from alternative therapy with no cardio renal benefit to SGLT2I
- Addition of SGLT2I to diabetes regime for cardiorenal disease by cardiology and renal departments in collaboration with specialist diabetes care , particularly if on insulin or sulphonylureas, or alongside GLP1 analogues
- This could be considered when eGFR > 30 ml/min

Diabetes Post Solid Organ Transplantation (PTDM) New for 2020 !

- Counselling risk of PTDM – risk factors – modifiable and non-modifiable
- Avoid diagnosis immediate post-op – wait 6 weeks – GTT gold standard – HbA1c at 3m
- HbA1c target and Rx options individualised, in line with renal function ABCD RA advice .
- SGLT2I currently with caution.
- Insulin for symptomatic hyperglycaemia
- Statins for all

Diabetes Post Solid Organ Transplantation (PTDM)

- Specialist DM care access
- Low rejection risk use immunosuppressives that cause less hyperglycaemia
- Individualised immunosuppression (IS) regime
- No role to switch IS if PTDM develops
- Consider organ specific factors in non-renal setting – i.e. liver transplant effect on carb-lipid metabolism

ABCD –Renal Association Clinical Guidelines Update – Summary

- Lipids– nonHDL, lower best, PSCKI CKD1-3 IHD
- HBP-Home BP, 130/80-140/90 targets acco. ACR, acceptable eGFR drop with HBP-CCF RAAS blockade
- Glycaemia- Cardiorenal benefits beyond HbA1c. Extended evidence based gliflozin role
- PTDM – prior risk assessment and selection of immunosupps , HbA1c for diagnosis and individual target, insulin main Rx option