Recommandations ND

Thierry Hannedouche – Mai 2023

Déclaration de conflit d'intérêt :

www.transparence.sante.gouv.fr

Amgen, Astellas, Astra-Zeneca, Alnylam, Bayer, Boehringer, Fresenius, GSK, Lilly, Meditor, Novo-Nordisk, Pfizer, Vifor

Subventions de recherche : Agence de Biomédecine

Executive summary of the KDIGO 2022 Clinical Practice Guideline for Diabetes Management in Chronic Kidney Disease: an update based on rapidly emerging new evidence

OPEN

Peter Rossing[1,2], M. Luiza Car
Kamlesh Khunti[8], Adrian Liew
Tami Sadusky[14], Nikhil Tando
Sophia Zoungas[19], Jonathan
Michael Cheung[24], Amy Earle

KDIGO 2022 Clinical Practice Guideline for Diabetes Management in Chronic Kidney Disease

www.kidney-international.

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Diabetes management in chronic kidney disease: a consensus report by the American Diabetes Association (ADA) and Kidney Disease: Improving Global Outcomes (KDIGO)

Ian H. de Boer[1], Kamlesh Khunti[2], Tami Sa
Connie M. Rhee[6], Sylvia E. Rosas[7], Peter Rc

Diabetes Care®

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Standards of Medical Care in Diabetes—2023

Cibles tensionnelles ND

- ADA 2023
  - AMT systématique
  - Individualiser les cibles
  - PA < 130/80 mmHg si MRC ou RCV élevé et si bien toléré (grade B)
    (alignement avec reco ACC ; prise en compte de STEP + méta-analyse « BP Trialist » 2022)
- KDIGO Diabetes 2022 => KDIGO Blood Pressure 2020

Chapter 3: Blood pressure management in patients with CKD, with or without diabetes, not receiving dialysis

3.1. Blood pressure targets

Recommendation 3.1.1: We suggest that adults with high BP and CKD be treated with a target systolic blood pressure (SBP) of <120 mm Hg, when tolerated, using standardized office BP measurement (*2B*).

Practice Point 3.1.1: It is potentially hazardous to apply the recommended SBP target of <120 mm Hg to BP measurements obtained in a non-standardized manner.

Practice Point 3.1.2: Clinicians can reasonably offer less intensive BP-lowering therapy in patients with very limited life expectancy or symptomatic postural hypotension.

Cibles tensionnelles ND – Limites des recos

- 1 seule étude prospective (ACCORD) :
- résultats ambigus : schéma bifactoriel, puissante insuffisante
- cible intensive < 120 mmHg : réduction –42% des AVC
- interaction cibles PA et cibles métaboliques

Table. Primary End Point in the ACCORD Study (Composite of Cardiovascular Death, Stroke, and Myocardial Infarction) in Relation to Standard and Intensive Glycemic Control and in Relation to Standard (<140 mm Hg) and Intensive (<120 mm Hg) Systolic BP Target

	Standard Glycemic Control		Intensive Glycemic Control	
	Standard BP (<140 mm Hg)	Intensive BP (<120 mm Hg)	Standard BP (<140 mm Hg)	Intensive BP (<120 mm Hg)
Parameters	n=1178	n=1184	n=1193	n=1178
Event rate (per 1000 person-years)	29.7	21.1	23.2	24.9
Hazard ratio (95% CI)	1.00 (ref)	0.71 (0.56–0.90)	1.00 (ref)	1.06 (0.83–1.36)
P value	0.005		0.61	

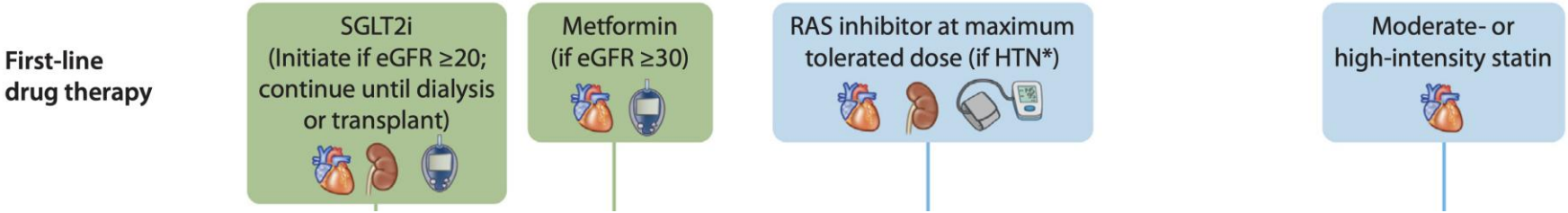
Statistical comparisons are done according to the factorial design for study randomization.[8] ACCORD indicates Action to Control Cardiovascular Risk in Diabetes; BP, blood pressure; and CI, confidence interval.

Cibles tensionnelles dans la ND – peut-on extrapoler les résultats de SPRINT ?

- en moyenne 1 antihypertenseur de plus pour obtenir PAS < 120 mmHg
- difficile de différentier les bénéfices de l'intensification tensionnelle et ceux des médicaments nécessaires pour y arrriver (IEC, diurétiques)
- bénéfices dans SPRINT sur l'insuffisance cardiaque chez les pts sous chlorthalidone + IEC à forte dose (ECV –41%)
- ces bénéfices sont ils caduques à l'ère des gliflozines ?

DeCarolis DD & al. Hypertension 2022

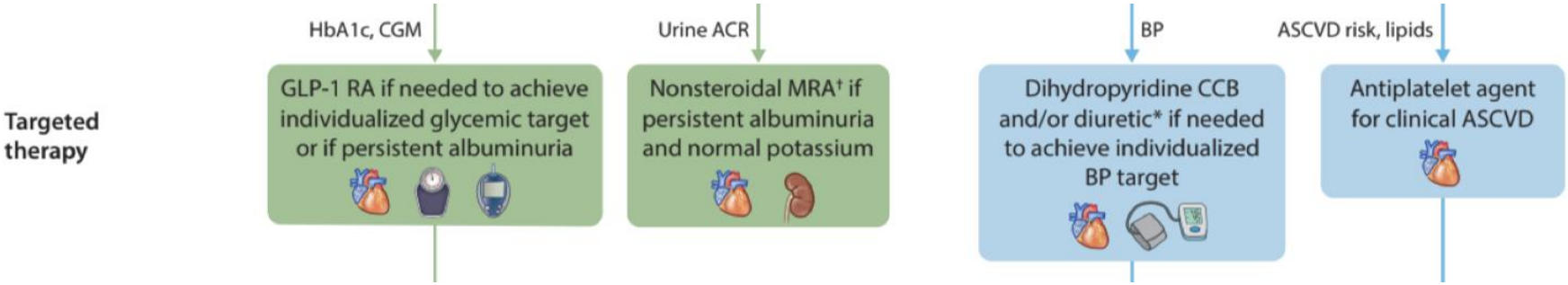
ADA / KDIGO Diabetes 2022 – Algorithme pharmacologique / ND



1ère ligne : Les 4 fantastiques !

IEC / ARA2	longue durée, dose max tolérée
Gliflozine	10 mg/j si DFGe > 20 ml/min
Metformine	si DFGs > 30 ml/min // 1 g max. si G3a
Statine	intensité modérée-élevée

KDIGO Diabetes 2022 – Algorithme pharmacologique / ND



2ème ligne : si les cibles ne sont pas atteintes

DHP ou TZ	si PA > cible
Finérénone	10-20 mg/j si A2-A3 et K < 4,5
GLP1-ra	si HbA1c > cible
Aspirine	si prévention 2re

Consensus KDIGO Diabetes - ADA

ACE inhibitors and ARBs. RAS inhibition with ACEi or ARBs has been standard of care in patients with T1D and T2D and CKD for decades. ACEi or ARBs are the preferred first-line agent for BP treatment among patients with diabetes, hypertension, and ACR ≥300 mg/g because of their proven benefits for prevention of CKD progression. In the setting of lower levels of albuminuria (30–299 mg/g), ACEi or ARB therapy has been demonstrated to reduce progression to more advanced albuminuria (≥300 mg/g) and cardiovascular events but not progression to kidney failure. Therefore, both KDIGO and the ADA recommend an ACEi or ARB for treatment of hypertension among people with T1D or T2D who have hypertension and ACR ≥30 mg/g.[1,2]

Rarely, patients with albuminuria have normal BP, and in this situation, evidence for treatment with RAS inhibition is less strong. Although short-term studies demonstrated added benefit of the combination of ACEi and ARBs in albuminuria reduction, long-term studies showed no benefit and more adverse events, particularly hyperkalemia and AKI, and thus avoidance of this combination is recommended.

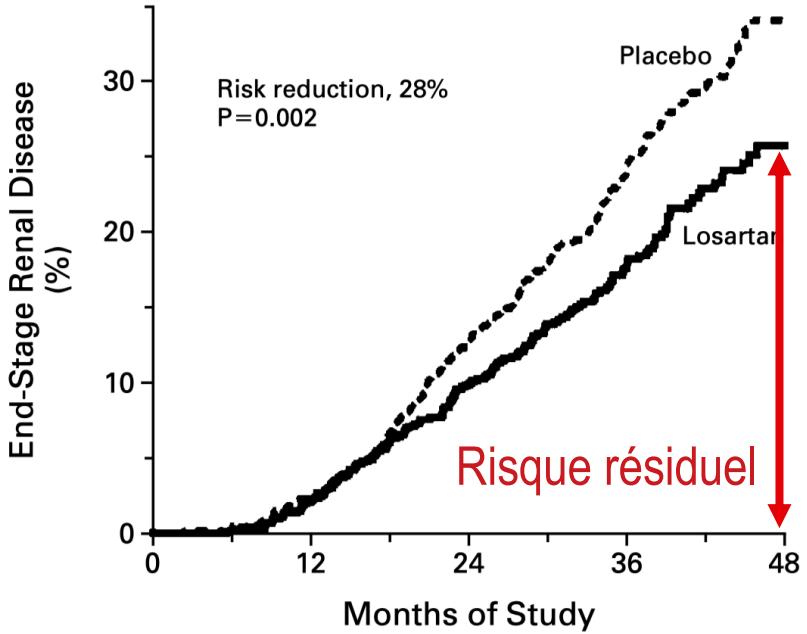
Indications :

A3 (grade A)

A2 (grade B)

A1 (grade C)

ARA2, 1er traitement approuvé de la ND2



*	CC1	IRT
RRR	22%	37%
RRA	7.7%	9.2
NNT 3 ans	13	11

CC1: Pcr x2 + IRT + DC

* ajusté PU initiale

Brenner & al. Nejm 2001, Zhang & al. Jasn 2005

Indication des gliflozines

Medication class	ADA 2022 Standards of Medical Care in Diabetes	KDIGO 2022 Guideline for Diabetes Management in Chronic Kidney Disease
SGLT2i	• Consider use of SGLT2i for organ protection independent of baseline HbA1c, individualized HbA1c target, or metformin use. • 10.42 Among patients with T2D who have established ASCVD or established kidney disease, an SGLT2i or GLP-1 receptor agonist with demonstrated cardiovascular disease benefit is recommended as part of the comprehensive cardiovascular risk reduction and/or glucose-lowering regimens (A). • 10.42a In patients with T2D and established ASCVD, multiple ASCVD risk factors, or diabetic kidney disease, an SGLT2i with demonstrated cardiovascular benefit is recommended to reduce the risk of MACE and/or HF hospitalization (A). • 11.3a For patients with T2D and diabetic kidney disease, use of an SGLT2i in patients with an eGFR ≥20 ml/min/1.73 m^2 and urinary albumin ≥200 mg/g creatinine is recommended to reduce CKD progression and cardiovascular events (A)[a] • 11 of ca 1. cr	• Recommendation 1.3.1: We recommend treating patients with T2D, CKD, and an eGFR ≥20 ml/min per 1.73 m^2 with an SGLT2i (1A).

Consensus statement.

- An SGLT2i with proven kidney or cardiovascular benefit is recommended for patients with T2D, CKD, and eGFR ≥20 ml/min/1.73 m^2. Once initiated, the SGLT2i can be continued at lower levels of eGFR.

Stratification du risque, adressage, traitement, selon GA

American Diabetes Association

KDIGO – Kidney Disease: Improving Global Outcomes

Treat: A2+ ou G3+

Refer: G4+ ou G3bA2 ou G3aA3

GFR categories (mL/min/1.73 m²) Description and range			Albuminuria categories Description and range		
			A1	A2	A3
			<30 mg/g <3 mg/mmol	30–299 mg/g 3–29 mg/mmol	≥300 mg/g ≥30 mg/mmol
	G1	≥90	Screen 1	Treat 1	Treat and refer 3
	G2	60–89	Screen 1	Treat 1	Treat and refer 3
	G3a	45–59	Treat 1	Treat 2	Treat and refer 3
	G3b	30–44	Treat 2	Treat and refer 3	Treat and refer 3
	G4	15–29	Treat and refer* 3	Treat and refer* 3	Treat and refer 4+
	G5	<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

Stratification du risque, adressage, traite

Indication BSRA + gliflozine :

- G3+ (20-60 ml/min)
- ou A2+ (G1-G2)
- ou RCV élevé/très élevé
- ou (à risque d') ins. cardiaque

Treat: A
Refer: G

Albuminuria categories …tion and range	
A2	A3
–299 mg/g 9 mg/mmol	≥300 mg/g ≥30 mg/mmol
Treat 1	Treat and refer 3
Treat 1	Treat and refer 3
Treat 2	Treat and refer 3
…t and refer 3	Treat and refer 3
…t and refer* 3	Treat and refer 4+
…t 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

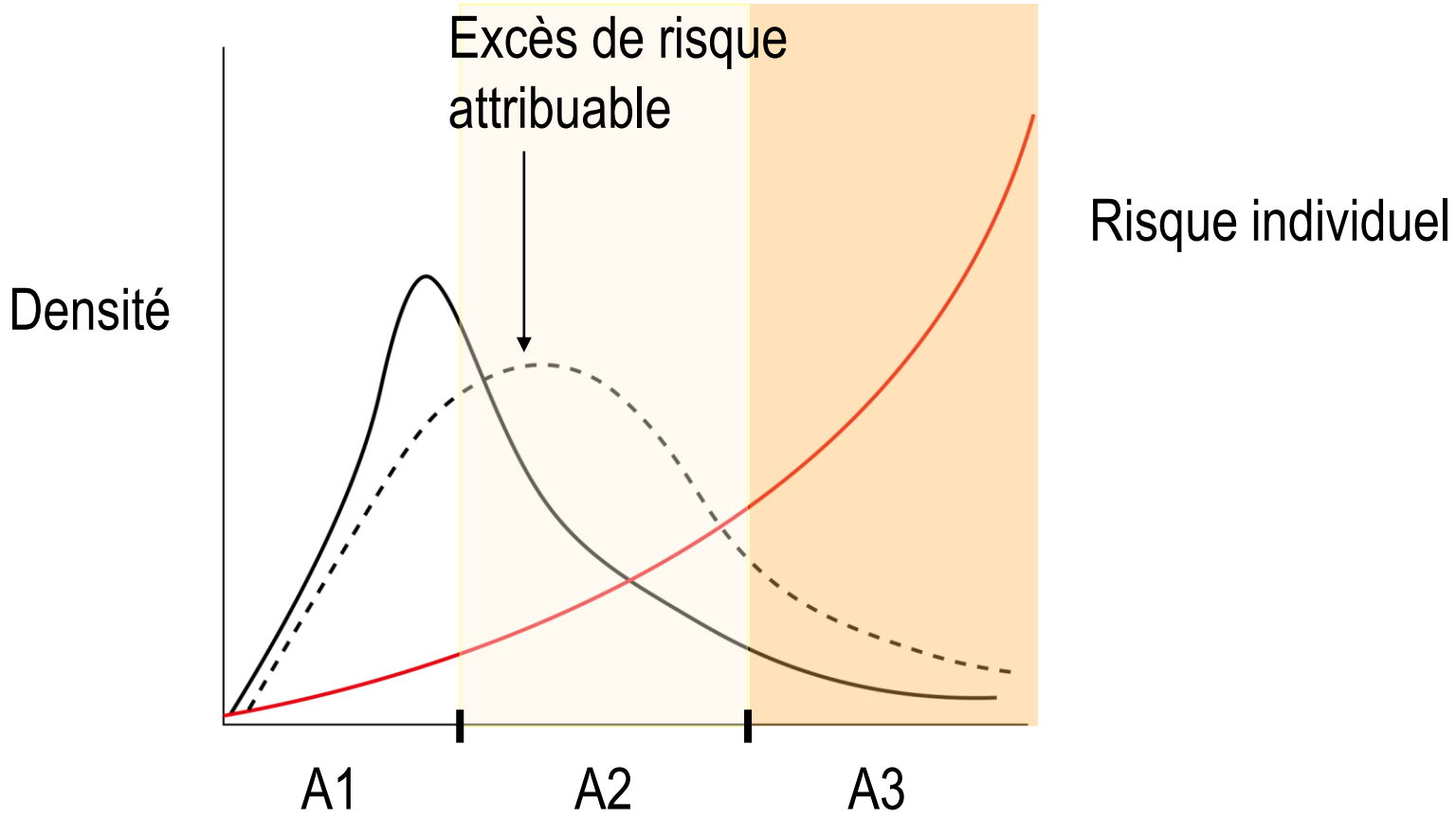
Zones grises – Les questions en suspend …

- Que signifie « dose maximale tolérée de BSRA » ?
- Gliflozine si A1 ? = oui, per ADA-KDIGO guidelines
- Gliflozine et ND1 ? (acidocétose euglycémique)
- Timing séquentiel ou d'emblée (A3) ?
- Quel acute dip tolérer ? (< 30%)
  - Que faire si acute dip amène < 20 ml/min ?
- Peut-on (faut-il) initier si DFGe < 20 ml/min ?

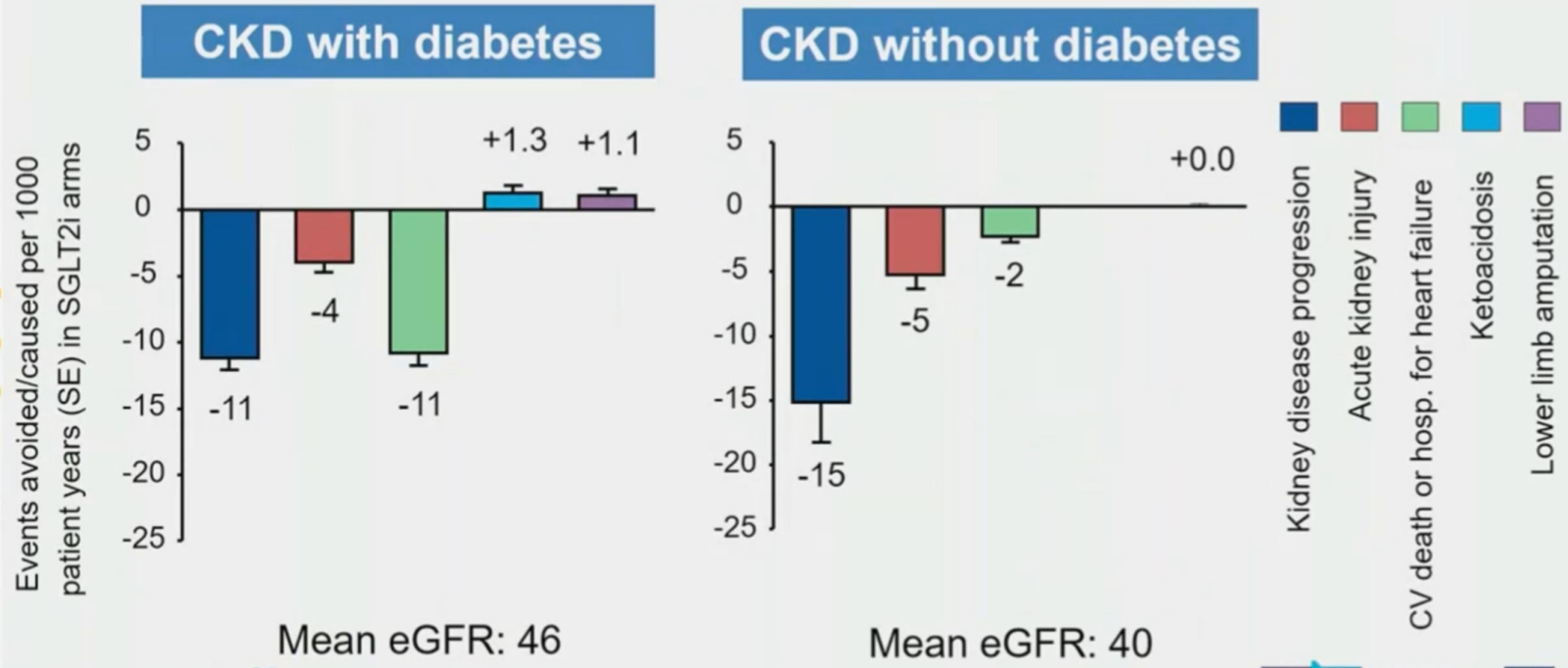
Gliflozine chez les pts A1G3+ ?

- ADA-KDIGO 2022 recommandent une gliflozine
  - chez tous les patients D2 avec MRC (G3+),
  - quelque soit le stade d'albuminurie (incluant A1)
- Argumentation :
  - prévention démontrée chez les pts **à risque** rénal ou cardiaque
  - effets bénéfiques consistents à travers tous les sous-groupes étudiés, quelque soit l'albuminurie initiale
- Gliflozine en prévention de la ND ?

Approche individuelle vs santé publique



Predicted absolute effects per 1000 pt years



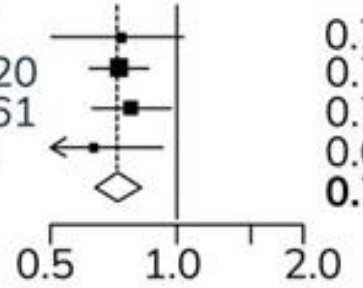
SMART-C Slide courtesy Will Herrington

Smart-Consortium, Lancet 2022 aop

Effets de l'empagliflozine selon le DFGe initial (EMPA-Kidney)

Primary outcome by kidney function (post-hoc)

eGFR mL/min/1.73m²	No. of events / participants: Empagliflozin	Placebo	
< 20	47/123	64/131	0.73 (0.50–1.06)
≥ 20 <30	200/1008	253/1020	0.74 (0.61–0.89)
≥ 30 <45	140/1467	175/1461	0.78 (0.62–0.97)
≥ 45	45/706	66/693	0.64 (0.44–0.93)
All participants			**0.72 (0.64–0.82)**

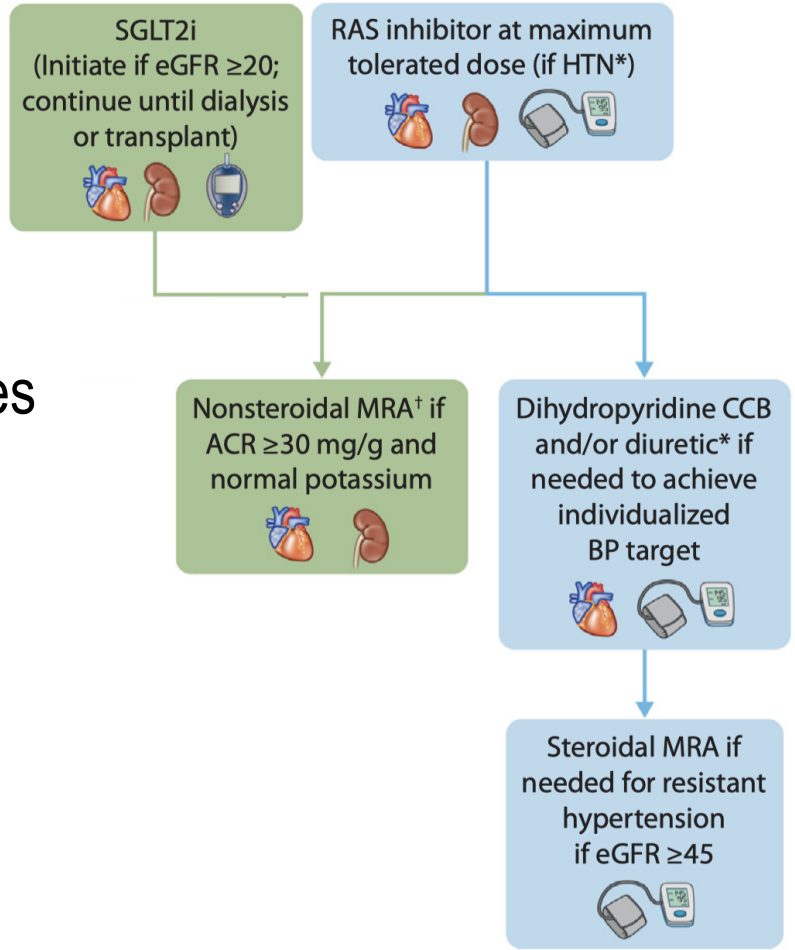


Trend P value= 0.81

EMPA-KIDNEY

MRC Population Health Research Unit

KDIGO Diabetes 2022 – Algorithme pharmacologique / ND



1ère ligne : IEC/ARA2 + gliflozine

2ème ligne : si les cibles ne sont pas atteintes

DHP ou TZ si PA > cible

Finérénone si A2-A3

Indications de la Finérénone dans la ND2 :

KDIGO Diabetes 2022

SGLT2i were not standard of care when the FIDELIO-DKD and FIGARO-DKD trials were initiated. However, 877 participants were using an SGLT2i at baseline, and the cardiovascular effects of finerenone, compared with placebo, appeared to be at least as beneficial among people using, versus not using, an SGLT2i.[27] It is also possible that SGLT2i may reduce the risk of hyperkalemia for patients treated concomitantly with an RASi and an ns-MRA.[30,31] These data, combined with complementary mechanisms of action, suggest that the benefits of SGLT2i and finerenone may be additive. Therefore, patients with T2D and CKD who are treated with both an RASi and an SGLT2i and meet criteria for finerenone (including residual albuminuria and non-elevated serum potassium) are appropriate candidates for treatment with finerenone. In addition, finerenone may be added to an RASi alone for patients who do not tolerate or are not candidates for an SGLT2i.[25]

KDIGO-ADA

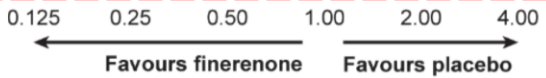
These effects appear to be additive, based on preclinical studies, to those of SGLT2i and GLP-1 receptor agonists, though further clinical research on these combinations is needed. Therefore, it is reasonable to add finerenone to the treatment regimen of patients with T2D who have any level of persistent albuminuria despite current standard of care treatment with glucose-lowering and antihypertensive medications (Figure 3).

Consensus statement.

- An ns-MRA with proven kidney and cardiovascular benefit is recommended for patients with T2D, eGFR ≥25 ml/min/1.73 m^2, normal serum potassium concentration, and albuminuria (ACR ≥30 mg/g) despite maximum tolerated dose of RAS inhibitor.

FIDELITY – sous groupe finérénone + gliflozine

Subgroup	Finerenone	Placebo	Finerenone	Placebo	Hazard ratio (95% CI)	*P*-interaction
	Number of patients with event/total number		Number of patients with events per 100 patient-years			
All patients	**825/6519**	**939/6507**	**4.34**	**5.01**	**0.86 (0.78–0.95)**	
Age at run-in visit						0.20
<65 years	323/2958	337/2931	3.74	3.93	0.94 (0.81–1.10)	
≥65 years	502/3561	602/3576	4.83	5.92	0.82 (0.73–0.93)	
Sex						0.92
Male	579/4481	675/4607	4.39	5.08	0.86 (0.77–0.96)	
Female	246/2038	264/1900	4.21	4.83	0.87 (0.73–1.04)	
Baseline eGFR						0.14
<25 mL/min/1.73 m²	11/81	23/81	5.24	12.21	0.48 (0.22–1.03)	
25–<45 mL/min/1.73 m²	321/2117	331/2115	5.66	5.84	0.94 (0.81–1.10)	
45–<60 mL/min/1.73 m²	197/1717	247/1717	4.01	5.11	0.80 (0.66–0.97)	
≥60 mL/min/1.73 m²	295/2603	337/2592	3.59	4.18	0.87 (0.74–1.01)	
Baseline UACR						0.41
<30 mg/g	10/120	15/110	2.43	4.27	0.59 (0.24–1.45)	
30–<300 mg/g	260/2076	292/2023	3.79	4.40	0.86 (0.73–1.02)	
≥300 mg/g	554/4321	631/4371	4.71	5.37	0.89 (0.79–<1.00)	
SGLT-2i at baseline						0.41
No	786/6081	887/6068	4.44	5.08	0.87 (0.79–0.96)	
Yes	39/438	52/439	2.95	4.08	0.63 (0.40–<1.00)	
GLP-1RA at baseline						0.63
No	767/6022	875/6060	4.38	5.02	0.87 (0.79–0.96)	
Yes	58/497	64/447	3.79	4.90	0.79 (0.52–1.11)	



Zones grises – Les questions en suspend …

- Effets additifs ou synergiques du combo gliflozine + finérénone ?
- Finérénone si A1 ?
- Introduction précoce de gliflozine + finérénone à visée tensionnelle ?
- Timing séquentiel ou d'emblée ?
- Peut-on (faut-il) initier si DFGe < 25 ml/min ?

Statine et ND2

- KDIGO 2013 – Statine si :
  - > 50 ans + MRC
  - 18-49 ans + MRC avec diabète ou P2
- ADA 2023 – Statine :
  - intensité modérée si 40-75 ans + diabète (A) || 20-39 ans + diabète + MRC (C) ||
  - maintenir (B), voire initier (C) > 75 ans
  - intensité forte* si P2 (± ezetimibe, anti-PCSK9 selon cibles)
- Consensus KDIGO-ADA : **Statine chez tous les patients D1 ou D2 avec MRC**
  - intensité modérée* si P1
  - intensité forte* si P2

* Intensité forte = atorva 40-80 ou rosuva 20-40 || Intensité modérée = le reste

Cibles glycémiques - HbA1c

Les KDIGO 2022 : suivi par l'HbA1c (x 2/an)
mais prudence dans l'interprétation des cibles !

< 6.5%	HbA1c	< 8.0%
CKD G1	Severity of CKD	CKD G5
Absent/minor	Macrovascular complications	Present/severe
Few	Comorbidities	Many
Long	Life expectancy	Short
Present	Hypoglycemia awareness	Impaired
Available	Resources for hypoglycemia management	Scarce
Low	Propensity of treatment to cause hypoglycemia	High

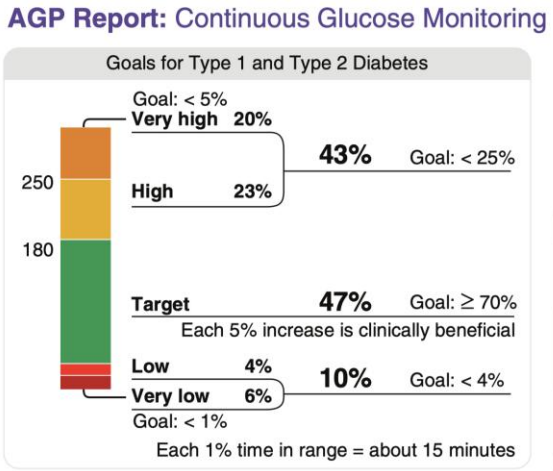
ADA 2023 : A1c < 7,0 % plupart, < 8,0% si espérance de vie réduite

KDIGO + ADA : protéines = 0,8 g/kg/j (risque hypoglycémies)

Indications du CGM pour le suivi glycémique de la ND

- Limites de l'A1c pour mesurer l'exposition au glucose
  - n'explore pas la variabilité
  - sous-estime l'exposition réelle en cas de DFG < 30, d'anémie, inflammation, ASE, …
- D2 – CGM recommandé si :
  - insuline multiple (basal-bolus) ou pompe
  - DFGe < 30 **et** insuline ou SU ou glinide
- D1 –
  - recommandé chez tous les D1, avec ou sans atteinte rénale
  - CGM intégré dans un système AID (« boucle fermée »)

Paramètres d'interprétation d'un CGM



Percent Time CGM active:
(ideally > 10 days or ≥ 70% of 14 days, to correlate with GMI).

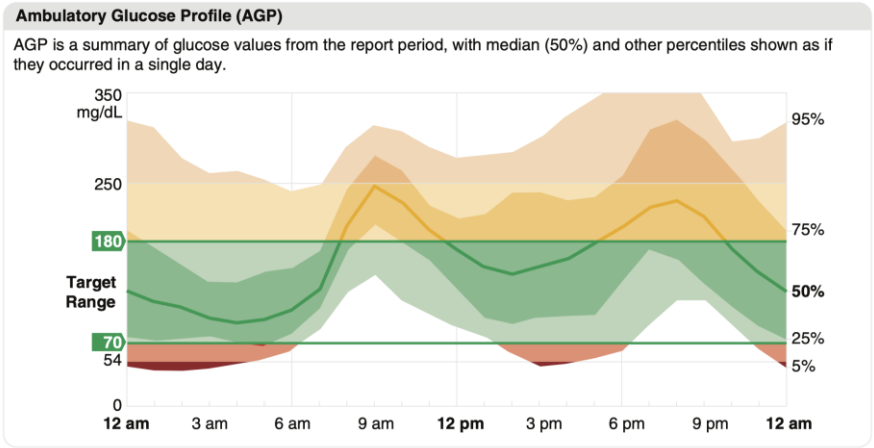
Test Patient DOB: Dec. 10, 1975

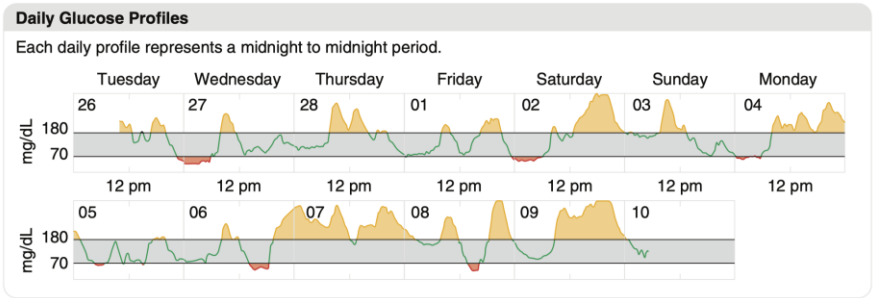
13 days: February 26 – March 10, 2019

Time CGM Active: 99.9%

Glucose metrics

Average Glucose Goal: < 154 mg/dL	**173 mg/dL**
Glucose Management Indicator (GMI) Goal: < 7%	**7.6%**
Glucose Variability Goal: ≤ 36%	**49.5%**

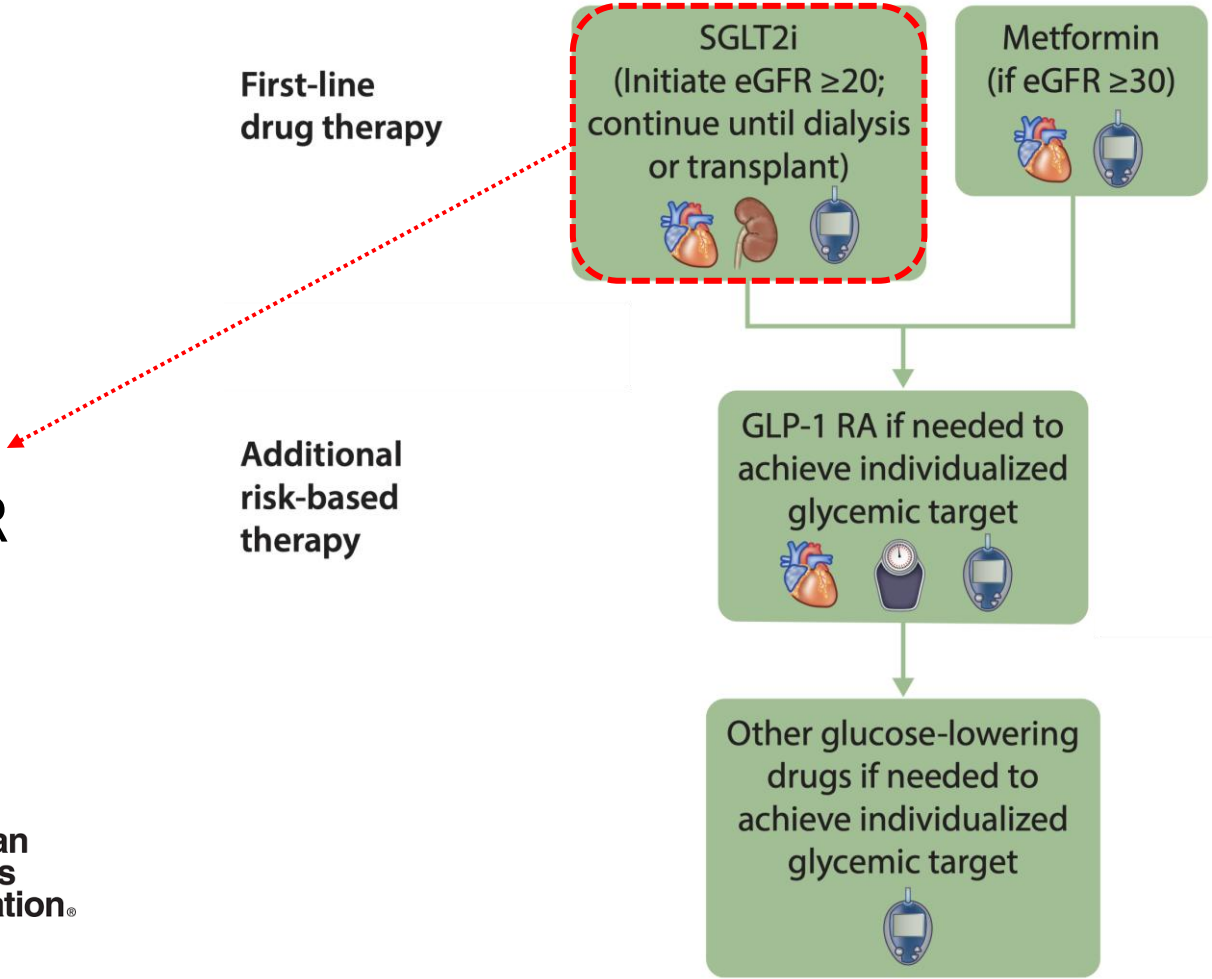




TIR time in range, temps dans la cible > 70%
TAR time above range, temps en hyperG < 25%
TBR time below range, temps en hypoG <5%

Stratégie pharmacologique du contrôle glycémique

Prise en compte :
- efficacité
- risque d'hypoG
- bénéfices cardiorénaux
- adaptation poso dans l'IR



KDIGO Kidney Disease Improving Global Outcomes

American Diabetes Association®

Efficacité–bénéfices–risques des antidiabétiques dans la ND

	Progression of CKD	ASCVD	Heart failure	Glucose-lowering efficacy	Hypoglycemia risk	Weight effects	Cost
Metformin	Neutral	Potential benefit	Potential benefit	High	Low	Neutral	Low
SGLT2 inhibitors	Benefit[a]	Benefit[c]	Benefit	Intermediate	Low	Loss	High
GLP-1 receptor agonists	Benefit[b]	Benefit[c]	Potential benefit	High	Low	Loss	High
DPP-4 inhibitors	Neutral	Neutral	Potential risk[c] (saxagliptin)	Intermediate	Low	Neutral	High
Insulin	Neutral	Neutral	Neutral	Highest	High	Gain	High (analogs) Low (human)
Sulfonylureas	Neutral	Neutral	Neutral	High	High	Gain	Low
Thiazolidinediones	Neutral	Potential benefit (pioglitazone)	Increased risk	High	Low	Gain	Low

Neutral

Potential benefit or intermediate glucose-lowering efficacy

Benefit (organ protection, high efficacy, low hypoglycemia risk, weight loss, or low cost)

Potential risk or high cost to patient

Increased risk for adverse effects

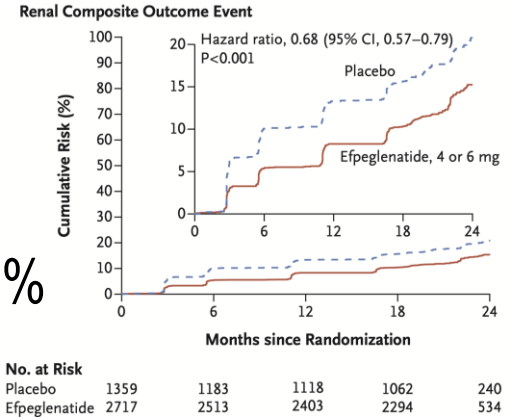
Combinaison gliflozine + GLP1-ra pour tous les D2 avec MRC ?

- Relativement bien validée en termes de bénéfices métaboliques
  - DURATION-8, plusieurs méta-analyses …
- Moins bien validée sur les événements CV et rénaux
  - *post hoc* EXSCEL et DECLARE-TIMI 58
  - analyse préspécifiée AMPLITUDE-O (pas d'interaction)
- Pas recommandée par l'HAS
- ADA-KDIGO : ***Consensus statement.***
  - GLP-1 receptor agonist with proven cardiovascular benefit is recommended for patients with T2D and CKD who do not meet their individualized glycemic target with metformin and/or an SGLT2i or who are unable to use these drugs.

AMPLITUDE-O : Efpeglenatide in Type 2 Diabetes

- n = 4073 pts D2 + CVD ou CKD
- FU médian : 1,81 années
- C1 : MACE 3 pts
- C2 : composite rénal (A3, ΔDFGe 40%, IRT)
- RRR : – 27%
- RRA : –1,4%
- NNT : 71

C2 –32%



Subgroup	Efpeglenatide, 4 or 6 mg (no. of events/total no. (%))	Placebo (no. of events/total no. (%))	Efpeglenatide, 4 or 6 mg (no. of events per 100 person-yr)	Placebo (no. of events per 100 person-yr)	Hazard Ratio for an Incident MACE (95% CI)
Overall	189/2717 (7.0)	125/1359 (9.2)	3.9	5.3	0.73 (0.58–0.92)
Sex					
Male	142/1792 (7.9)	88/940 (9.4)	4.5	5.4	0.81 (0.62–1.06)
Female	47/925 (5.1)	37/419 (8.8)	2.8	5.0	0.56 (0.36–0.86)
Age					
<65 yr	86/1281 (6.7)	57/673 (8.5)	3.8	4.9	0.78 (0.56–1.09)
≥65 yr	103/1436 (7.2)	68/686 (9.9)	4.0	5.7	0.69 (0.51–0.94)
Glycated hemoglobin					
<8%	57/863 (6.6)	35/420 (8.3)	3.7	4.7	0.73 (0.47–1.13)
≥8%	132/1854 (7.1)	90/939 (9.6)	4.0	5.5	0.71 (0.54–0.93)
BMI					
<31.9	87/1324 (6.6)	73/702 (10.4)	3.7	6.0	0.61 (0.45–0.83)
≥31.9	102/1390 (7.3)	52/657 (7.9)	4.1	4.5	0.90 (0.64–1.26)
eGFR					
<71.5 mg/ml/1.73 m²	107/1371 (7.8)	74/666 (11.1)	4.4	6.4	0.67 (0.50–0.91)
≥71.5 mg/ml/1.73 m²	82/1346 (6.1)	51/691 (7.4)	3.4	4.2	0.81 (0.57–1.15)
History of cardiovascular disease					
Yes	177/2420 (7.3)	122/1230 (9.9)	4.1	5.7	0.71 (0.57–0.90)
No	12/297 (4.0)	3/129 (2.3)	2.2	2.8	1.73 (0.48–6.27)
SGLT2 inhibitor use at baseline					
Yes	25/412 (6.1)	17/206 (8.3)	3.4	4.7	0.70 (0.37–1.30)
No	164/2305 (7.1)	108/1153 (9.4)	4.0	5.4	0.74 (0.58–0.94)
Metformin use at baseline					
Yes	127/1993 (6.4)	87/992 (8.8)	3.6	5.0	0.70 (0.53–0.92)
No	62/724 (8.6)	38/367 (10.4)	4.9	6.0	0.80 (0.54–1.20)

0.5 1.0 2.0
Efpeglenatide Better Placebo Better

Sous-groupe gliflozine baseline = même effet

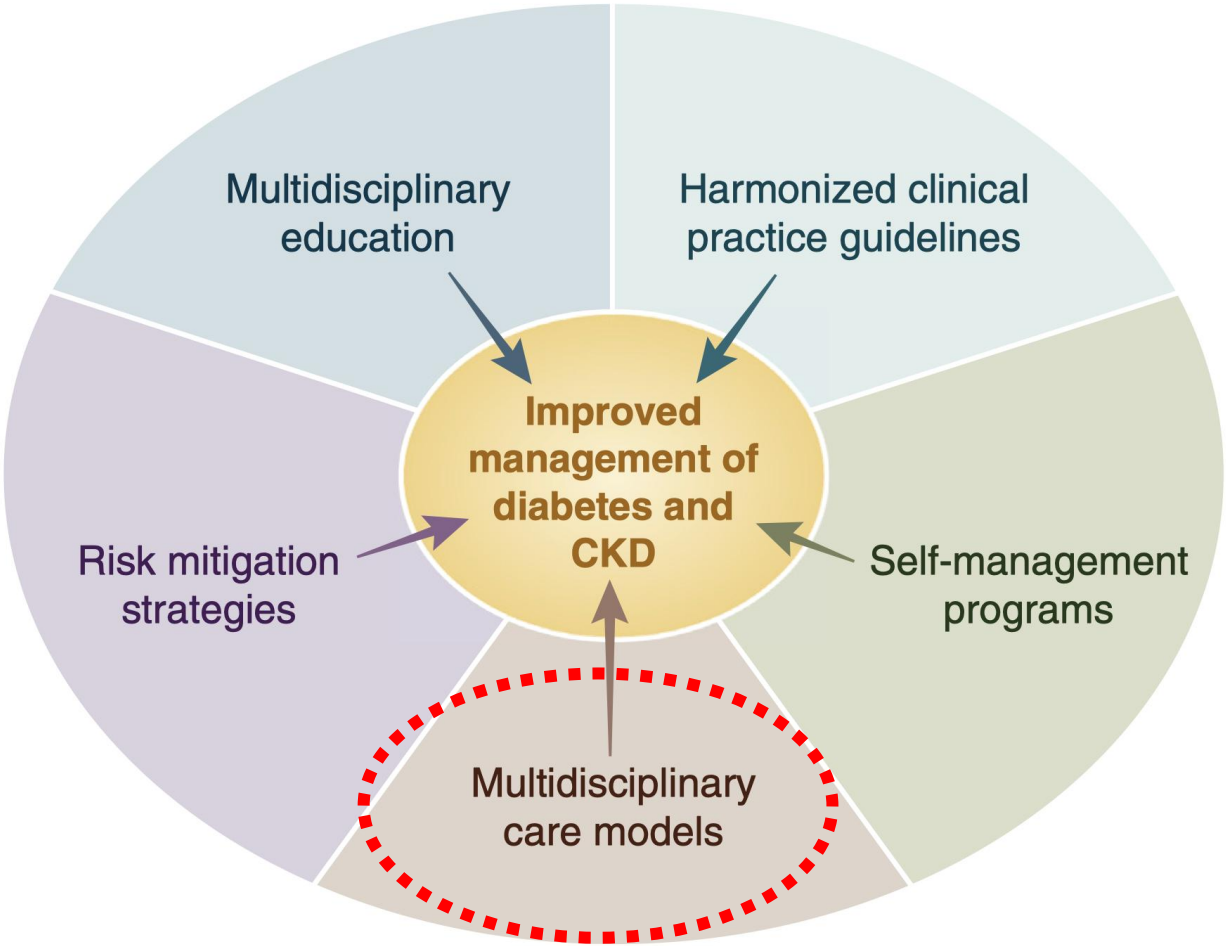
Antidiabétiques et MRC avancée G4-G5ND

- Metformine = contrindiquée / risque acidose lactique
- Sulfamides = contrindiqués / risque hypoglycémie +++
- Glinides = contrindiqués / risque hypoglycémie ++
- Acarbose = contrindiqué / inefficace
- Gliflozines = peu efficaces sur hyperG // indications cardio-rénales
- iDDP4 (gliptines) = OK, réduire poso (sita 25 mg ; vilda 25 mg x2)
- GLP1ra (glutides) = OK, ! dénutrition, gastroparésie
- Insulines = efficaces / risque hypoG +++, réduire poso car T1/2 prolongée

Zones grises – Les questions en suspend …

- Faut-il abandonner l'A1c au profit du CGM ?
- Quels TIR, TAR, TBR selon le DFGe ?
- Effets additifs ou synergiques du combo gliflozine + GLP1-ra ?
- Reste t-il une place pour la metformine ?
- Faut-il limiter (voire substituer) l'insuline au profit des GLP1-ra ?
- Place des dual- ou triple agonists (tirzepatide, LY3437943)

Approche « holistique » de la ND2



JAMA | Original Investigation

Coordinated Care to Optimize Cardiovascular Preventive Therapies in Type 2 Diabetes
A Randomized Clinical Trial

Neha J. Pagidipati, MD, MPH; Adam J. Nelson, MBBS, MPH, MBA, PhD; L
Rodica Pop-Busui, MD, PhD; Matthew A. Cavender, MD, MPH; Vanita R. A
Ildiko Lingvay, MD, MPH, MSCS; Julienne K. Kirk, BS, PharmD; Hussein R
Jonathan Pak, PharmD, MBA; Cagri Senyucel, MD, PhD; Renato D. Lopes
for the COORDINATE-Diabetes Site Investigators

OBJECTIVE To assess the effect of a coordinated, multifaceted intervention of assessment, education, and feedback vs usual care on the proportion of adults with type 2 diabetes and atherosclerotic cardiovascular disease prescribed all 3 groups of recommended, evidence-based therapies (high-intensity statins, angiotensin-converting enzyme inhibitors

MAIN OUTCOMES AND MEASURES The primary outcome was the proportion of participants prescribed all 3 groups of recommended therapies at 6 to 12 months after enrollment. The secondary outcomes included changes in atherosclerotic cardiovascular disease risk factors and a composite outcome of all-cause death or hospitalization for myocardial infarction, stroke, decompensated heart failure, or urgent revascularization (the trial was not powered to show these differences).

RESULTS Of 1049 participants enrolled (459 at 20 intervention clinics and 590 at 23 usual care clinics), the median age was 70 years and there were 338 women (32.2%), 173 Black

40% sous trithérapie vs 15% dans groupe témoin

llow-up visit (12 months
kely to be prescribed all
, which is a difference of
23.4% (adjusted odds ratio [OR], 4.38 [95% CI, 2.49 to 7.71]; $P < .001$) and were more likely to be prescribed each of the 3 therapies (change from baseline in high-intensity statins from 66.5% to 70.7% for intervention vs from 58.2% to 56.8% for usual care [adjusted OR, 1.73; 95%

Réduction de –21% du critère combiné (MACE 4 points)

68.4% for
om 12.3%
% CI,
2.08-4.64]). The intervention was not associated with changes in atherosclerotic cardiovascular disease risk factors. The composite secondary outcome occurred in 23 of 457 participants (5%) in the intervention group vs 40 of 588 participants (6.8%) in the usual care group (adjusted hazard ratio, 0.79 [95% CI, 0.46 to 1.33]).

Conclusions

- Recommandations convergentes, fondées sur des preuves robustes
- Algorithme pharmacologique pertinent et minimaliste 簡
- Zones grises
  - approche individuelle vs santé publique,
  - certaines combinaisons pharmacologiques demandent validation,
  - confusion entre les indications néphro/cardioprotectrices et métaboliques
- L'implémentation est la clé !
  - divergences entre recommandations KDIGO-ADA et HAS
  - cliniques multidisciplinaires