Prevalencia y caracterización del daño renal en el paciente con diabetes mellitus

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Conflictos de interés (últimos 5 años)

- Conferencista: Astra Zeneca, Abbott Nutrición, Novartis Oncology, Novo Nordisk, Merck Sharp & Dohme, Roche, Sanofi Aventis, Bayer, Pfizer, Novartis, Boehringer Ingelheim
- Advisory Board: Sanofi Aventis, Novo Nordisk, Stendhal, Pfizer
- Investigación clínica: Astra Zeneca, Novartis Pharma Logistics Inc., Recordati

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Agenda

- Prevalencia de enfermedad renal diabética
- Fenotipos
- Avances en el tratamiento
  - Papel de los iSGLT2
  - Papel de finerenona

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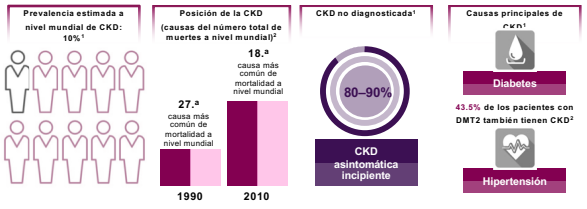
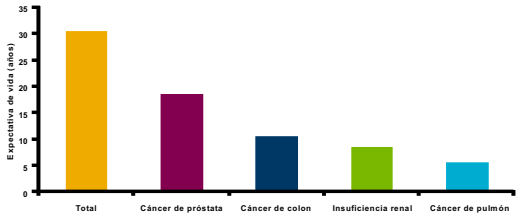
Epidemiología mundial de la CKD



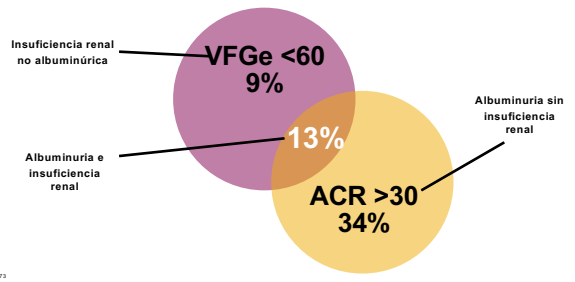
CKD, nefropatía crónica; DMT2, diabetes mellitus tipo 2
1. World Kidney Day: Chronic Kidney Disease. 2015; http://www.worldkidneyday.org/faqs/chronic-kidney-disease/; 2. Jha V, et al. *Lancet* 2013;382(9888):260–272;
3. Bailey RA, et al. *BMC Res Notes* 2014;7:415

La expectativa de vida con insuficiencia renal es menor que con cánceres comunes



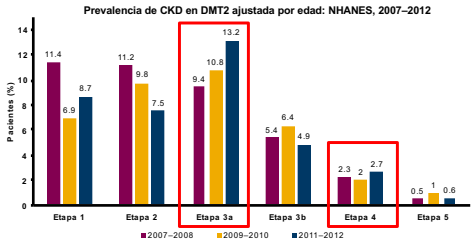
US Renal Data System. *2008 Annual Data Report: Atlas of End-Stage Renal Disease in the United States*. Bethesda, MD: National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases; 2008.

Más de la mitad de los adultos con DMT2 tienen CKD



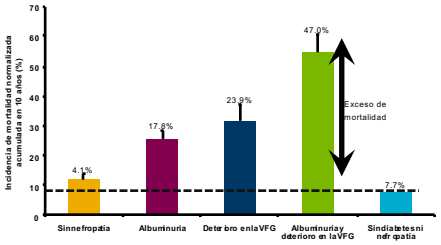
N=11,473
ACR, relación albúmina:creatinina; CKD, nefropatía crónica; VFGe, velocidad de filtración glomerular estimada; DMT2, diabetes mellitus tipo 2
Parving HH, et al. *Kidney Int* 2006;69:2057–2063

La prevalencia de CKD en pacientes con DMT2 es alta constantemente



CKD, nefropatía crónica; DMT2, diabetes mellitus tipo 2
Wu B, et al. *BMJ Open Diabetes Res Care* 2016;4:e000154

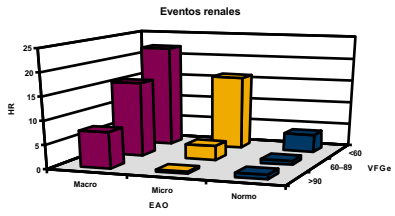
La mortalidad se presenta con mayor frecuencia en pacientes con diabetes y nefropatía que en aquellos que no las padecen



La línea punteada indica la mortalidad en personas sin diabetes ni nefropatía (grupo de referencia). Los porcentajes indican un exceso absoluto de mortalidad por encima del grupo de referencia (personas sin diabetes ni nefropatía).
VFG, velocidad de filtración glomerular
Afkarian M, et al. *J Am Soc Nephrol* 2013;24:302

Eventos renales derivados de la VFGe y la albuminuria

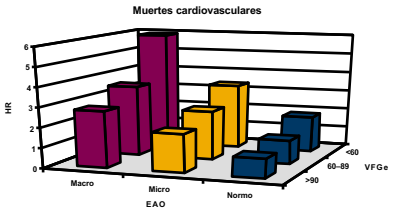
La acción en diabetes y vasculopatía: El estudio ADVANCE



10.640 pacientes con DMT2 y factores de riesgo CV; mediana de seguimiento de 4.3 años
VFGe, velocidad de filtración glomerular estimada; HR, cociente de riesgos; DMT2, diabetes mellitus tipo 2; EAO, excreción de albúmina en orina
Ninomiya T, et al. *J Am Soc Nephrol* 2009;20:1813–1821

Muerte CV por VFGe y albuminuria

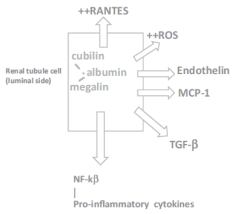
La acción en diabetes y vasculopatía: Estudio de evaluación controlada preterAx y diamicroN-MR (ADVANCE)



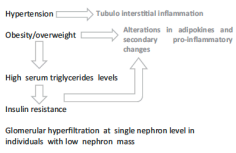
10.640 pacientes con DMT2, mediana de seguimiento de 4.3 años
CV, cardiovascular; VFGe, velocidad de filtración glomerular estimada; HR, cociente de riesgos; DMT2, diabetes mellitus tipo 2; EAO, excreción de albúmina en orina
Nnomiya T, et al. *J Am Soc Nephrol* 2009;20:1813–1821

Identificando fenotipos

Nephrotoxic mechanism(s) of proteinuria



Risk factors and mechanisms in non-proteinuric renal diseases



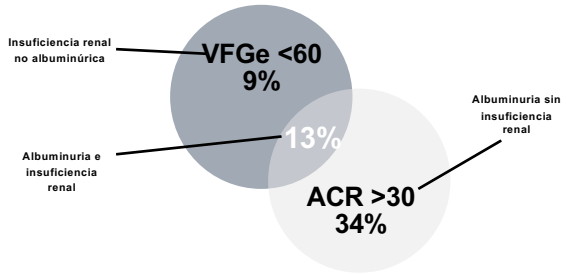
Bolignano D. Nephrol Dial Transplant. 2017;32:ii94

Nefroesclerosis

- Ausencia de proteinuria
- Sedimento urinario relativamente normal
- Causa más común de progresión a enfermedad renal crónica
- La proteinuria sólo es un indicador de daño glomerular
  - Impacto control glicémico y modulación del SRAA
- Puede haber daño tubular o vascular por diabetes
- NHANES III
  - Sólo 30% de pacientes con DM y TFG <60 cc/min tenían albuminuria

Bolignano D. Nephrol Dial Transplant. 2017;32:ii94

Más de la mitad de los adultos con DMT2 tienen CKD



Factores de riesgo y objetivos para prevenir la enfermedad renal/CV

Glucosa	Objetivo individualizado de HbA_{1c}, pero generalmente es de ~7%[1]
TA	Objetivo de <130/80 mmHg en pacientes con micro/macroalbuminuria Objetivo de <140/90 mmHg en pacientes con normoalbuminuria[2]
Inhibidor de ACE/ ARB	Administrar el inhibidor de ACE o los ARB cuando la excreción de albuminuria sea ≥30 mg/g[1]
Lípidos	Se recomienda la reducción de lípidos para disminuir el riesgo de eventos ateroscleróticos; no se recomiendan las estatinas en pacientes que reciben hemodiálisis[1]

ACE, enzima convertidora de angiotensina; ARB, bloqueador del receptor de angiotensina; TA, tensión arterial; CV, cardiovascular; HbA_{1c}, glucohemoglobina
1. National Kidney Foundation. *Am J Kidney Dis* 2012;60:850; 2. Kidney Disease: Improving Global Outcomes (KDIGO) Blood Pressure Work Group. *Kidney Int Suppl* 2012;2:337–414

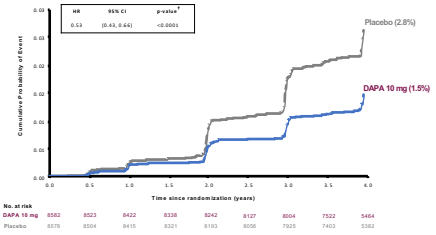
Nuevas terapias para manejo de enfermedad renal diabética

Inhibidores de SGLT2

	Desenlace compuesto microvascular	Desenlace compuesto renal	Nueva aparición microalbuminuria	Doblamiento creatinina	Terapia reemplazo renal	Muerte renal
Inhibidores de SGLT2						
EMPAREG (empagliflozina)	0.62 (0.54-0.70)	0.61 (0.53-0.70)	0.62 (0.54-0.72)	0.56 (0.39-0.79)	0.45 (0.21-0.97)	NA
CANVAS (canagliflozina)	0.86 (0.75-0.97)	0.60 (0.47-0.77)	0.80 (0.79-0.88)	0.50 (0.30-0.84)	0.77 (0.30-1.97)	NA
DECLARE (dapagliflozina)	NA	0.53 (0.43-0.66)	NA	NA	NA	NA
CREDENCE (canagliflozina)	NA	0.66 (0.53-0.81)	NA	0.60 (0.48-0.76)	0.74 (0.55-1.00)	NA
VERTIS (ertugliflozina)	NA	0.81 (0.63-1.04)	NA	NA	NA	NA
SCORED	NA	0.71 (0.46-1.08)	NA	NA	NA	NA

Desenlaces renales en DECLARE

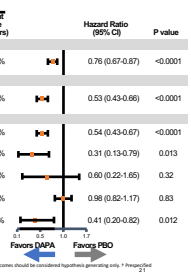
Renal-specific Outcome*
Decrease eGFR ≥40%, ESRD or Renal Death



*Prespecified exploratory endpoint †Because the trial met only one of its dual primary outcomes for superiority (CV death or hospital admission for heart failure), all other analyses of additional outcomes should be considered hypothesis generating only. No. at risk is the number of subjects at risk at the beginning of the period.
DAPA = dapagliflozin; eGFR = estimated glomerular filtration rate; ESRD = end-stage renal disease; HR = hazard ratio.

Composite Renal Outcomes and Individual Components*

	Dapagliflozin n/N (%)	Dapagliflozin Event Rate (4 years)	Placebo n/N (%)	Placebo Event Rate (4 years)	Hazard Ratio (95% CI)	P value
Secondary Renal Composite Outcome						
eGFR decrease ≥40% to <60; ESRD; or renal or CV death	370/8582 (4.3)	4.2%	480/8578 (5.6)	5.3%	0.76 (0.67-0.87)	<0.0001
Renal-specific Outcome						
eGFR decrease ≥40% to <60; ESRD; or renal death	127/8582 (1.5)	1.5%	238/8578 (2.8)	2.6%	0.53 (0.43-0.66)	<0.0001
Individual Components						
eGFR decrease ≥40% to <60	120/8582 (1.4)	1.4%	221/8578 (2.6)	2.5%	0.54 (0.43-0.67)	<0.0001
End stage renal disease (ESRD)	6/8582 (0.1)	0.1%	19/8578 (0.2)	0.2%	0.31 (0.13-0.79)	0.013
Renal death	6/8582 (0.1)	0.1%	10/8578 (0.1)	0.1%	0.60 (0.22-1.65)	0.32
CV death	245/8582 (2.9)	2.7%	249/8578 (2.9)	2.7%	0.98 (0.82-1.17)	0.83
ESRD or renal death	11/8582 (2.9)	0.1%	27/8578 (0.3)	0.3%	0.41 (0.20-0.82)	0.012



*Because the trial met only one of its dual primary outcomes for superiority (CV death or hospital admission for heart failure), all other analyses of additional outcomes should be considered hypothesis generating only. † Prespecified exploratory endpoint.
DAPA = dapagliflozin; CV = cardiovascular; eGFR = estimated glomerular filtration rate; ESRD = end-stage renal disease; PBO = placebo.
Modified from Dwyer JP et al. Online ahead of print. Lancet Diabetes Endocrinol. 2019.

Estudios con desenlaces renales: pacientes con DM y proteinuria (CREDENCE)

Study Design

Key inclusion criteria
- ≥30 years of age
- T2DM and HbA1c 6.5% to 12.0%
- eGFR 30 to 90 mL/min/1.73 m²
- UACR 300 to 5000 mg/g
- Stable max tolerated labelled dose of ACEi or ARB for ≥4 weeks

Key exclusion criteria
- Other kidney diseases, dialysis, or kidney transplant
- Dual ACEi and ARB; direct renin inhibitor; MRA
- Serum K^+ >5.5 mmol/L
- CV events within 12 weeks of screening
- NYHA class IV heart failure
- Diabetic ketoacidosis or T1DM

2-week placebo run-in → R (Double-blind randomization (1:1)) → Canagliflozin 100 mg / Placebo

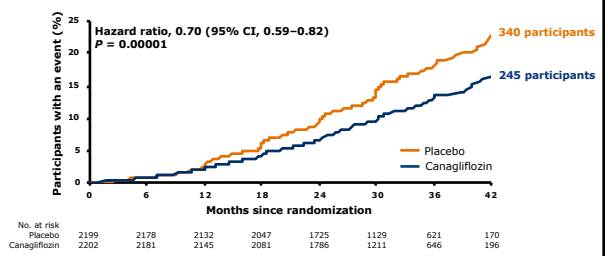
Follow-up at Weeks 3, 13, and 26 (F2F) then every 13 weeks (alternating phone/F2F)

Participants continued treatment if eGFR was <30 mL/min/1.73 m² until chronic dialysis was initiated or kidney transplant occurred.

Jardine MJ, et al. *Am J Nephrol*. 2017;46(6):462-472.

CREDENCE

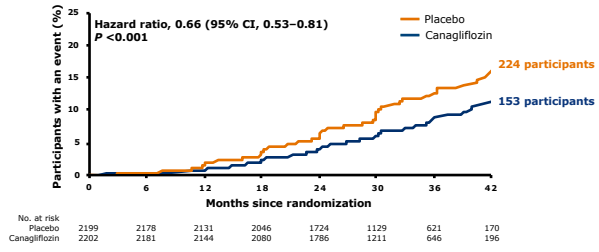
Primary Outcome: ESKD, Doubling of Serum Creatinine, or Renal or CV Death



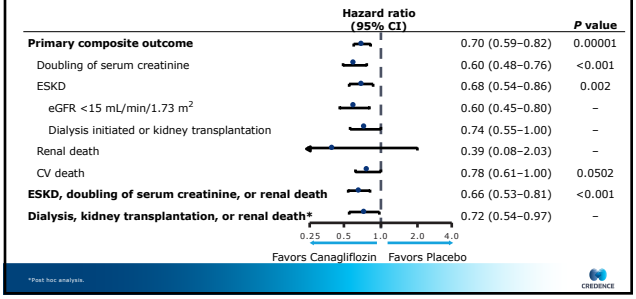
No. at risk								
Placebo	2199	2178	2132	2047	1725	1129	621	170
Canagliflozin	2202	2181	2145	2081	1786	1211	646	196

CREDENCE

ESKD, Doubling of Serum Creatinine, or Renal Death



Summary Forest Plot



Pacientes con DM y ERC independientemente de proteinuria (SCORED)

Key Inclusion and Exclusion Criteria

SCORED

Inclusion:

- Type 2 diabetes with HbA1c≥7%
- eGFR 25-60 mL/min/1.73m^2
  - with no requirement for macro- or micro-albuminuria
- CV risk factors

Exclusion:

- Planned start of SGLT2 inhibitor

Bhatt DL, Szarek M, Pitt B, et al., and Steg PG. *N Engl J Med*. 2020. Bhatt DL. AHA 2020, virtual.

Efficacy Testing Hierarchy

SCORED

Endpoint	Sotagliflozin Rate [Events]	Placebo Rate [Events]	HR (95% CI)	P-value
Total CV death, HHF, and urgent HF visit	**5.6 [400]**	**7.5 [530]**	**0.74 (0.63-0.88)**	**0.0004**
Total HHF and urgent HF visit	3.5 [245]	5.1 [360]	0.67 (0.55-0.82)	0.0001
CV death	2.2 [155]	2.4 [170]	0.90 (0.73-1.12)	0.35
Total CV death, HHF, non-fatal MI, and non-fatal stroke	7.6 [541]	10.4 [738]	0.72 (0.63-0.83)	0.000008*
Total CV death, HHF, urgent HF visit, and HF while hospitalized	6.4 [453]	8.3 [589]	0.76 (0.65-0.89)	0.0005*
First sustained** ≥50% decrease in eGFR, chronic dialysis, renal transplant or sustained* eGFR <15 mL/min/1.73m^2	0.5 [37]	0.7 [52]	0.71 (0.46-1.08)	0.11*
All-cause death	3.5 [246]	3.5 [246]	0.99 (0.83-1.18)	0.93*
Total CV death, non-fatal MI, and non-fatal stroke	4.8 [343]	6.3 [442]	0.77 (0.65-0.91)	0.002*

**For ≥30 days. *Nominal p-value. Rate = number of events per 100 patient-years.

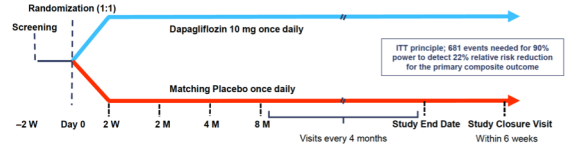
Bhatt DL, Szarek M, Pitt B, et al., and Steg PG. *N Engl J Med*. 2020. Bhatt DL. AHA 2020, virtual.

Pacientes con proteinuria con y sin DM (DAPA-CKD)

Study Design

Key inclusion criteria:
- ≥18 years of age
- eGFR 25 to 75 mL/min/1.73m²
- UACR 200 to 5000 mg/g (22.6 to 565 mg/mmol)
- Stable maximum tolerated labelled dose of ACEi or ARB for ≥4 weeks (if not contraindicated)

Key exclusion criteria:
- Type 1 diabetes
- Polycystic kidney disease, lupus nephritis, ANCA-associated vasculitis
- Immunosuppressive therapy within 6 months prior to enrollment



- Outcome analysis based on Cox proportional hazard model stratified by type 2 diabetes and UACR and adjusted for eGFR

No es una indicación aprobada para Costa Rica, Honduras, Panamá, Guatemala, República Dominicana

DAPACKD

ANCA, anti-neutrophil cytoplasmic antibody; ITT, intention-to-treat; UACR, urinary albumin-to-creatinine ratio.

Heerspink HJL, et al. Nephrol Dial Transplant. 2020 Feb 1;35(2):274-282. Wheeler DC, et al. Nephrol Dial Transplant. 2020 DOI 10.1093/ndt/gfaa234.

Baseline characteristics

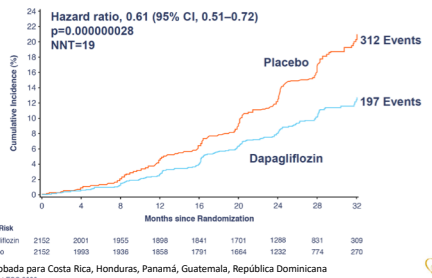
	Dapagliflozin (N=2152)	Placebo (N=2152)
Age, years, mean	62	62
Sex, female, %	33	33
Race, %		
White	52	54
Black or African-American	5	4
Asian	35	33
Other	8	8
Type 2 diabetes, %	68	67
Systolic blood pressure, mmHg, mean	137	137
eGFR, mL/min/1.73m², mean	43	43
UACR, mg/g, median	965	934
ACEi or ARB, %	97	97

No es una indicación aprobada para Costa Rica, Honduras, Panamá, Guatemala, República Dominicana

DAPACKD

Wheeler DC, et al. Nephrol Dial Transplant. 2020 DOI 10.1093/ndt/gfaa234.

Primary outcome: Sustained ≥50% eGFR decline, ESKD, renal or CV death

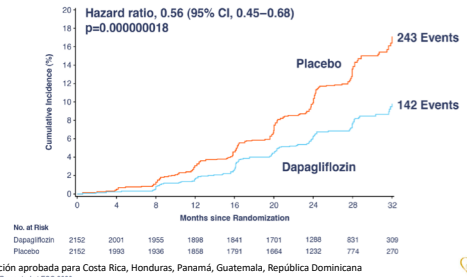


No es una indicación aprobada para Costa Rica, Honduras, Panamá, Guatemala, República Dominicana

DAPACKD

Heerspink HJL, et al. Presented at ESC 2020.

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

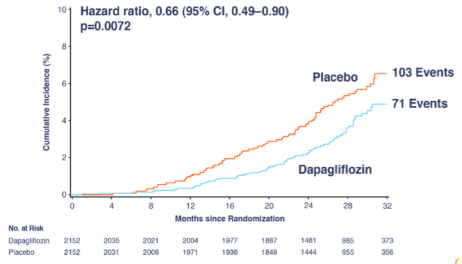


No es una indicación aprobada para Costa Rica, Honduras, Panamá, Guatemala, República Dominicana

Heerspink HJL, et al. Presented at ESC 2020

DAPACKD

Chronic dialysis, kidney transplantation, renal death



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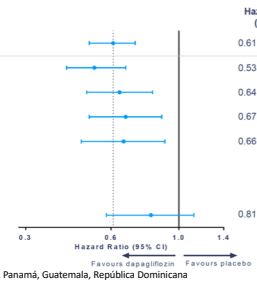
Heerspink HJL, et al. Presented at ESC 2020

DAPACKD

Summary of the primary outcome and its components

	Dapagliflozin events	Placebo events	Hazard Ratio (95% CI)	p-value
Primary composite endpoint	197	312	0.61 (0.51, 0.72)	0.000000028
≥50% eGFR decline	112	201	0.53 (0.42, 0.67)	<0.0001
ESKD	109	161	0.64 (0.50, 0.82)	0.0004
eGFR <15 mL/min/1.73m²	84	120	0.67 (0.51, 0.88)	0.0045
Chronic dialysis	68	99	0.66 (0.48, 0.90)	0.0080
Transplantation	3	8	NC	
Renal death	2	6	NC	
CV death	65	80	0.81 (0.58, 1.12)	0.2029



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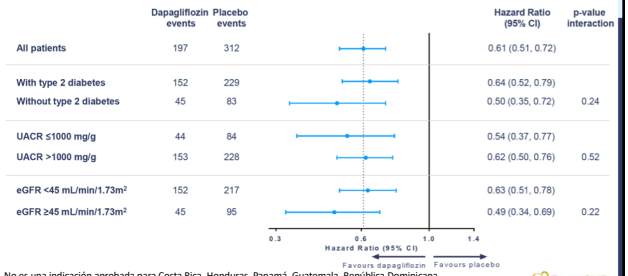
NC, not calculable

Heerspink HJL, et al. Presented at ESC 2020

DAPACKD

Primary outcome – pre-specified subgroup analysis



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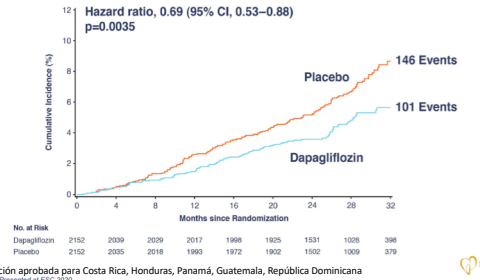
DAPACKD

Heerspink HJL, et al. Presented at ESC 2020

Secondary outcome: All-cause mortality



No es una indicación aprobada para Costa Rica, Honduras, Panamá, Guatemala, República Dominicana

DAPACKD

Heerspink HJL, et al. Presented at ESC 2020

Safety

Safety outcomes*, n (%)	Dapagliflozin (N=2149)	Placebo (N=2149)
Discontinuation of study drug	274 (12.8)	309 (14.4)
Discontinuation due to adverse event	118 (5.5)	123 (5.7)
Any serious adverse event	633 (29.5)	729 (33.9)
Adverse events of interest		
Amputation†	35 (1.6)	39 (1.8)
Any definite or probable diabetic ketoacidosis	0	2 (0.1)
Fracture‡	85 (4.0)	69 (3.2)
Renal related adverse event‡	155 (7.2)	188 (8.7)
Major hypoglycaemia §	14 (0.7)	28 (1.3)
Volume depletion‡	127 (5.9)	90 (4.2)
Serious adverse events of volume depletion	22 (1.0)	18 (0.8)

No es una indicación aprobada para Costa Rica

*Safety outcomes reported in participants on and off treatment; †surgical or spontaneous/non-surgical amputation, excluding amputation due to trauma; ‡based on pre-defined list of preferred terms; §AE with the following criteria confirmed by the investigator: i) symptoms of severe impairment in consciousness or behaviour, ii) need of external assistance, iii) intervention to treat hypoglycaemia, iv) prompt recovery of acute symptoms following the intervention

DAPACKD

Heerspink HJL, et al. Presented at ESC 2020

FDA NEWS RELEASE

FDA Approves Treatment for Chronic Kidney Disease

Approval is First to Cover Many Causes of Disease

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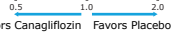
For Immediate Release: April 30, 2021

Today, the U.S. Food and Drug Administration approved Farxiga (dapagliflozin) oral tablets to reduce the risk of kidney function decline, kidney failure, cardiovascular death and hospitalization for heart failure in adults with chronic kidney disease who are at risk of disease progression.

Revisando los eventos adversos

Renal Safety

	Number of participants with an event, n		Hazard ratio (95% CI)
	Canagliflozin (N = 2200)	Placebo (N = 2197)	
All renal-related AEs	290	388	0.71 (0.61–0.82)
Hyperkalemia	151	181	0.80 (0.65–1.00)
Acute kidney injury	86	98	0.85 (0.64–1.13)



Includes all treated participants through 30 days after last dose.

CREDENCE

ITU

	iSGLT2	Placebo	P
EMPAREG	18.1%	18.2%	NA
CANVAS	40 x 1000 pts año	37 x 1000 pts año	HR 1.09 (0.89-1.34)
DECLARE	1.5%	1.6%	NS
VERTIS	12.2%	10.2%	NA
CREDENCE	11.1%	10.0%	HR 1.08 (0.90-1.29)

Infección genital

	iSGLT2	Placebo	P
EMPAREG	6.5%	1.8%	NA
CANVAS	69 x 1000 pts año (F) 35 x 1000 pts año (M)	18 x 1000 pts año (F) 11 x 1000 pts año (M)	HR 4.37 (2.78-6.88) (F) HR 3.76 (2.91-4.86) (M)
DECLARE	0.9%	0.1%	<0.001
VERTIS	7.8% (F) 5.1% (M)	2.4% (F) 1.2% (M)	NA NA
CREDENCE	2.27%	0.59%	

Adverse Events of Special Interest

SCORED

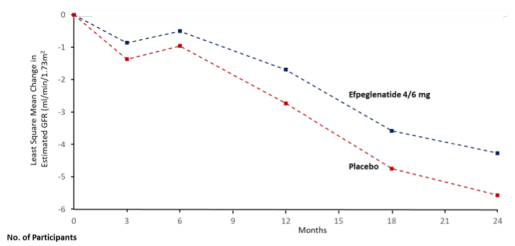
Composite Term	Sotagliflozin N=5291 n (%)	Placebo N=5286 n (%)	P-value
Urinary tract infections	610 (11.5)	585 (11.1)	0.45
Diarrhea	448 (8.5)	315 (6.0)	<0.0001
Volume depletion	278 (5.3)	213 (4.0)	0.003
Bone fractures	111 (2.1)	117 (2.2)	0.68
Genital mycotic infections	125 (2.4)	45 (0.9)	<0.0001
Severe hypoglycemia	53 (1.0)	55 (1.0)	0.84
Malignancies	47 (0.9)	42 (0.8)	0.60
Venous thrombotic events	31 (0.6)	37 (0.7)	0.46
Adverse event leading to amputation	32 (0.6)	33 (0.6)	0.89
Diabetic ketoacidosis	30 (0.6)	14 (0.3)	0.022
Pancreatitis	12 (0.2)	20 (0.4)	0.16

Bhatt DL, Szarek M, Pitt B, et al, and Steg PG. *N Engl J Med*. 2020. Bhatt DL. AHA 2020. virtual.

Otros andiabéticos

	Desenlace compuesto microvascular	Desenlace compuesto renal	Nueva aparición microalbuminuria	Doblamiento creatinina	Terapia reemplazo renal	Muerte renal
Inhibidores de DPP4						
SAVOR (saxagliptina) [31]	NA	1.08 (0.88-1.32)	NA	1.1 (0.89-1.36)	0.90 (0.61-1.32)	NA
EXAMINE (alogliptina)	NA	NA	NA	NA	NA	NA
TECOS (sitagliptina)	NA	NA	NA	NA	NA	NA
CARMELINA (linagliptina)	0.86 (0.78-0.95)	0.98 (0.82-1.18)	NA	NA	0.87 (0.69-1.10)	NS
Análogos de GLP1						
ELIXA (lixisenatide) [32]	NA	NA	NA	1.16 (0.74-1.82)	NS	NS
LEADER (liraglutide)	0.84 (0.79-0.97)	0.78 (0.67-0.92)	0.74 (0.60-0.91)	0.88 (0.66-1.18)	0.87 (0.6-1.24)	1.59 (0.52-4.87)
SUSTAIN-6 (semaglutide)	NA	0.64 (0.46-0.88)	0.54 (0.37-0.77)	1.28 (0.64-2.58)	0.91 (0.40-2.07)	NA
HARMONY (albiglutide)	NA	NA	NA	NA	NA	NA

Effect of Efpeglenatide on Change in eGFR

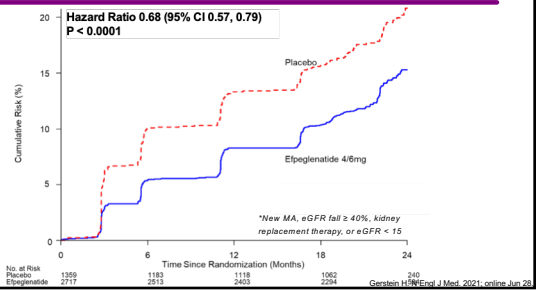


No. of Participants						
Efpeglenatide	2717	2566	2520	2453	2024	490
Placebo	1357	1274	1250	1194	953	225

Gerstein H. N Engl J Med. 2021; online Jun 28.

Efpeglenatide 4 or 6 mg *versus* Placebo

Kidney Composite Outcome*



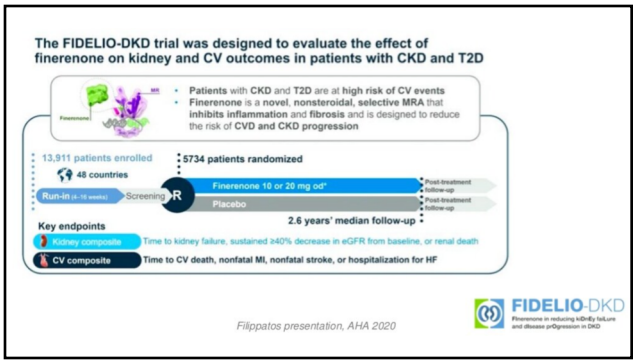
Gerstein H, N Engl J Med. 2021; online Jun 28

Primary and Secondary Outcomes

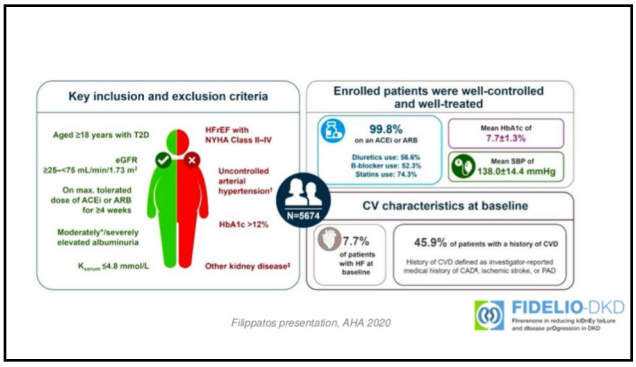
	Efpeglenatide N/100 py	Placebo N/100 py	HR (95%CI)	P
Primary Outcome (MACE)	3.9	5.3	0.73 (0.58, 0.92)	0.0069
Expanded MACE	5.4	6.8	0.79 (0.65, 0.96)	0.020
Renal Composite Outcome	7.7	11.6	0.68 (0.57, 0.79)	<0.0001
MACE or non-CV Death	4.5	6.0	0.73 (0.59, 0.91)	0.0040
Renal Function (no MA) or Death	2.5	3.1	0.77 (0.57, 1.02)	0.072
MACE, non-CV Death, HF, Renal Function (no MA)	5.1	7.0	0.71 (0.59, 0.87)	

Gerstein H, N Engl J Med. 2021; online Jun 28

Finerenona: estudio FIDELIO



Filippatos presentation, AHA 2020



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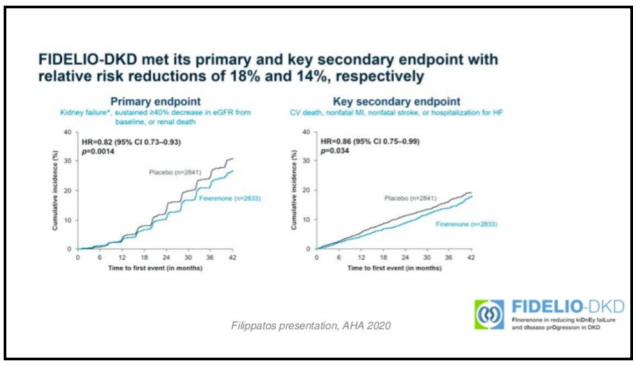
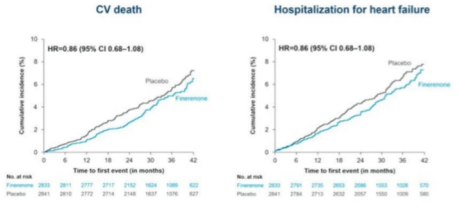


Filippatos presentation, AHA 2020

There was a 14% relative risk reduction for both CV death and hospitalization for heart failure with finerenone



Filippatos presentation, AHA 2020

FIDELIO-DKD
Finerenone in reducing kiDney faiLure and disease prOgression in DKD

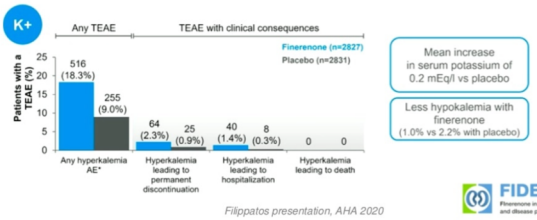
Overall treatment-emergent adverse events were similar between treatment arms with a manageable increase in hyperkalemia

- Similar overall treatment-emergent AEs and SAEs between treatment arms
- No imbalance in gynecomastia (0.2% in both treatment arms)
- No difference in HbA1c
- Modest effect on blood pressure (mean max. decrease of 3.2 mmHg from baseline)

Filippatos presentation, AHA 2020

FIDELIO-DKD
Finerenone in reducing kiDney faiLure and disease prOgression in DKD

Overall treatment-emergent adverse events were similar between treatment arms with a manageable increase in hyperkalemia

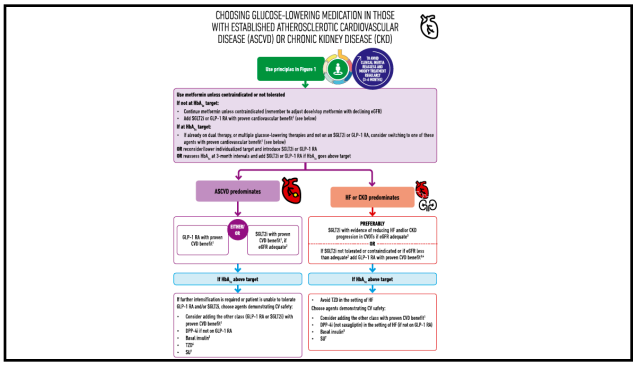


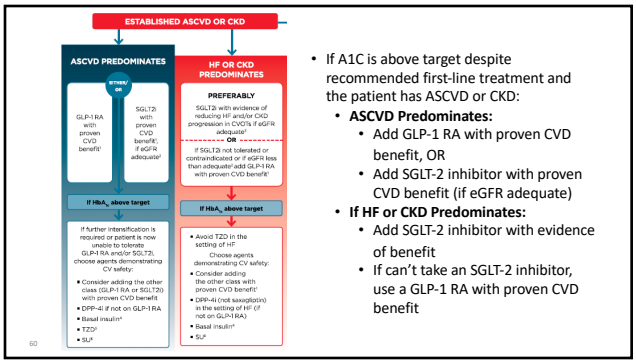
- Mean increase in serum potassium of 0.2 mEq/l vs placebo
- Less hypokalemia with finerenone (1.0% vs 2.2% with placebo)

Filippatos presentation, AHA 2020

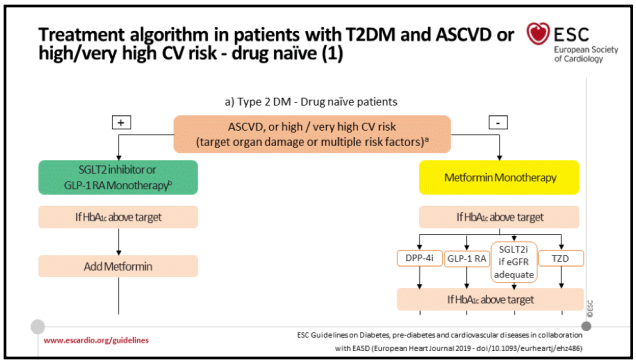
FIDELIO-DKD
Finerenone in reducing kiDney faiLure and disease prOgression in DKD

Impacto en las guías





- If A1C is above target despite recommended first-line treatment and the patient has ASCVD or CKD:
  - **ASCVD Predominates:**
    - Add GLP-1 RA with proven CVD benefit, OR
    - Add SGLT-2 inhibitor with proven CVD benefit (if eGFR adequate)
  - **If HF or CKD Predominates:**
    - Add SGLT-2 inhibitor with evidence of benefit
    - If can't take an SGLT-2 inhibitor, use a GLP-1 RA with proven CVD benefit



Consideraciones prácticas y reflexiones finales

Consideraciones prácticas

- A pesar de su efecto nefroprotector, el efecto en reducción de glucosa va bajando entre menor sea TFG
  - La reducción es mínima con TFG <45 cc/min/1.73 m2
  - Se sigue manteniendo el efecto en reducción de peso y presión arterial
    - No está claro los mecanismos
  - En nefroprotección, todos los estudios con TFG >25 cc/min/1.73 m2
- Algunos efectos adversos se presentan con más frecuencia en TFG <45 cc/min/1.73 m2
  - Hipotensión postural: ajustar dosis de diuréticos
  - Algunos datos de hiperkalemia: no así demostrado en los estudios con desenlaces renales, sólo en los fases III

Consideraciones prácticas

- En quiénes tener más cuidado?
  - Adultos mayores y personas frágiles
  - pacientes con amputación previa
- Hay algunos datos en personas post tansplante de riñón
  - Mantiene efectividad
  - Series de casos muy pequeños
  - No interacción con inmunosupresores

Conclusiones

- Los iSGLT2 tienen efecto más allá del efecto glucosúrico
- Han evidenciado menor progresión de enfermedad renal en pacientes con y sin DM
- Se están posicionando como indicación absoluta en el tratamiento de DM y que tengan falla cardíaca y enfermedad renal diabética
- Eficacia glicémica disminuye conforme desciende TFG pero no su efecto nefroprotector
- Las únicas 2 terapias que han mostrado alterar la evolución de nefropatía diabética dese los ARAs son iSGLT2 y finerenona

Preguntas…

chenku2409@gmail.com

Puede descargar la presentación en:

www.EndoDrChen.com