LOS COBOS MEDICAL CENTER

compensar

UNIVERSIDAD EL BOSQUE

Sigues esperando al especialista?
El momento de la insulinización es ahora

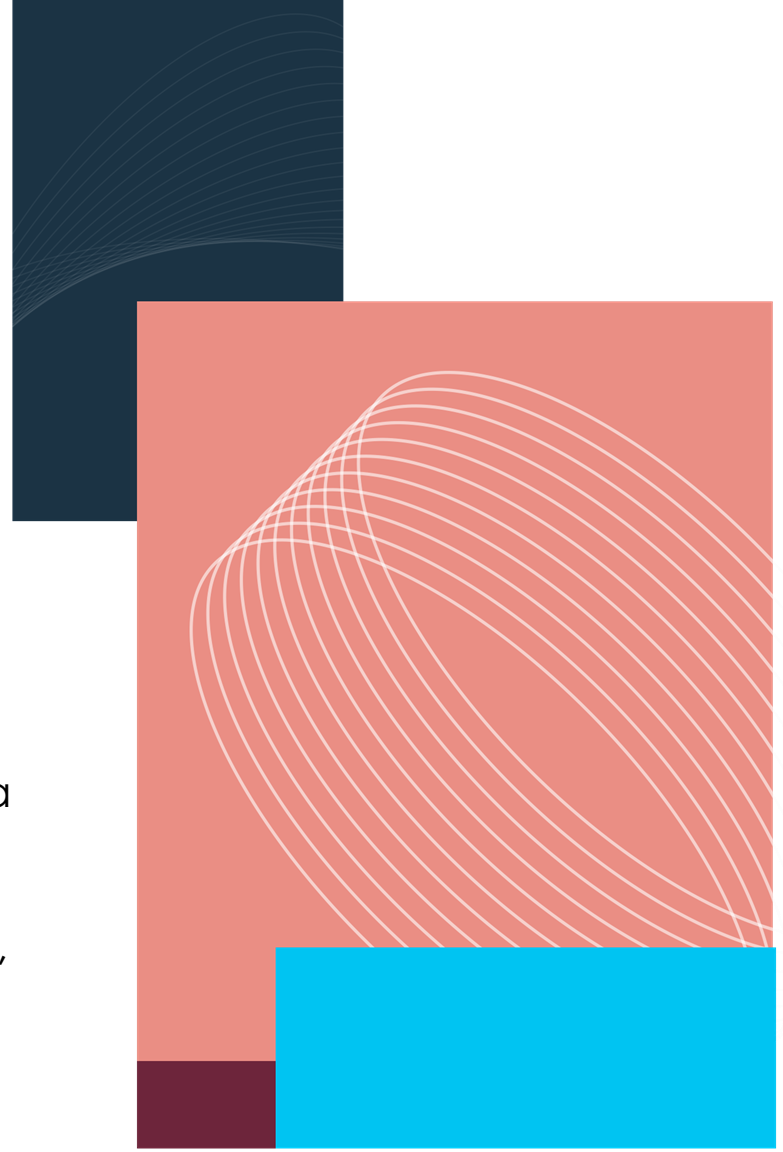
castillo

jorge

Especialista en Endocrinología
Los Cobos Medical Center
Bogota, Colombia

Conflicto de interés

- ❑Esta es una conferencia patrocinada por laboratorios **Sanofi**
- ❑Su contenido es producto de información científica no influenciada por el patrocinador
- ❑He recibido honorarios como speaker de Amgen, Astra Zeneca, BD, Boeringher, Diabetrics, Euroetika, Gilead, Merck Serono, Merck Sharp and Dhome, Lilly, Novo Nordisk, Pharmatech, Pfizer, PTC, Procaps, Roche, Merck, Servier, Tecnofarma.

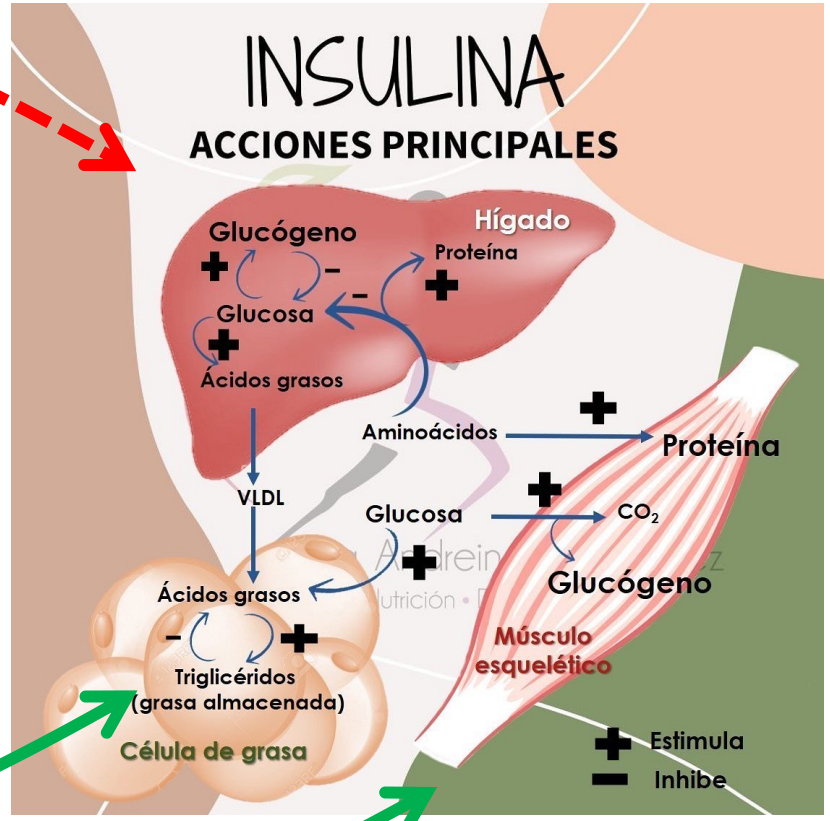


Conferencia disponible en…

www.eldoctorcastillo.com

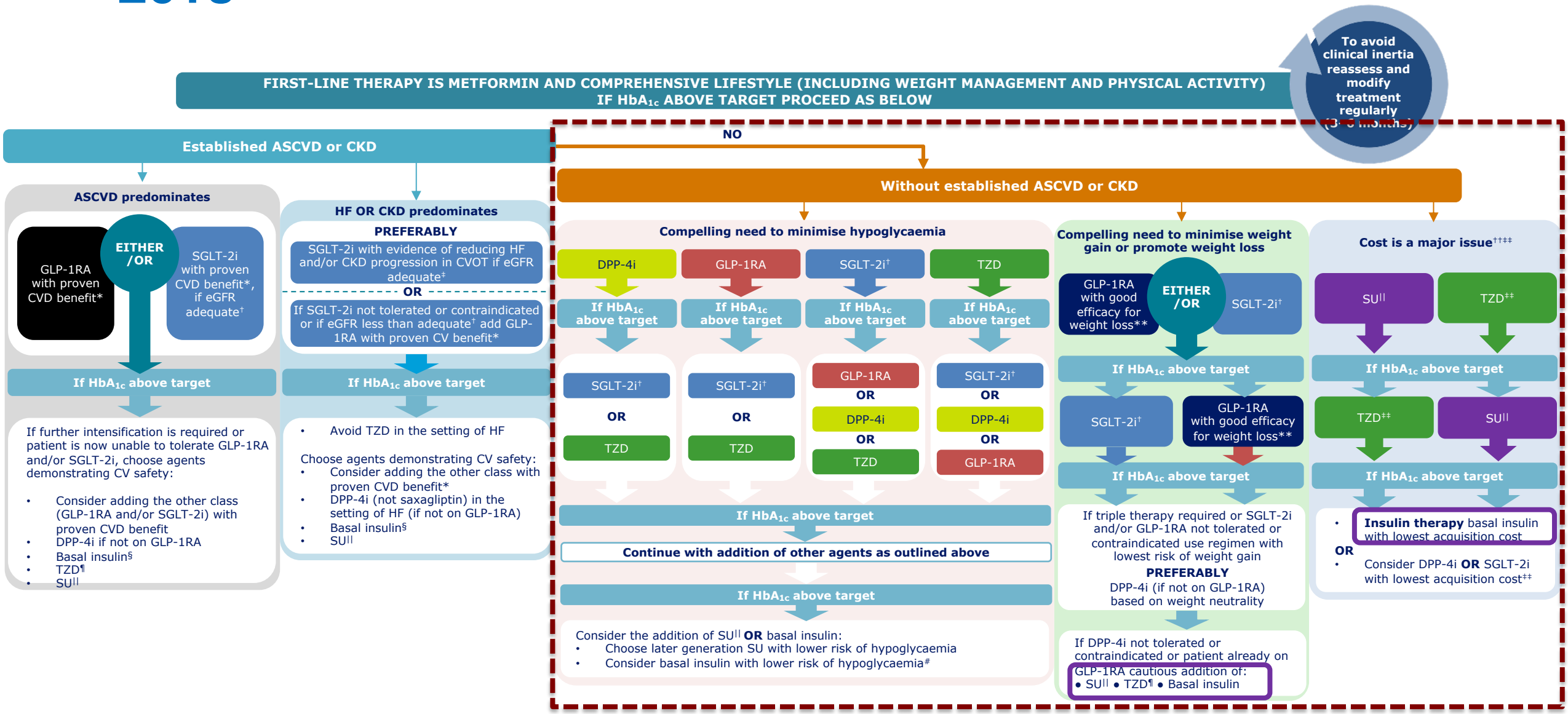
Insulina

Glicemia
(Glucosa en sangre)



Resistencia a la insulina

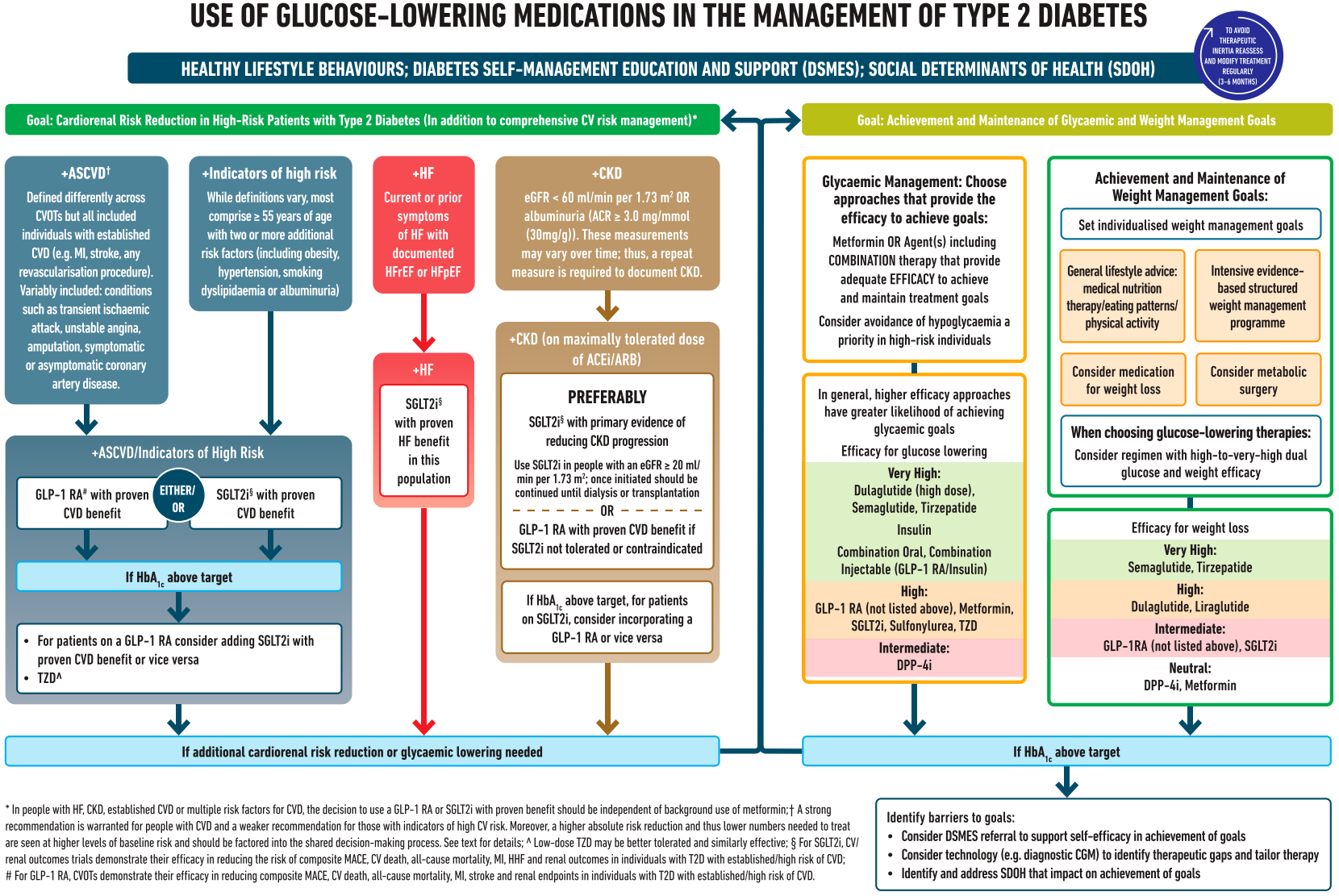
2018



*Proven CVD benefit means it has label indication of reducing CVD events. For GLP-1RA strongest evidence for liraglutide>semaglutide>exenatide extended release. For SGLT-2i evidence modestly stronger for empagliflozin>canagliflozin; †**Semaglutide>liraglutide>dulaglutide>exenatide>lixisenatide; ††If no specific comorbidities (i.e. no established CVD, low risk of hypoglycaemia and lower priority to avoid weight gain or no weight-related comorbidities); ‡‡Consider country- and region-specific cost of drugs. In some countries, TZDs relatively more expensive and DPP-4i relatively cheaper

2022

USE OF GLUCOSE-LOWERING MEDICATIONS IN THE MANAGEMENT OF TYPE 2 DIABETES



* In people with HF, CKD, established CVD or multiple risk factors for CVD, the decision to use a GLP-1 RA or SGLT2i with proven benefit should be independent of background use of metformin;† A strong recommendation is warranted for people with CVD and a weaker recommendation for those with indicators of high CV risk. Moreover, a higher absolute risk reduction and thus lower numbers needed to treat are seen at higher levels of baseline risk and should be factored into the shared decision-making process. See text for details; ^ Low-dose TZD may be better tolerated and similarly effective; § For SGLT2i, CV/renal outcomes trials demonstrate their efficacy in reducing the risk of composite MACE, CV death, all-cause mortality, MI, HHF and renal outcomes in individuals with T2D with established/high risk of CVD; # For GLP-1 RA, CVOTs demonstrate their efficacy in reducing composite MACE, CV death, all-cause mortality, MI, stroke and renal endpoints in individuals with T2D with established/high risk of CVD.

Davies MJ, Aroda VR, Collins BS, Gabbay RA, Green J, Maruthur NM, Rosas SE, Del Prato S, Mathieu C, Mingrone G, Rossing P, Tankova T, Tsapas A, Buse JB

Diabetes Care 2022; https://doi.org/10.2337/dci22-0034. *Diabetologia* 2022; https://doi.org/10.1007/s00125-022-05787-2.

In general, higher efficacy approaches have greater likelihood of achieving glycaemic goals

Efficacy for glucose lowering

Very High:
Dulaglutide (high dose), Semaglutide, Tirzepatide

Insulin

Combination Oral, Combination Injectable (GLP-1 RA/Insulin)

High:
GLP-1 RA (not listed above), Metformin, SGLT2i, Sulfonylurea, TZD

Intermediate:
DPP-4i

Davies MJ, Aroda VR, Collins BS, Gabbay RA, Green J, Maruthur NM, Rosas SE, Del Prato S, Mathieu C, Mingrone G, Rossing P, Tankova T, Tsapas A, Buse JB

Diabetes Care 2022; https://doi.org/10.2337/dci22-0034. *Diabetologia* 2022; https://doi.org/10.1007/s00125-022-05787-2.

The NEW ENGLAND JOURNAL of MEDICINE
ESTABLISHED IN 1812 SEPTEMBER 22, 2022 VOL. 387 NO. 12

Glycemia Reduction in Type 2 Diabetes — Glycemic Outcomes

The GRADE Study Research Group*

Table 2. Primary and Secondary Metabolic Outcomes.*

Outcome	Glargine (N = 1263)	Glimepiride (N = 1254)	Liraglutide (N = 1262)	Sitagliptin (N = 1268)
Primary metabolic outcome†				
Participants — no. (%)	852 (67.4)	908 (72.4)	860 (68.2)	981 (77.4)
Rate/100 participant-yr (95% CI)	26.5 (24.8–28.4)	30.4 (28.4–32.4)	26.1 (24.4–27.9)	38.1 (35.8–40.6)
Pairwise hazard ratios (95% CI)				
Glargine	—	0.89 (0.81–0.98)‡	1.02 (0.93–1.12)	0.71 (0.64–0.78)§
Glimepiride	—	—	1.15 (1.04–1.27)¶	0.79 (0.72–0.88)§
Liraglutide	—	—	—	0.69 (0.63–0.76)§
Hazard ratio in the treatment group as compared with all other treatments combined (95% CI)	0.87 (0.80–0.94)§	1.01 (0.93–1.09)	0.84 (0.78–0.91)§	1.37 (1.27–1.48)§

N Engl J Med 2022;387:1063-74.

The NEW ENGLAND JOURNAL of MEDICINE
ESTABLISHED IN 1812 SEPTEMBER 22, 2022 VOL. 387 NO. 12

Glycemia Reduction in Type 2 Diabetes — Glycemic Outcomes

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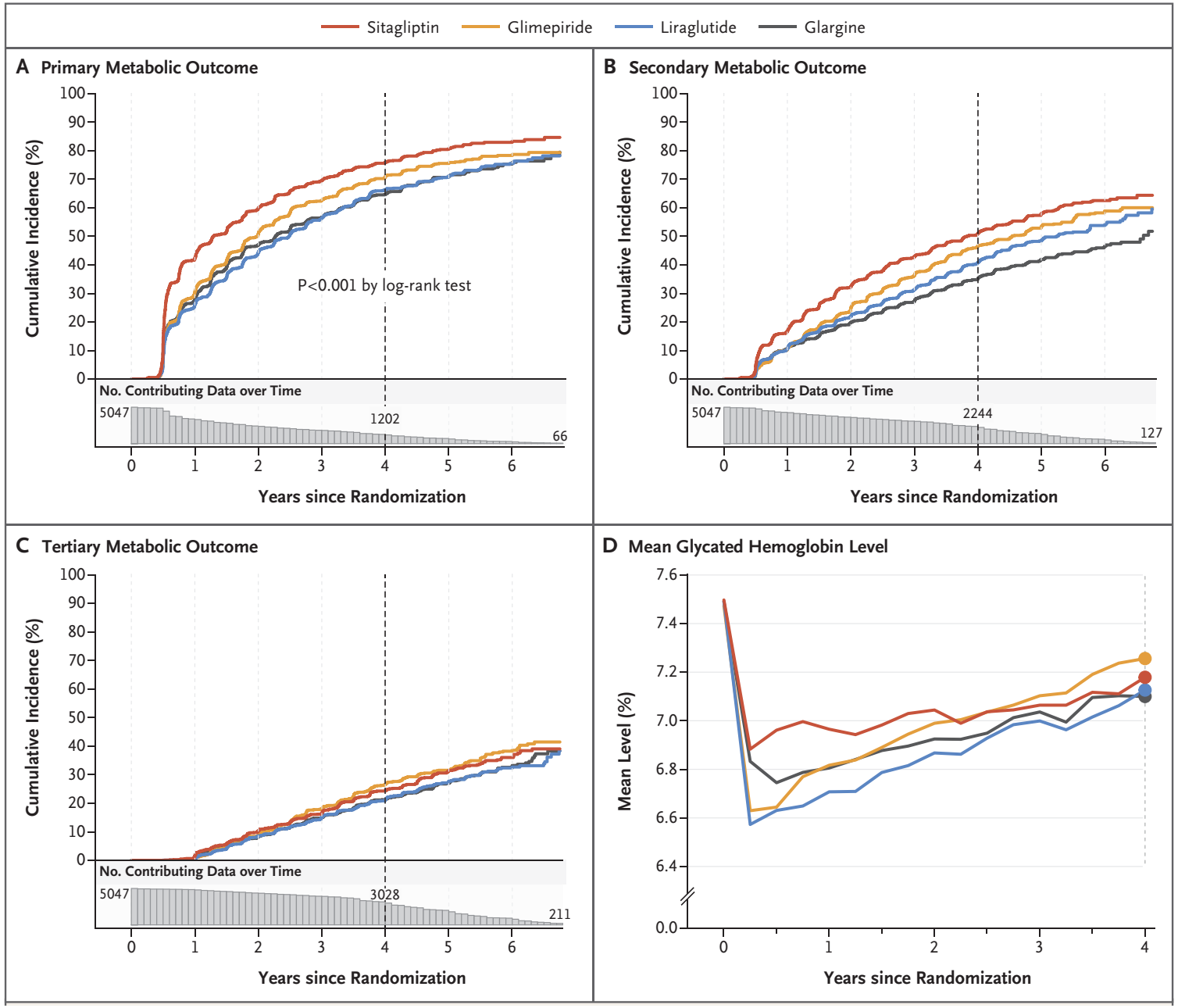

N Engl J Med 2022;387:1063-74.

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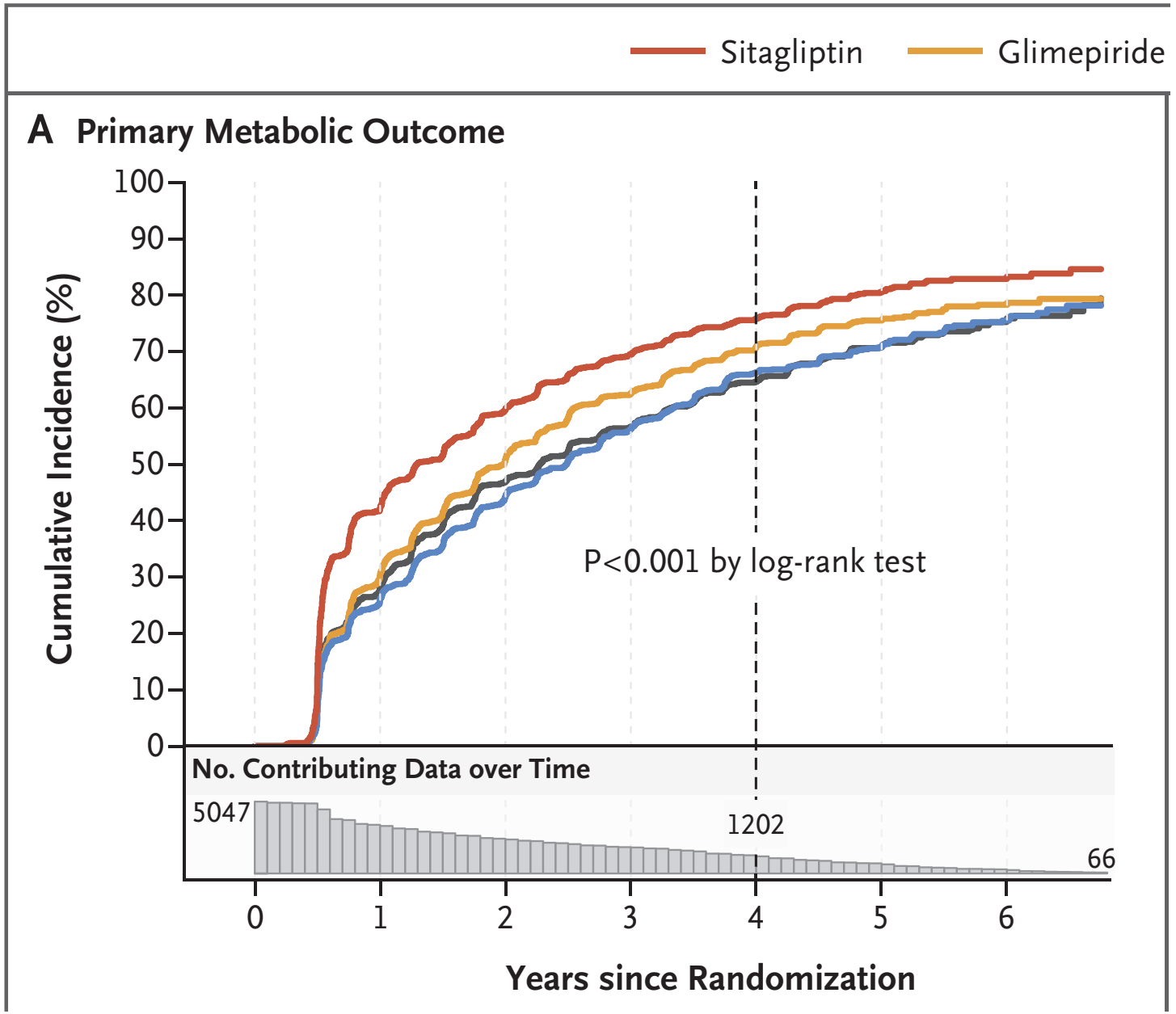

N Engl J Med 2022;387:1063-74.

Sí, pero...

ORIGINAL PAPER

IJCP THE INTERNATIONAL JOURNAL OF CLINICAL PRACTICE

How much is too much? Outcomes in patients using high-dose insulin glargine

T. Reid,[1] L. Gao,[2] J. Gill,[3] A. Stuhr,[3] L. Traylor,[3] A. Vlajnic,[3] A. Rhinehart[4]

❑ Int J Clin Pract, January 2016, 70, 1, 56–65

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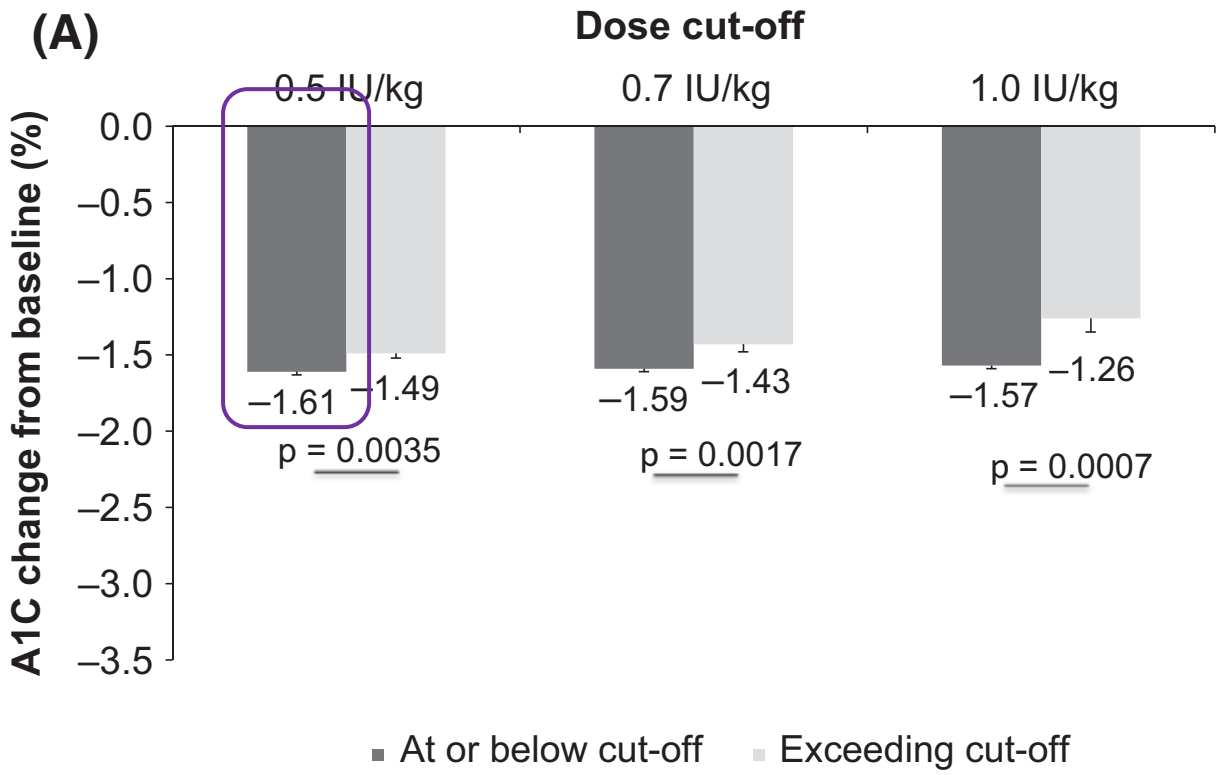
0.5 UI/Kg

n: 2837

53-59 años

7.6 – 9.5 años con DM2



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@eldoctorcastillo

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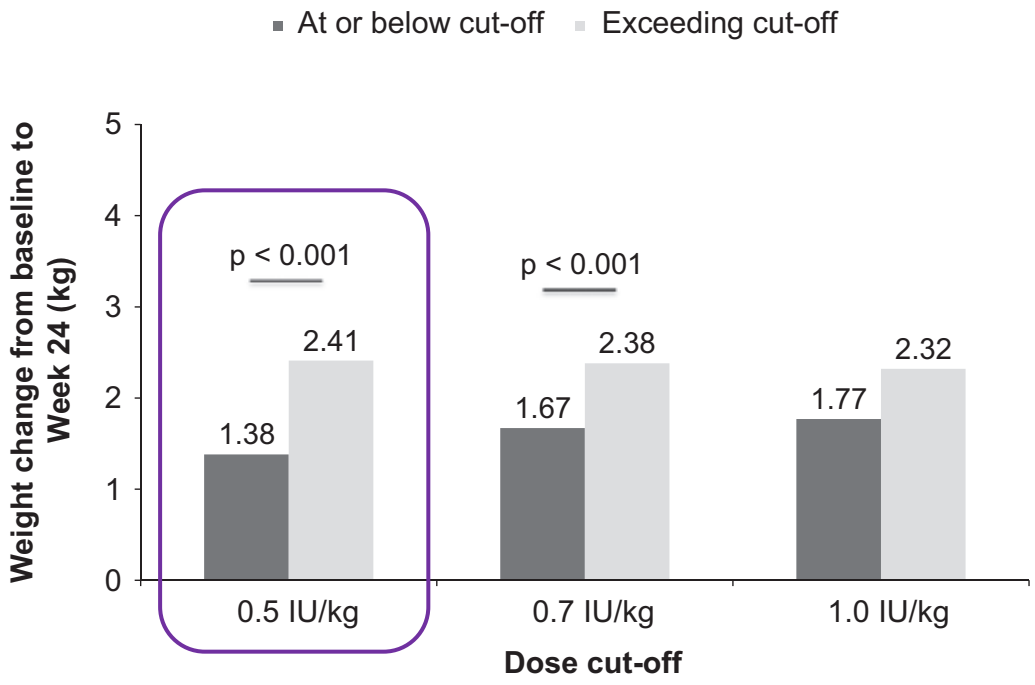
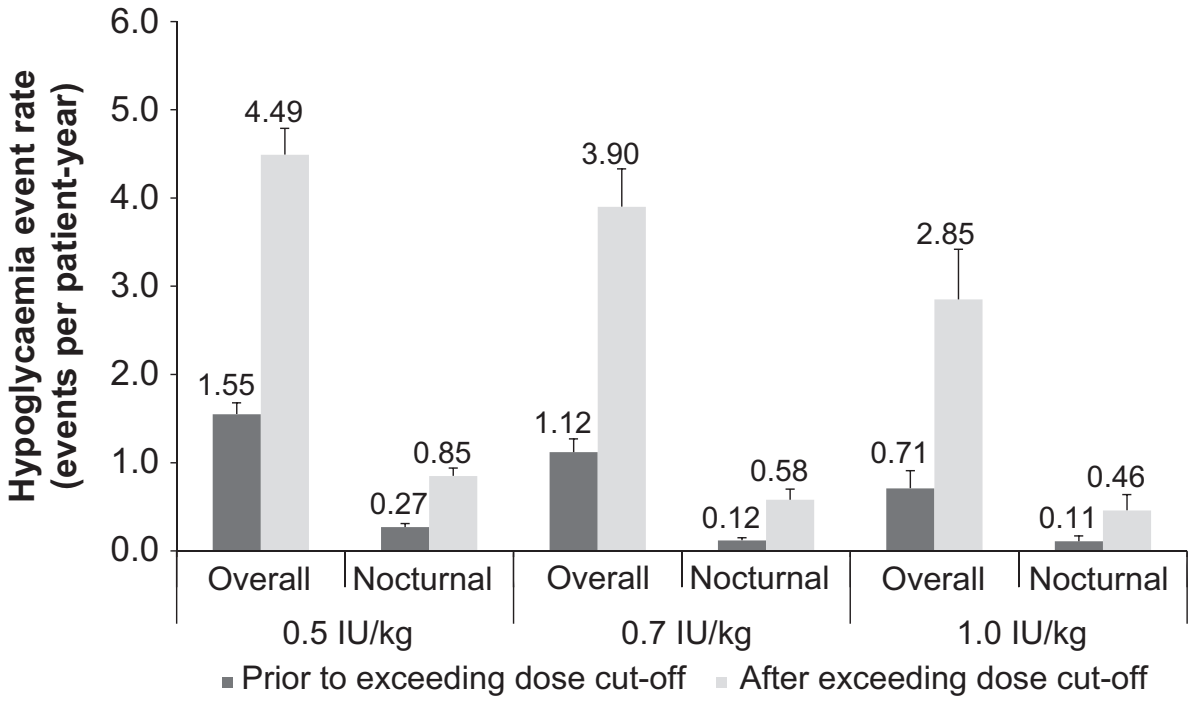
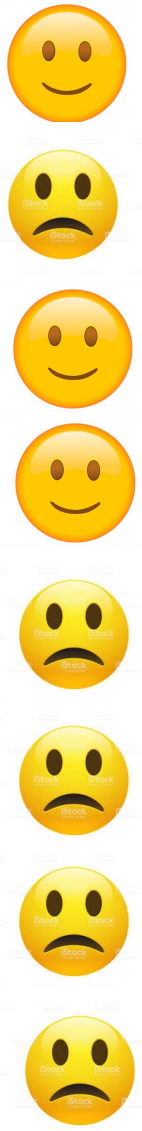




❑ Int J Clin Pract, January 2016, 70, 1, 56–65

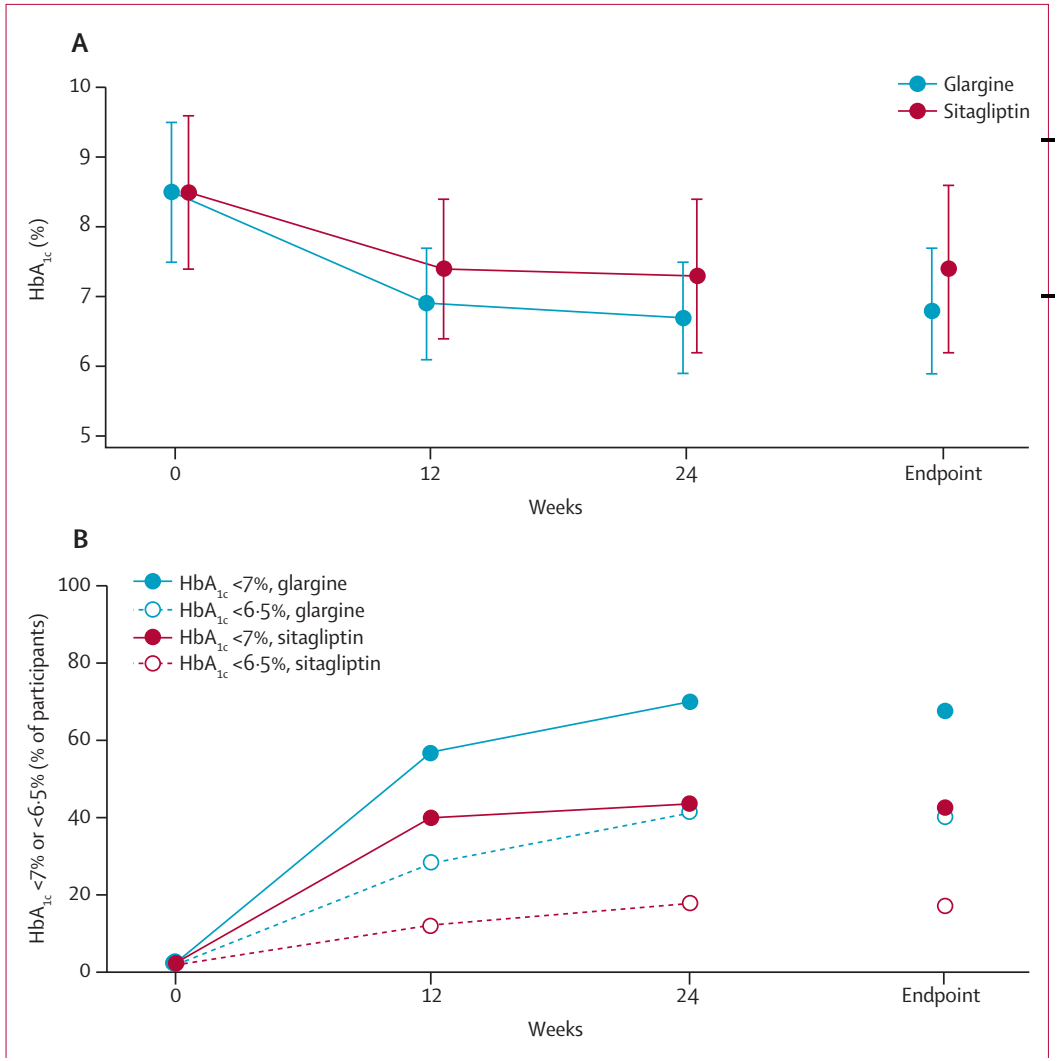
INSULINA



PESO

Insulin glargine versus sitagliptin in insulin-naive patients with type 2 diabetes mellitus uncontrolled on metformin (EASIE): a multicentre, randomised open-label trial

Pablo Aschner, Juliana Chan*, David R Owens, Sylvie Picard, Edward Wang, Marie-Paule Dain, Valérie Pilorget, Akram Echtay, Vivian Fonseca, on behalf of the EASIE investigators*



-1.13%

-1.72%

1.6 x

2.5 x

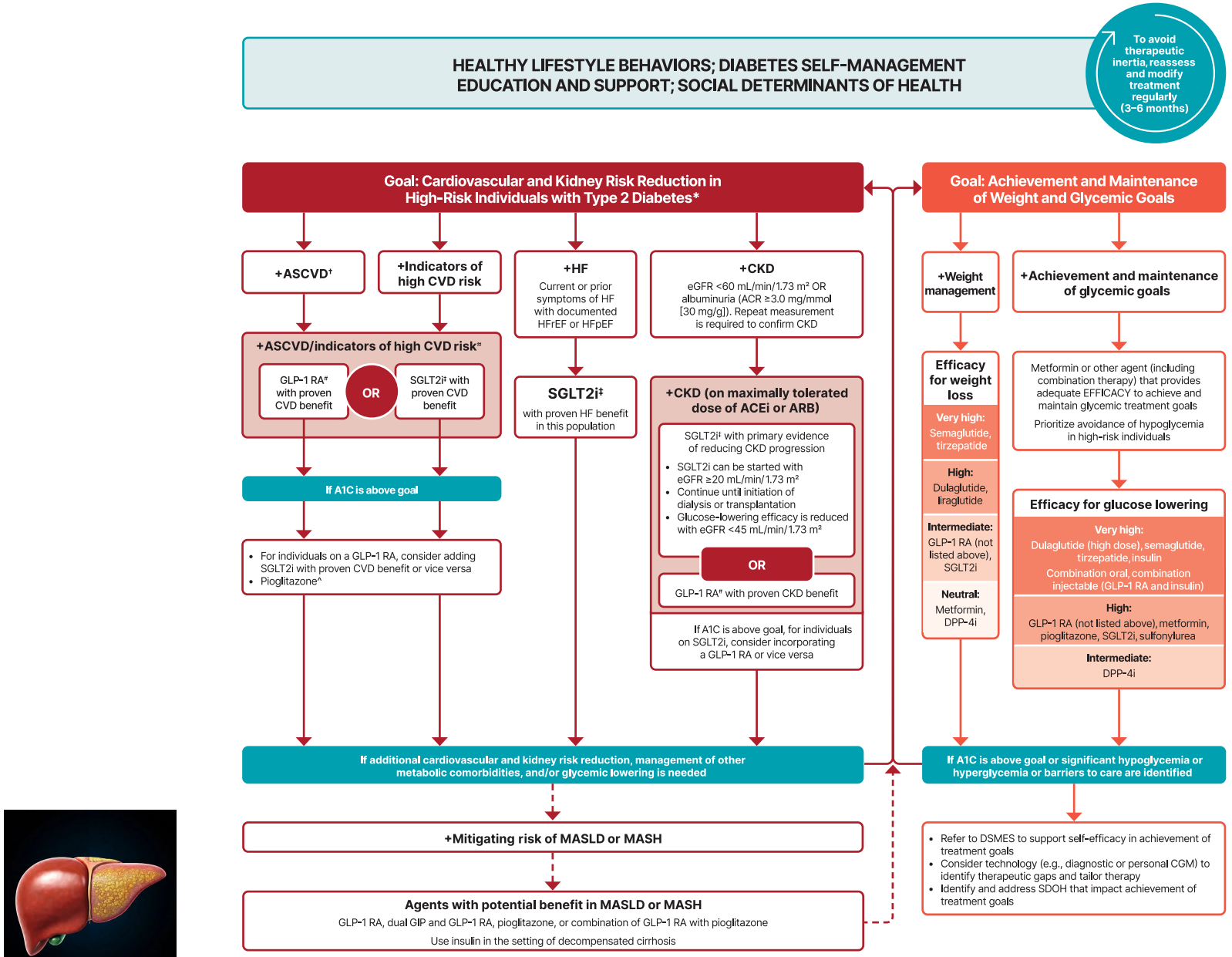
❑ The Lancet PublishedonlineJune9,2012 DOI:10.1016/S0140-6736(12)60439-5

0.5 x 0.5

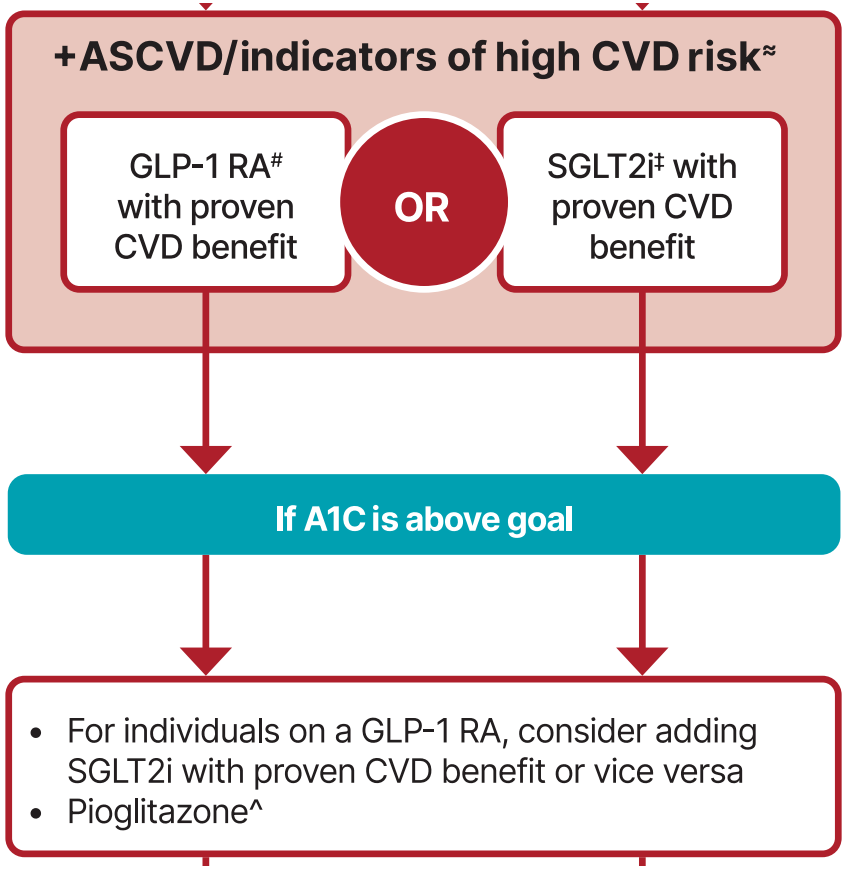
"El control glucemico se alcanzó con 0.5 U/Kg y con tan solo una ganancia de peso de 0.5 Kg"

- The Lancet PublishedonlineJune9,2012 DOI:10.1016/S0140-6736(12)60439-5

Use of Glucose-Lowering Medications in the Management of Type 2 Diabetes



Diabetes Care Volume 48, Supplement 1, January 2025


+ASCVD/indicators of high CVD risk≈
GLP-1 RA# with proven CVD benefit
OR
SGLT2i‡ with proven CVD benefit
If A1C is above goal
For individuals on a GLP-1 RA, consider adding SGLT2i with proven CVD benefit or vice versa
Pioglitazone^

Diabetes Care
American Diabetes Association

Cardiovascular and Renal Benefits of Novel Diabetes Drugs by Baseline Cardiovascular Risk: A Systematic Review, Meta-analysis, and Meta-regression

José M. Rodriguez-Valadez, Malak Tahsin, Kirsten E. Fleischmann, Umesh Masharani, Joseph Yeboah, Meyeon Park, Lihua Li, Ellerie Weber, Yan Li, Asem Berkalieva, Wendy Max, M.G. Myriam Hunink, and Bart S. Ferket

Cardiovascular and renal benefits of novel diabetes drugs by baseline cardiovascular risk: A systematic review, meta-analysis, and meta-regression

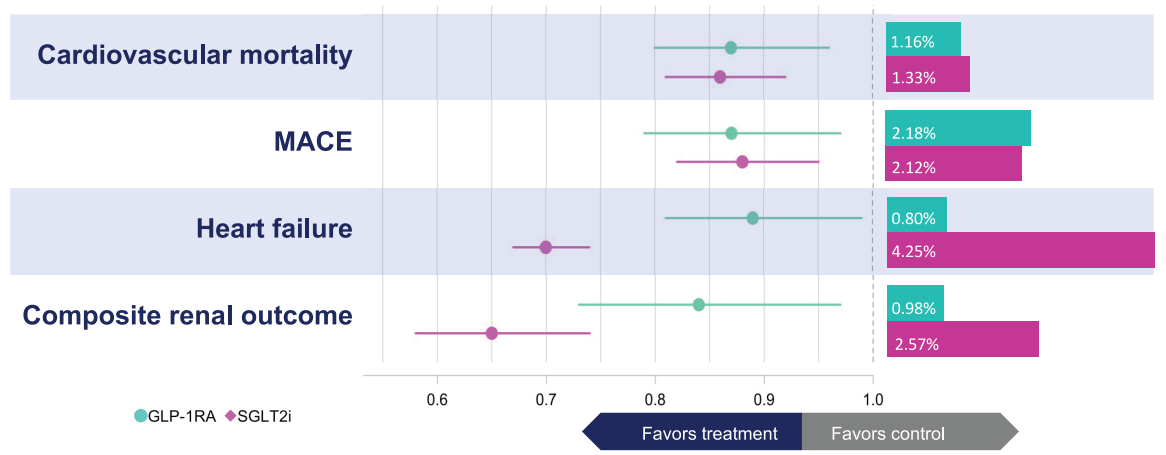
Summary Absolute, but not relative, treatment benefits of novel diabetes drugs depend on baseline cardiovascular risk, particularly regarding benefits for heart failure

Study design Systematic review, meta-analysis, followed by meta-regression

Data sources **34** reports on **22** RCTs
9 GLP-**1**RA, **13** SGLT2i
154,649 adult patients
Mean age **62-72** years
Low risk of bias
For all 22 RCTs

Comparison Intervention: Novel diabetes drugs (GLP-1RA, SGLT2i) Control: Placebo

Results



Largest 5-year absolute risk reduction for **heart failure** within SGLT2i trial participants at highest cardiovascular risk: **11.6%**

NNT **9** in high cardiovascular risk

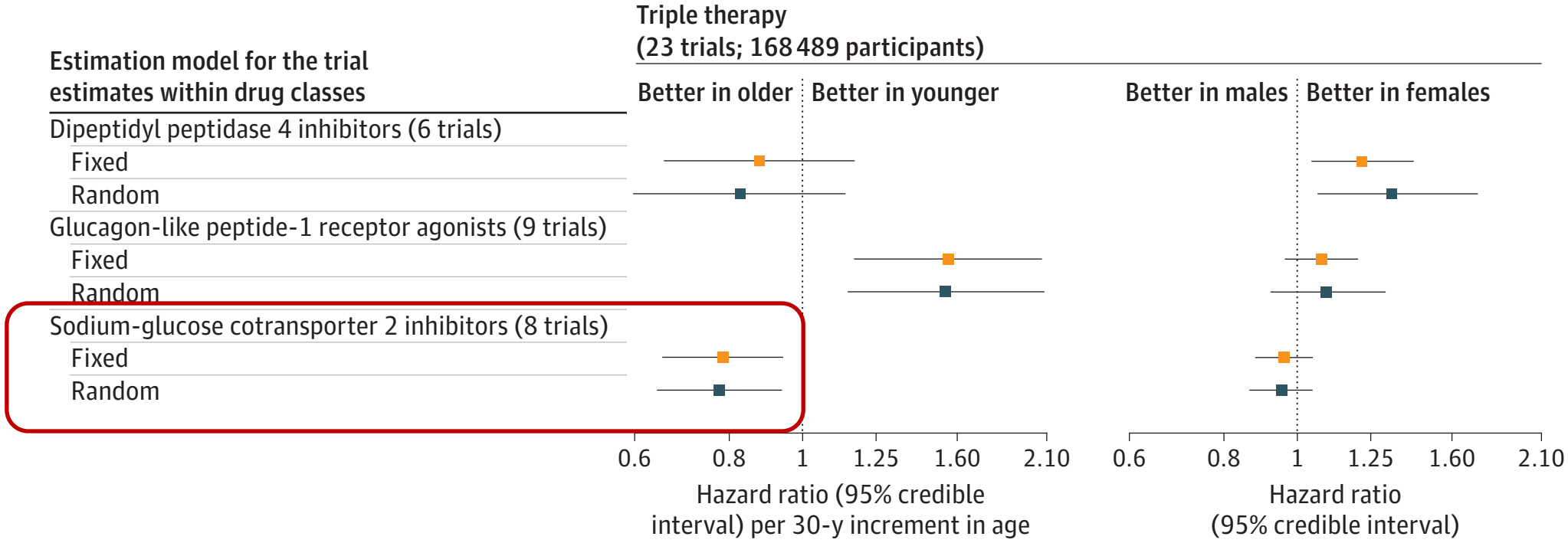
GLP-1RA, glucagon-like peptide-1 receptor agonists; MACE, major adverse cardiovascular event; NNT, number needed to treat; tRCT, randomized controlled trial; SGLT2i, sodium–glucose cotransporter 2 inhibitors

JAMA | Original Investigation

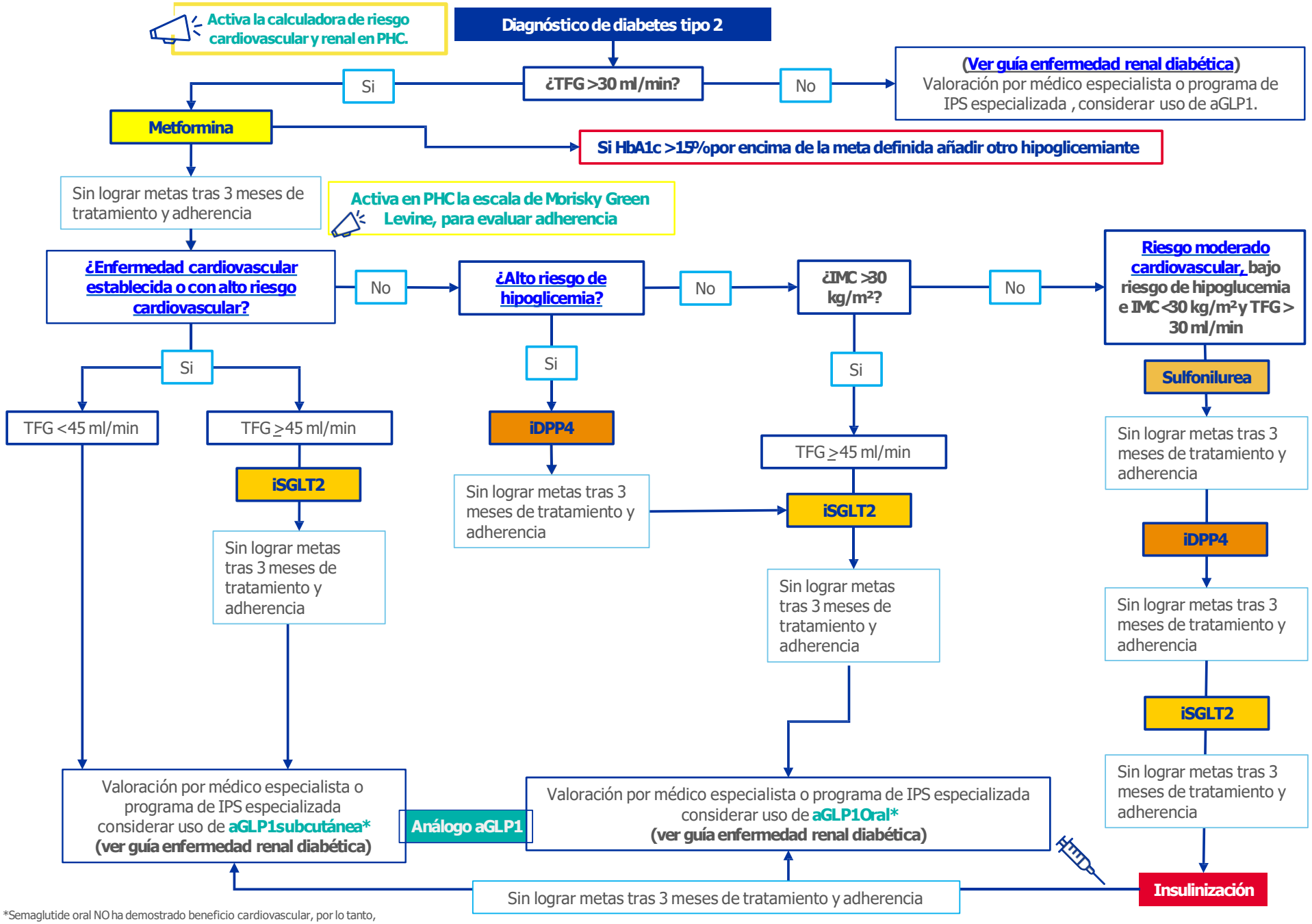
Age and Sex Differences in Efficacy of Treatments for Type 2 Diabetes
A Network Meta-Analysis

Peter Hanlon, PhD; Elaine Butterly, MBChB; Lili Wei, PhD; Heather Wightman, MBChB; Saleh Ali M. Almazam, MSc; Khalid Alsallumi, MSc; Jamie Crowther, MSc; Ryan McChrystal, MSc; Heidi Rennison, BMSc; Katherine Hughes, PhD; Jim Lewsey, PhD; Robert Lindsay, PhD; Stuart McGurnaghan, PhD; John Petrie, PhD; Laurie A. Tomlinson, PhD; Sarah Wild, PhD; Amanda Adler, PhD; Naveed Sattar, PhD; David M. Phillippo, PhD; Sofia Dias, PhD; Nicky J. Welton, PhD; David A. McAllister, MD

B Major adverse cardiovascular events

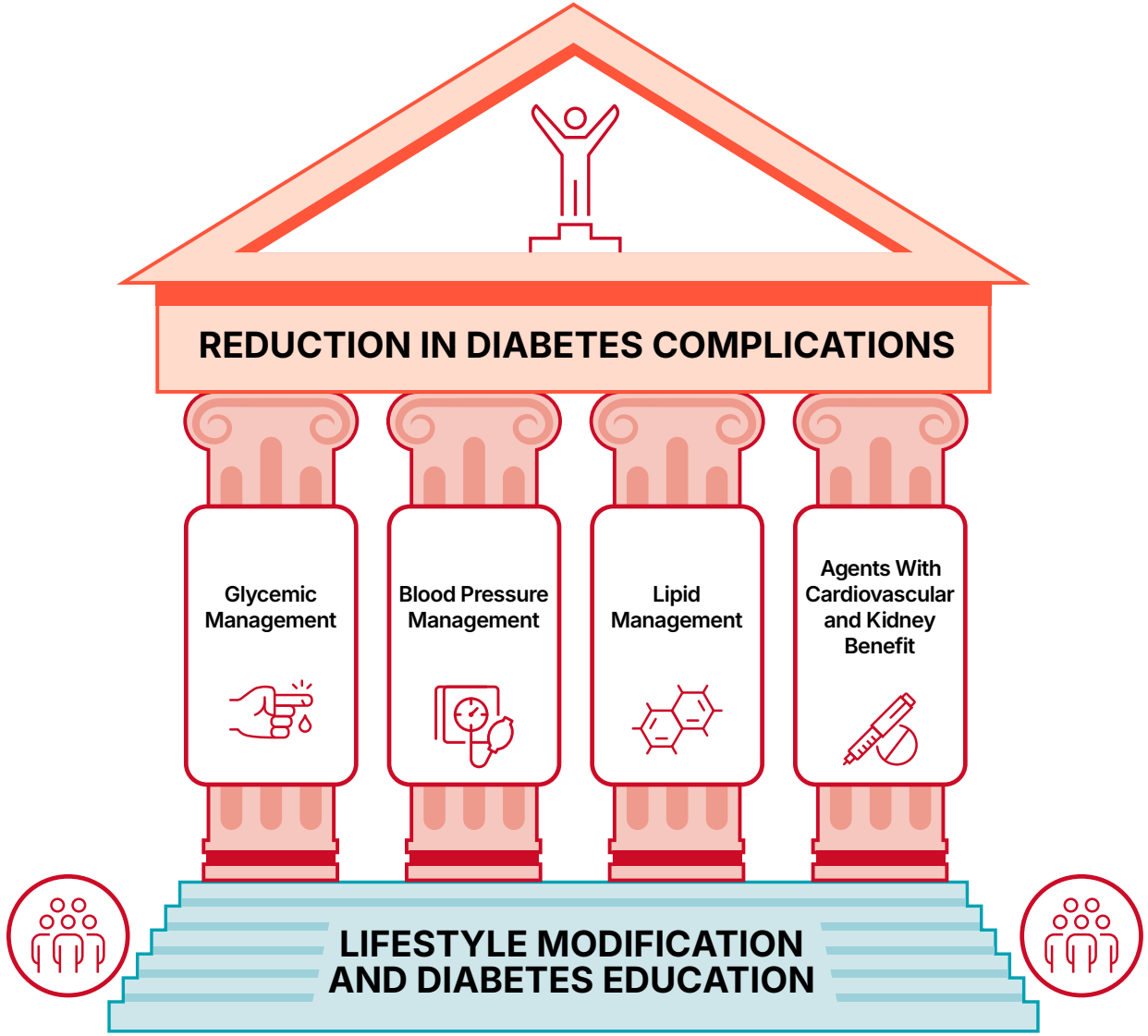


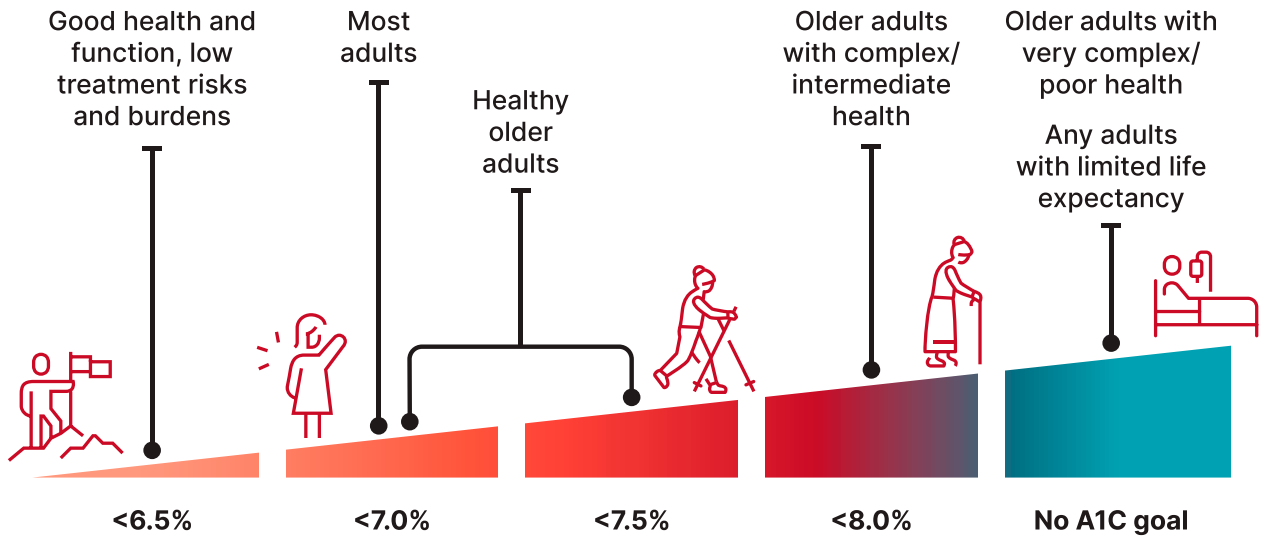
JAMA. 2025;333(12):1062-1073. doi:10.1001/jama.2024.27402



*Semaglutide oral NO ha demostrado beneficio cardiovascular, por lo tanto, no se considera como alternativa en personas con alto riesgo cardiovascular.

Glycemic Management





Modifying Factors

Favor more stringent goal	Favor less stringent goal
Short diabetes duration	Long diabetes duration
Low hypoglycemia risk	High hypoglycemia risk
Low treatment risks and burdens	High treatment risks and burdens
Pharmacotherapy with cardiovascular, kidney, weight, or other benefits	Pharmacotherapy without nonglycemic benefits
No cardiovascular complications	Established cardiovascular complications
Few or minor comorbidities	Severe, life-limiting comorbidities

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Risk Factors, Mortality, and Cardiovascular Outcomes in Patients with Type 2 Diabetes

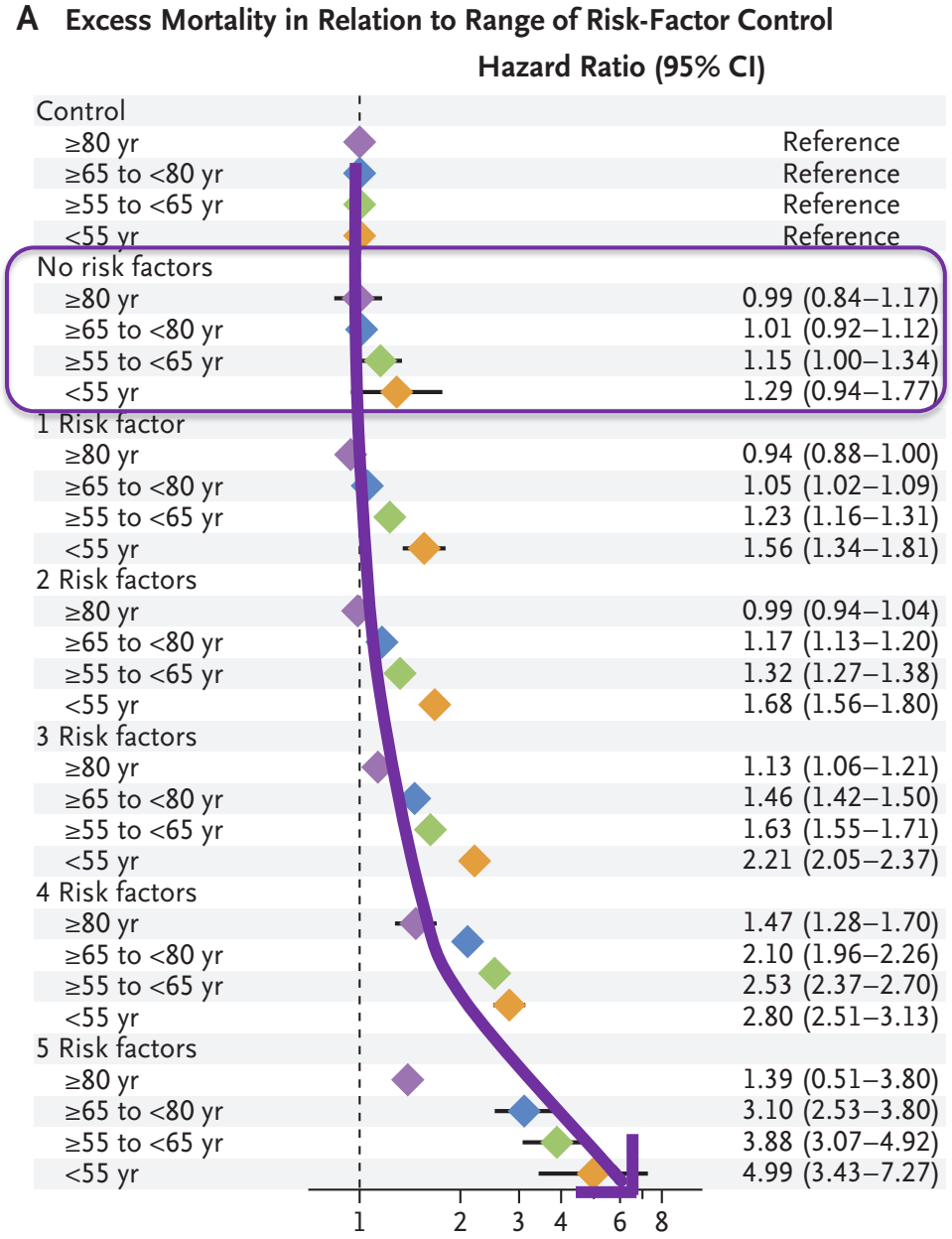
Aidin Rawshani, M.D., Araz Rawshani, M.D., Ph.D., Stefan Franzén, Ph.D., Naveed Sattar, M.D., Ph.D., Björn Eliasson, M.D., Ph.D., Ann-Marie Svensson, Ph.D., Björn Zethelius, M.D., Ph.D., Mervete Miftaraj, M.Sc., Darren K. McGuire, M.D., M.H.Sc., Annika Rosengren, M.D., Ph.D., and Soffia Gudbjörnsdottir, M.D., Ph.D.

- HbA1c
- LDL
- Albuminuria
- Tabaquismo
- T.A.

271.174 Diabetics vs. 1´355.870 No diabeticos

N Engl J Med 2018;379:633-44

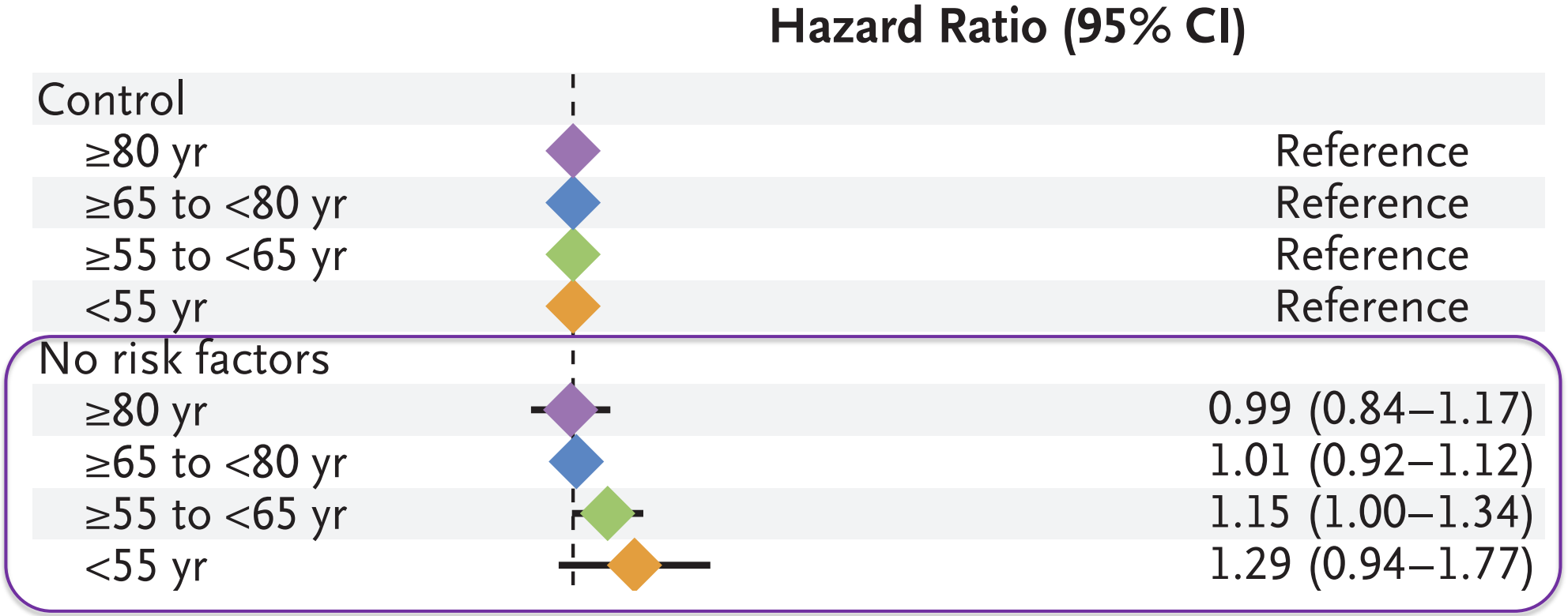
1903



N Engl J Med 2018;379:633-44

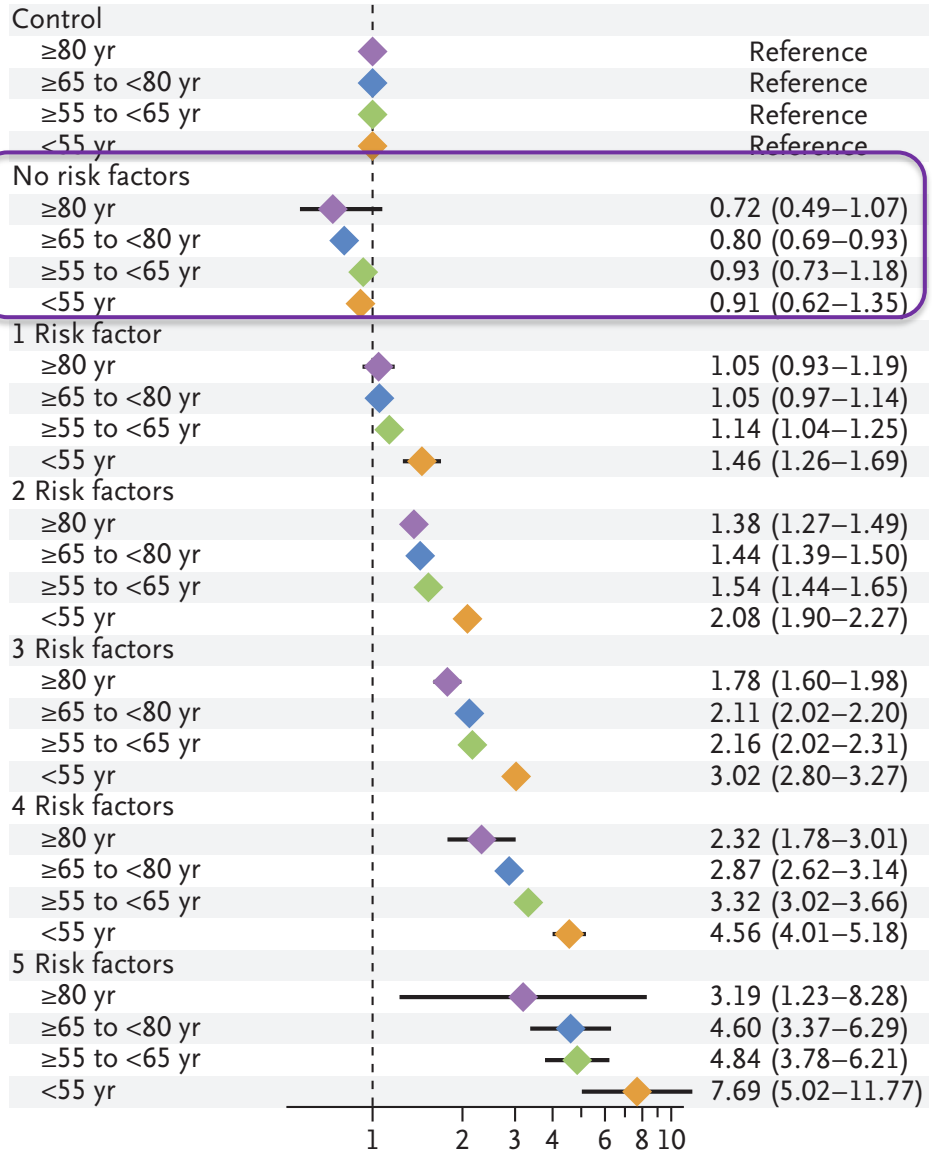
- HbA1c
- LDL
- Albuminuria
- Tabaquismo
- T.A.

A Excess Mortality in Relation to Range of Risk-Factor Control

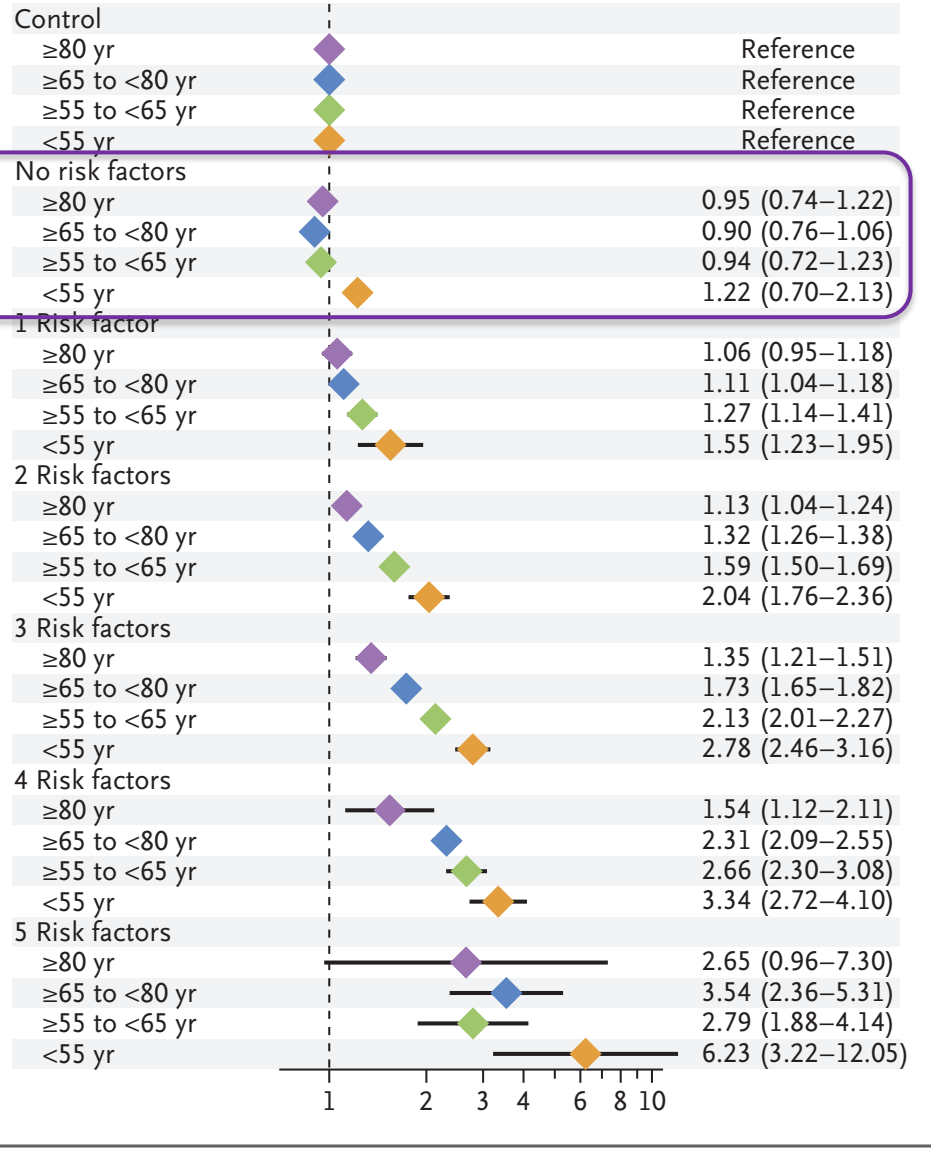


N Engl J Med 2018;379:633-44

B Excess Acute Myocardial Infarction in Relation to Range of Risk-Factor Control

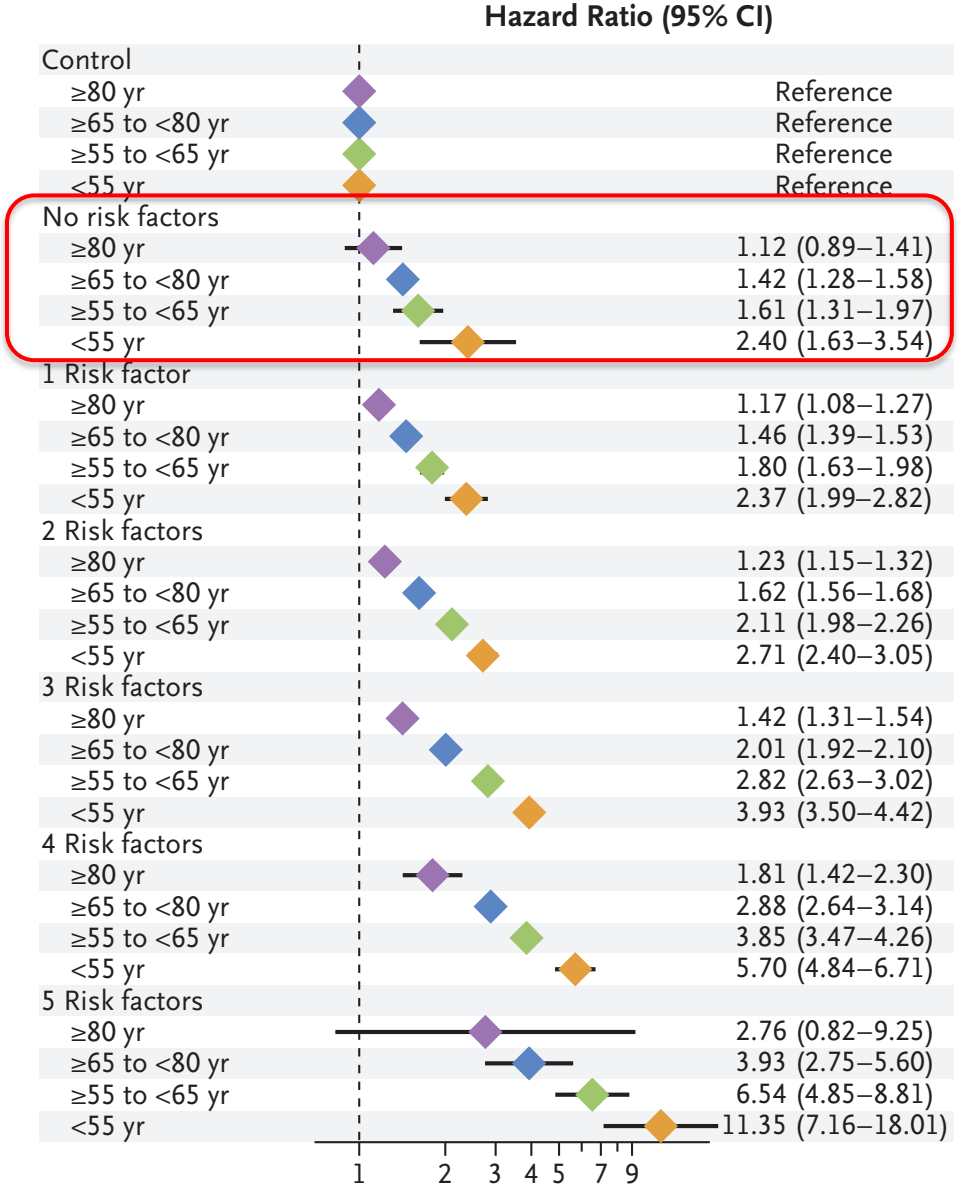


C Excess Stroke in Relation to Range of Risk-Factor Control



N Engl J Med 2018;379:633-44

D Excess Heart Failure in Relation to Range of Risk-Factor Control



N Engl J Med 2018;379:633-44

Kaiser Permanente Northern California (KPNC) Diabetes Regstry

The Legacy Effect in Type 2 Diabetes: Impact of Early Glycemic Control on Future Complications (the Diabetes & Aging Study)

https://doi.org/10.2337/dc17-1144

34.737

Neda Laiteerapong,[1] Sandra A. Ham,[2] Yue Gao,[1] Howard H. Moffet,[3] Jennifer Y. Liu,[3] Elbert S. Huang,[1] and Andrew J. Karter[3]

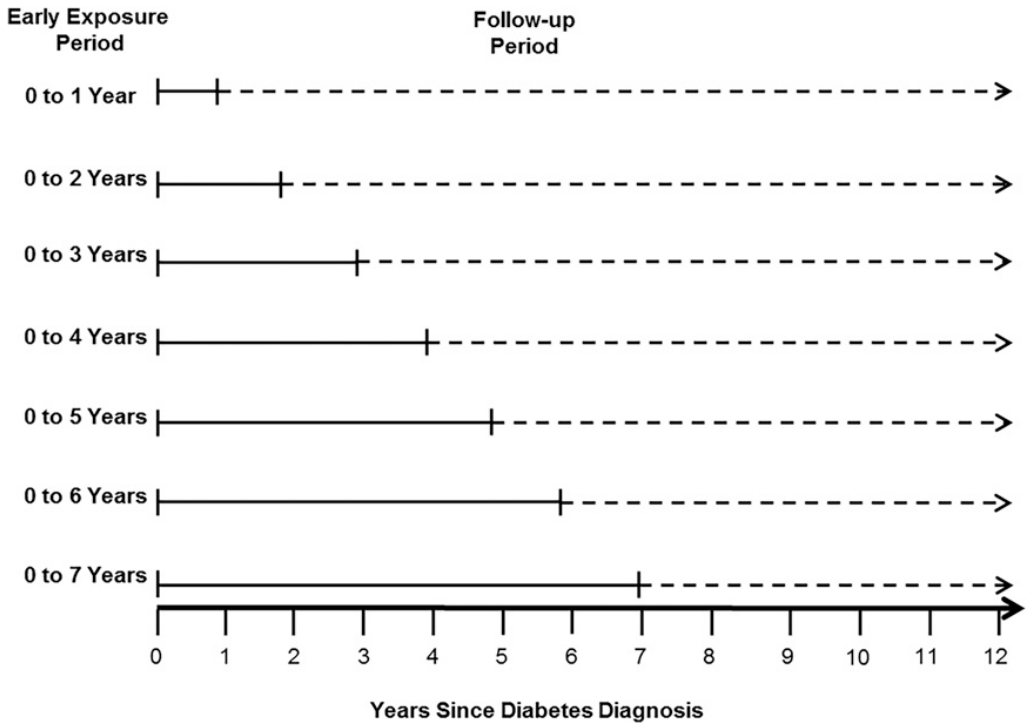
Diabetes Care 2019;42: 416–426

Table 1—Characteristics of patients with newly diagnosed type 2 diabetes and 10 years of survival, stratified by mean HbA_{1c} during the 0–1-year early glycemic exposure period

		HbA_{1c}						
	Overall	<6.5% (<48 mmol/mol)	6.5% to <7.0% (48 to <53 mmol/mol)	7% to <8.0% (53 to <64 mmol/mol)	8.0% to <9.0% (64 to <75 mmol/mol)	≥9.0% (75 mmol/mol)	Missing	*P* value
Patients, *n* (%)	34,737 (100)	14,286 (41.1)	5,877 (16.9)	4,730 (13.6)	1,418 (4.1)	1,290 (3.7)	7,136 (20.5)	
Follow-up time (year), mean (SD)	13.0 (1.9)	12.9 (1.9)	12.6 (1.8)	12.8 (1.8)	13.1 (1.8)	13.3 (1.9)	13.3 (2.0)	<0.0001

The Legacy Effect in Type 2 Diabetes: Impact of Early Glycemic Control on Future Complications (the Diabetes & Aging Study)

https://doi.org/10.2337/dc17-1144

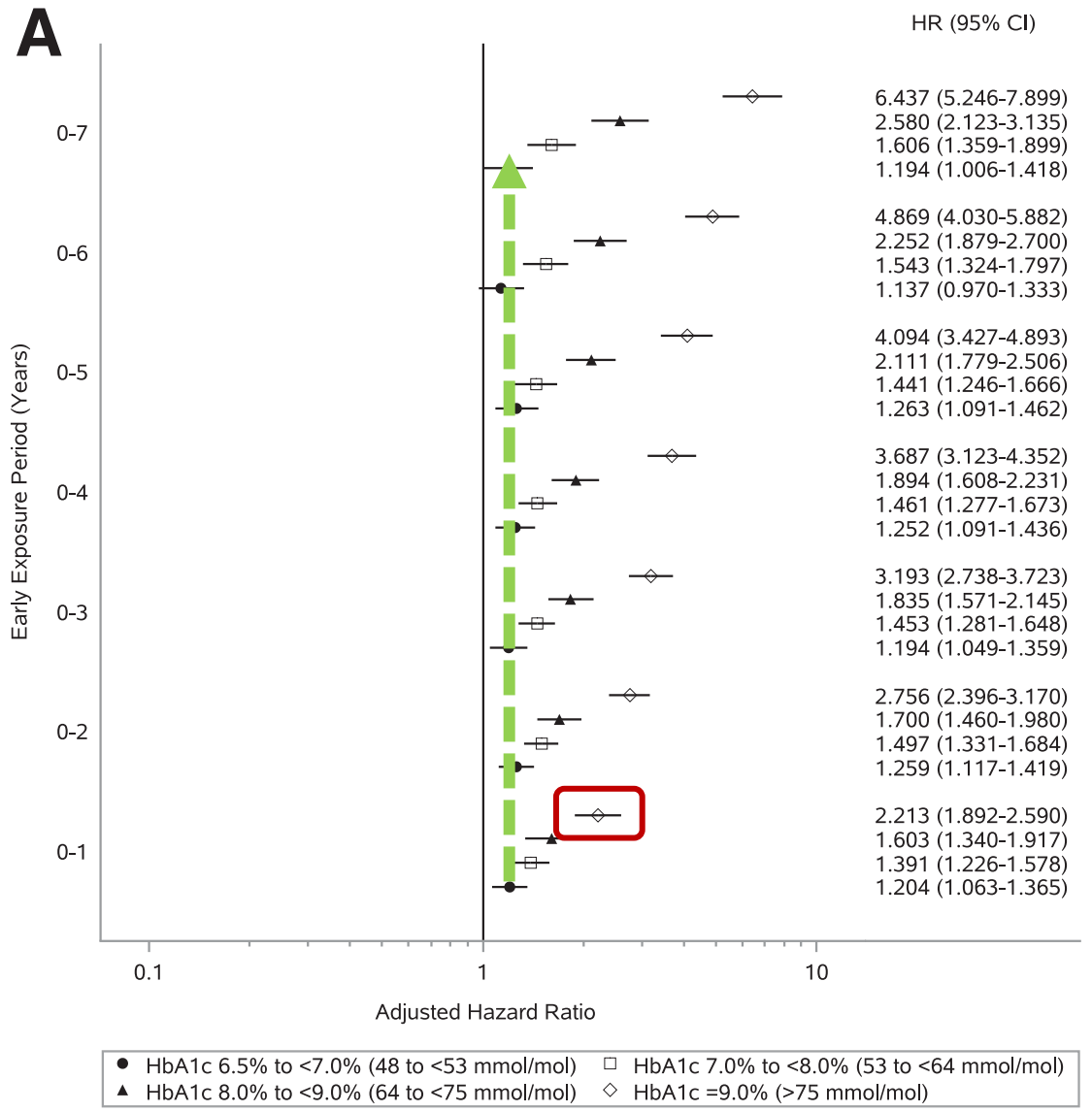


Diabetes Care 2019;42: 416–426

Evento Microvascular

The Legacy Effect in Type 2 Diabetes: Impact of Early Glycemic Control on Future Complications (the Diabetes & Aging Study)

https://doi.org/10.2337/dc17-1144

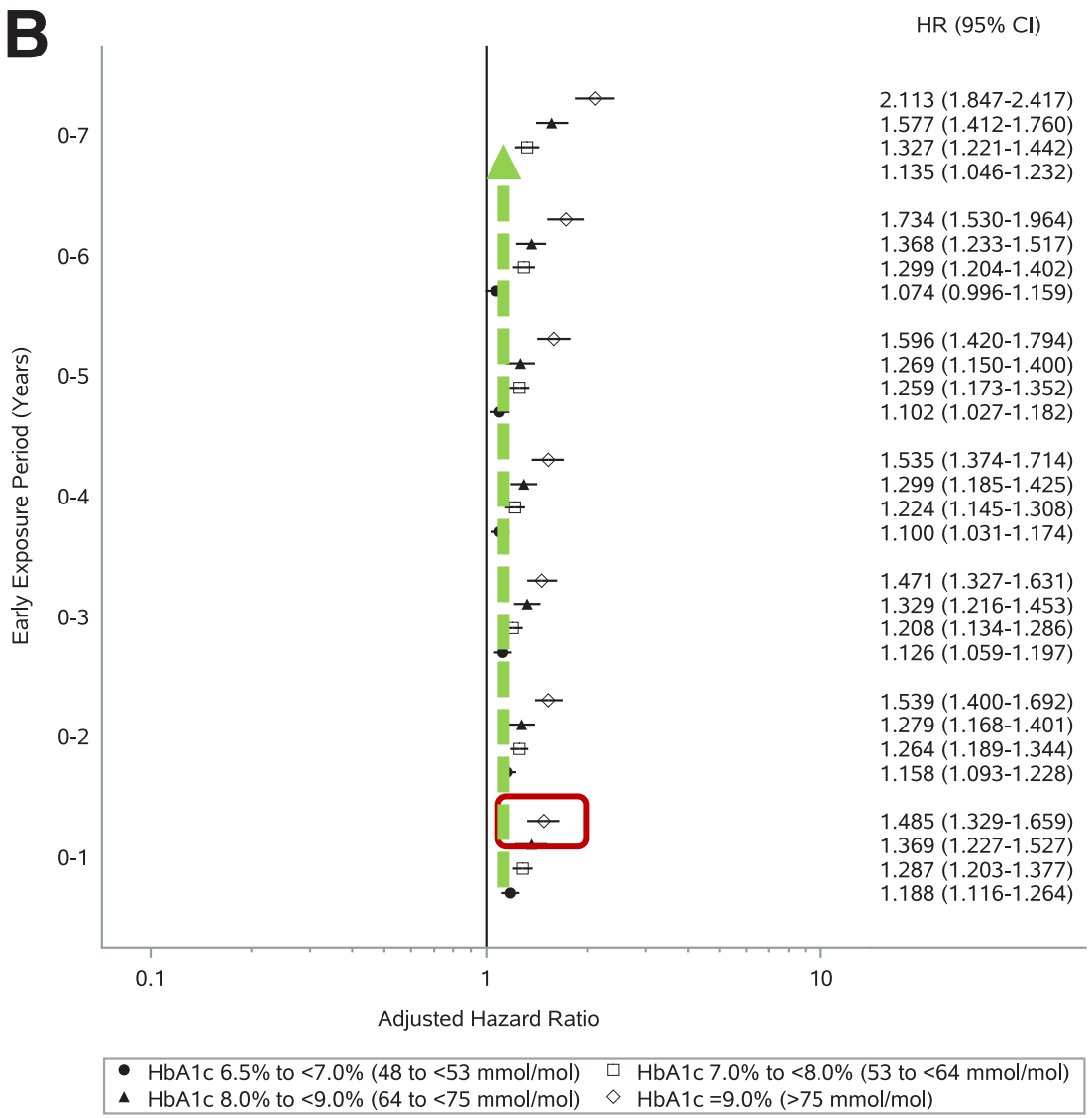


Diabetes Care 2019;42: 416–426

Evento Macrovascular

The Legacy Effect in Type 2 Diabetes: Impact of Early Glycemic Control on Future Complications (the Diabetes & Aging Study)

https://doi.org/10.2337/dc17-1144

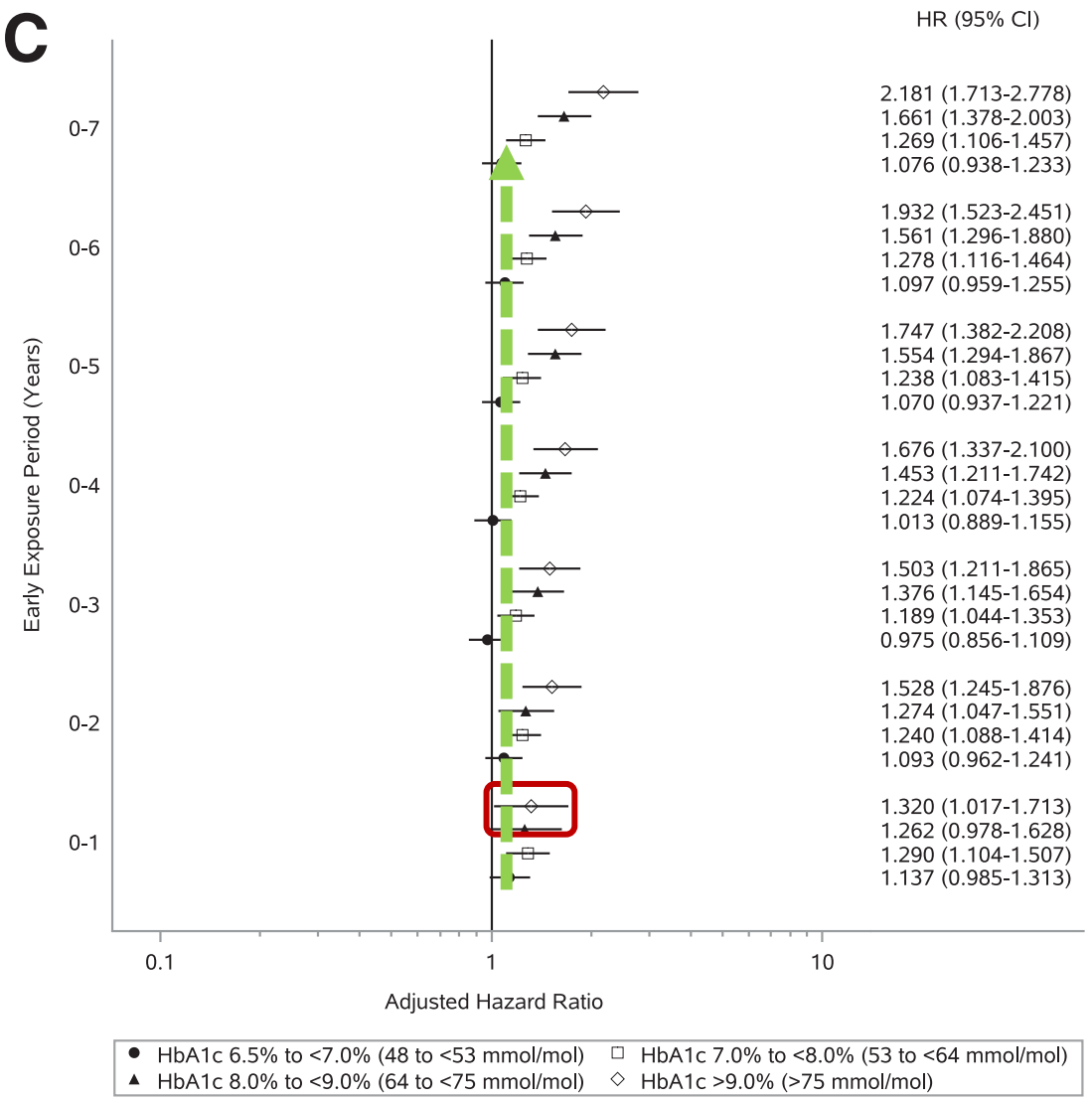


Diabetes Care 2019;42: 416–426

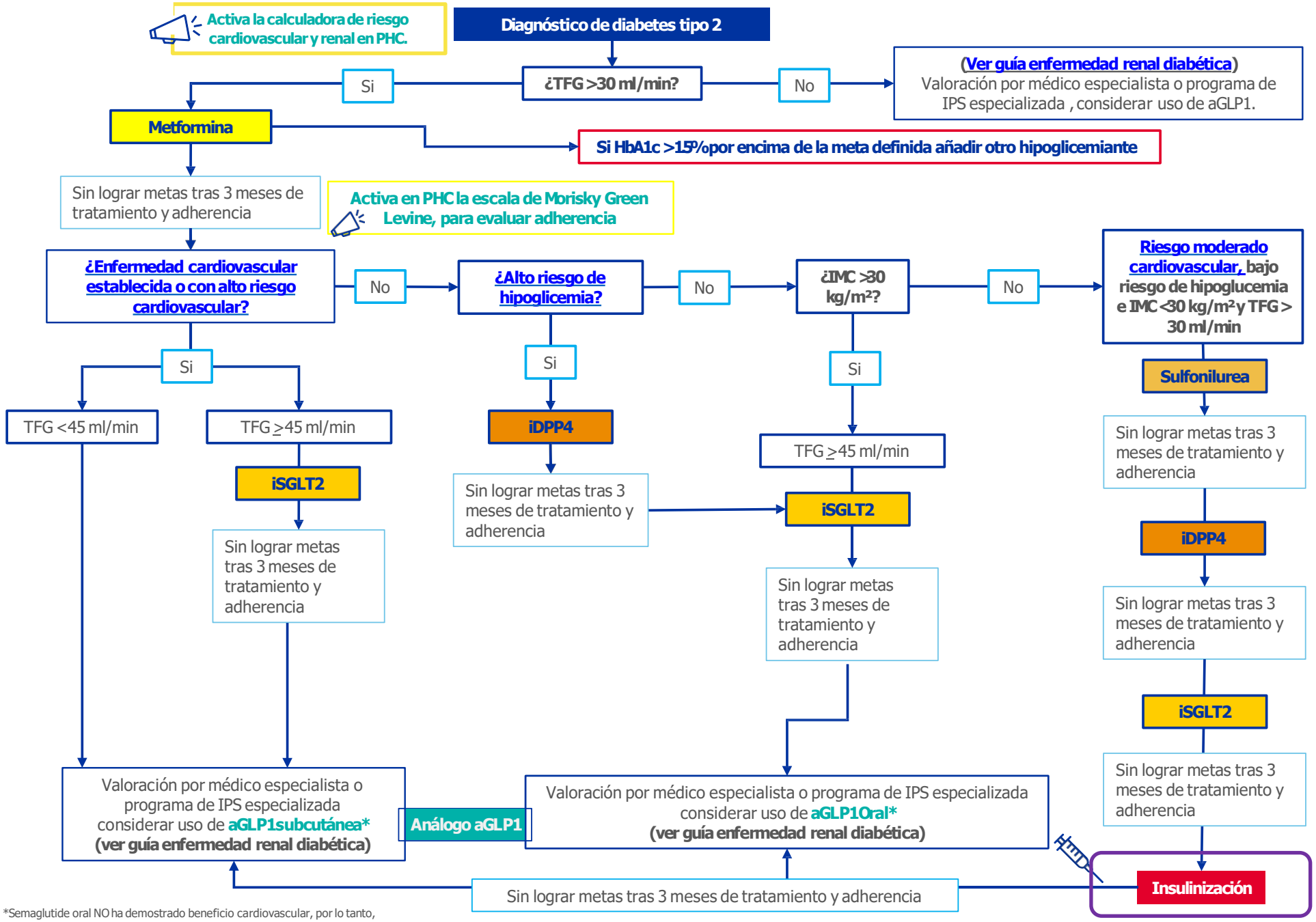
Mortalidad

The Legacy Effect in Type 2 Diabetes: Impact of Early Glycemic Control on Future Complications (the Diabetes & Aging Study)

https://doi.org/10.2337/dc17-1144



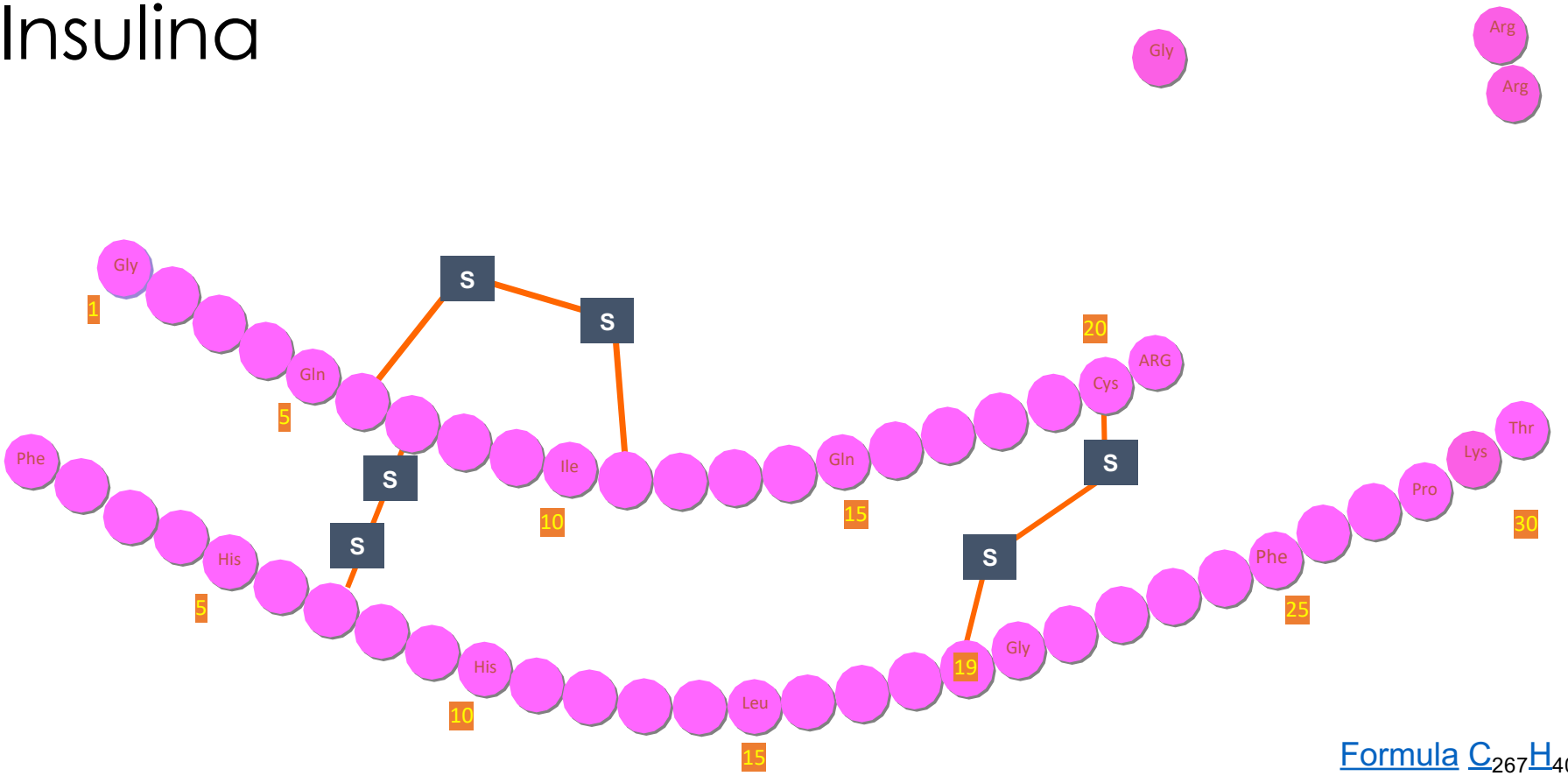
Diabetes Care 2019;42: 416–426



*Semaglutide oral NO ha demostrado beneficio cardiovascular, por lo tanto, no se considera como alternativa en personas con alto riesgo cardiovascular.

Medicamento	Dosis	contraindicaciones
Insulina Glargina (Basal)	**Dosis inicial:** 0,1 a 0,2 unidades por kilo. Titular de acuerdo con la respuesta clínica.	**Efectos adversos:** ▪ Hipoglucemias. ▪ Aumento de peso. ▪ Reacciones en el sitio de aplicación. ▪ Lipodistrofia
1ra opción Insulina Lispro (Acción corta) / **2da opción Insulina glulisina** (Acción corta)	**Dosis:** iniciar con cuatro unidades preprandiales o 10% de la dosis que recibe de insulina basal. Se puede iniciar con una dosis prepandial única sobre la comida más grande del día e incluir otras aplicaciones al esquema hasta llegar a un esquema basal/bolo con aplicación de insulina prepandial antes de cada comida.	
1ra opción Semaglutida (Análogo aGLP1)	**Subcutánea - dosis:** 0.5 a 1mg subcutáneo cada semana en persona con enfermedad cardiovascular establecida. **No requiere ajuste en falla renal.**	**Efectos adversos:** ▪ Síntomas gastrointestinales. ▪ Incremento de la lipasa sérica. ▪ Náuseas / Vómito. ▪ Dolor abdominal. ▪ Diarrea.
	Oral –dosis: Tab 3 mg/día por 4 semanas –luego tab 7 mg/día por 8 semanas, solicitar HbA1c y definir si requiere aumento de dosis a 14 mg/día y en persona sin enfermedad cardiovascular establecida. Antes de la prescripción verificar uso previo de iSGLT2 o DPP4 o glimepirida. **Consideraciones para la toma:** • Tomar con ayuno mínimo de 6 hrs, • Tomar la tableta entera con máximo medio vaso de agua (120 ml), • Esperar 30 min antes de tomar cualquier bebida, comida u otro medicamentos. *No triturar, macerar, partir ni alterar la composición de la tableta *	**Efectos adversos:** ▪ Síntomas gastrointestinales. ▪ Náuseas.
2da opción Dulaglutida (Análogo aGLP1)	**Dosis:** 1.5 mg subcutáneo cada semana. No requiere titulación, la dosis se puede seleccionar entre 0.75 a 1.5 mg semanal. **No requiere ajuste en falla renal.** INVIMA no permite su uso hasta TFG <15 ml / min.	**Efectos adversos:** ▪ Síntomas gastrointestinales. ▪ Incremento de la lipasa sérica. ▪ Náuseas / Vómito. ▪ Dolor abdominal. ▪ Diarrea.

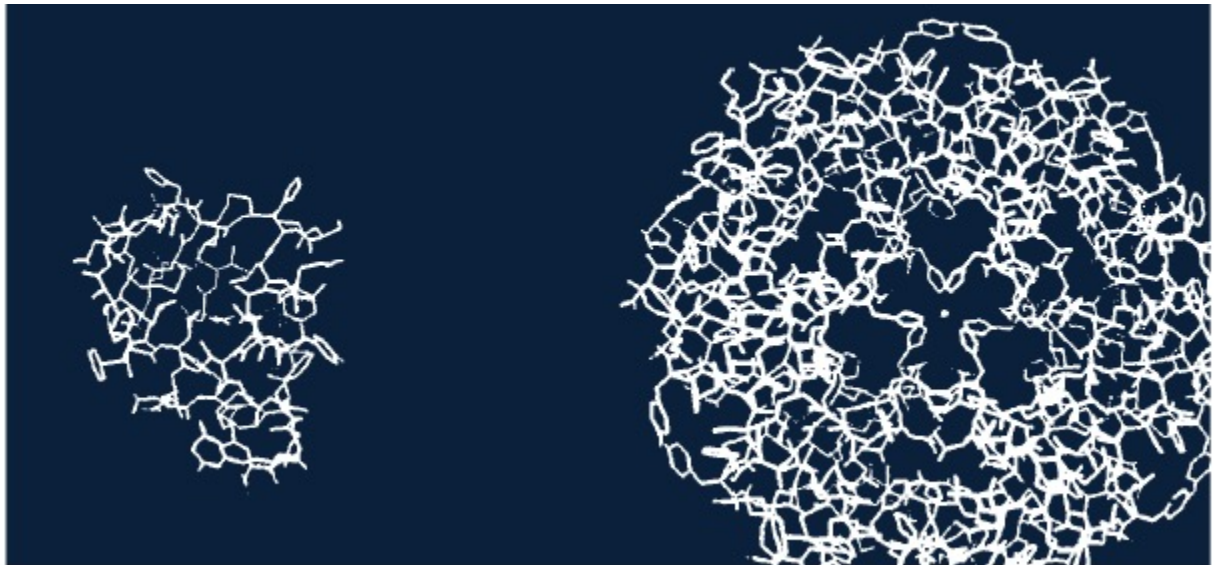
Insulina

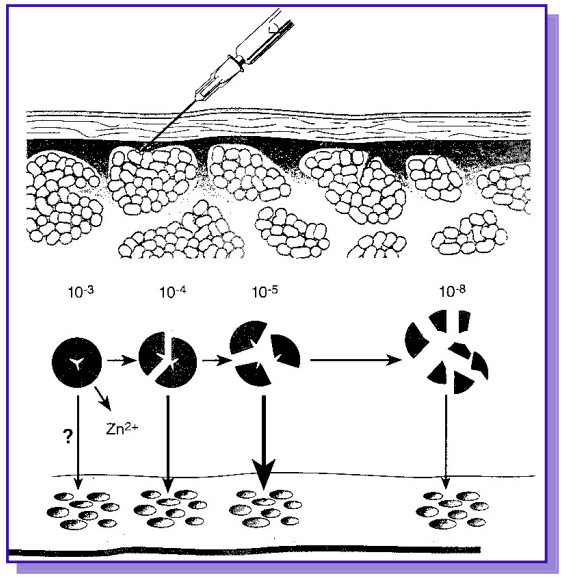


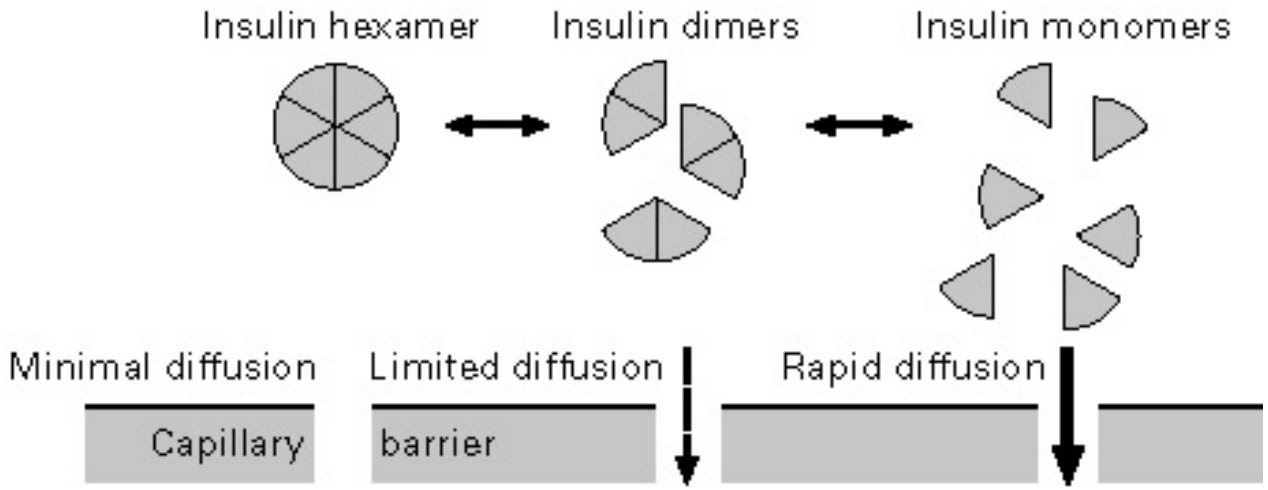
Formula $C_{267}H_{408}N_{72}O_{77}S_6$

Masa Molecular **6063 g/mol**

Punto isoelectrico de 5.4 a 6.7, lo que disminuye la solubilidad y se produzca microprecipitaciones




10^{-3}
10^{-4}
10^{-5}
10^{-8}
?
Zn^{2+}


Insulin hexamer
Insulin dimers
Insulin monomers
Minimal diffusion
Limited diffusion
Rapid diffusion
Capillary
barrier

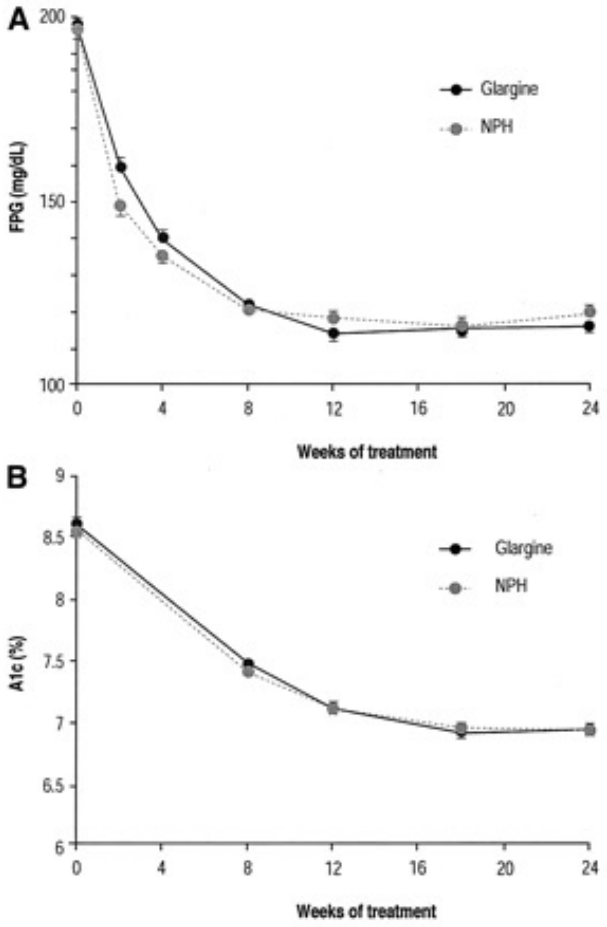
DiabetesCare

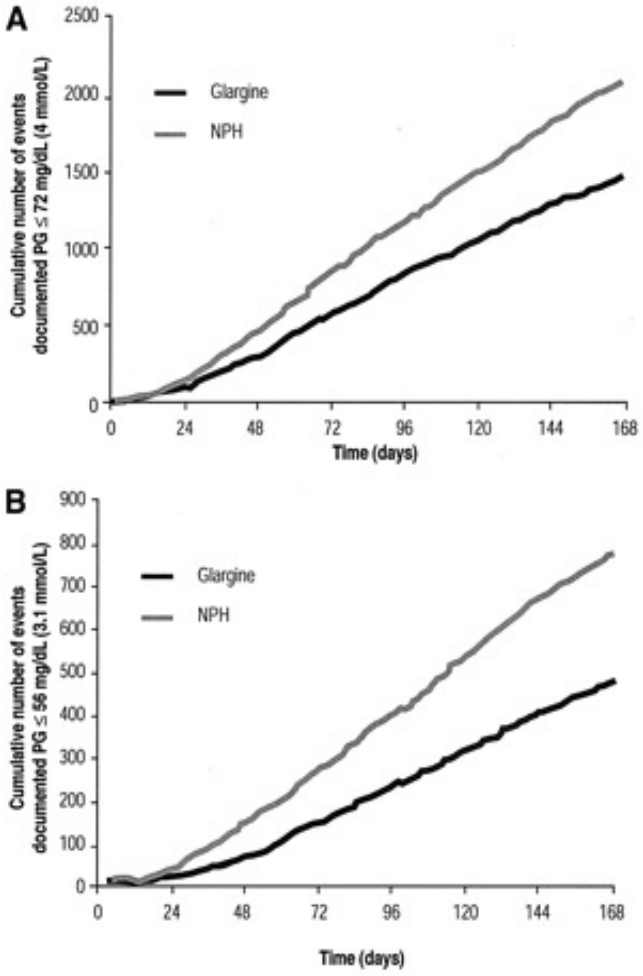
- **The Treat-to-Target Trial**
- **Randomized addition of glargine or human NPH insulin to oral therapy of type 2 diabetic patients**
  - **Matthew C. Riddle, MD[1], Julio Rosenstock,**

Table 2—*Baseline characteristics of subjects in the study*

	Glargine	NPH
n	367	389
Sex (F/M) (%)	45/55	44/56
Age (years)	55 ± 9.5	56 ± 8.9
Duration of diabetes (years)	8.4 ± 5.55	9.0 ± 5.57
BMI (kg/m^2)	32.5 ± 4.64	32.2 ± 4.80
FPG (mg/dl [mmol/l])	198 (11.0) ± 49 (2.71)	194 (10.8) ± 47 (2.61)
HbA_{1c} (%)	8.61 ± 0.9	8.56 ± 0.9
Ethnicity (%)		
White	84	83
Black	11	13
Asian	3	3
Multiracial	1	1
Hispanic heritage (%)	10	6
Prior therapy (%)		
SU + metformin	71	74
SU only	11	10
Metformin only	8	7
SU + TZD	6	5
Metformin + TZD	3	3
TZD only	<1	<1

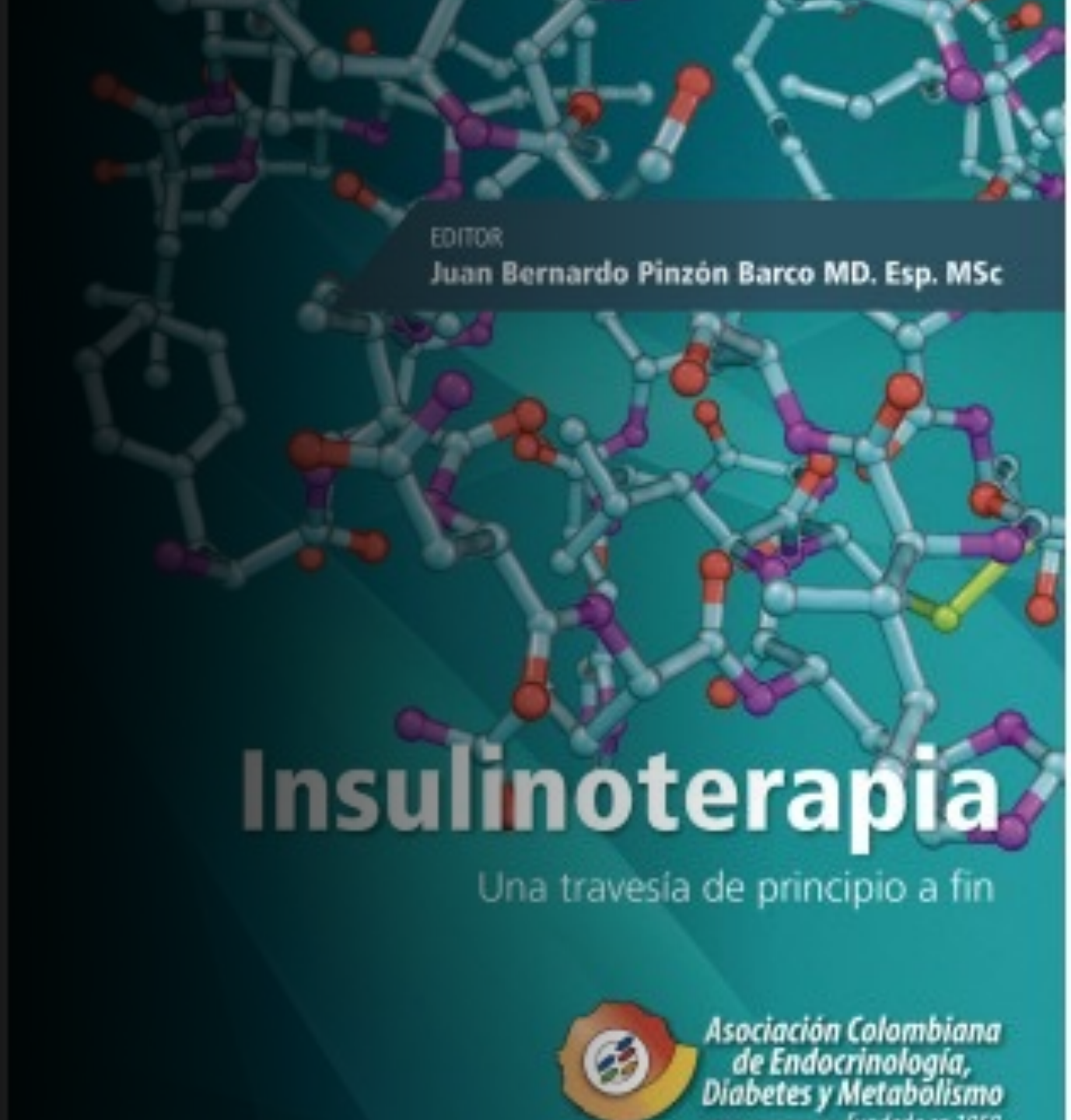
Data are means ± SD, unless otherwise noted. SU, sulfonylurea; TZD, thiazolidinedione.





Mean daily dosages at end point were 47.2 IU for glargine vs. 41.8 for NPH ($P < 0.005$; between-treatment difference 5.3 IU [95% CI 1.8 – 8.9] peso 93

Entonces… insulinicemos



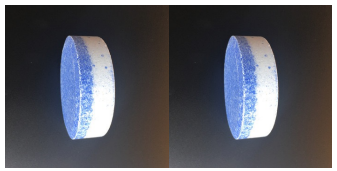
Cúando Insulinizar

1	2	5	3	4
HbA1c	**HbA1c**	**ADOs**	**Estados Catabólicos**	**Condiciones especiales**
10% > 300 mg/dl	9% Síntomas clásicos	2 o 3 sin llegar a metas	Estado Hiperosmolar Cetoacidosis Urgencias	Embarazo Hospitalización

Inicio de inyectables

+ ↑ Hba1c
> 7%

→ Insulina Basal



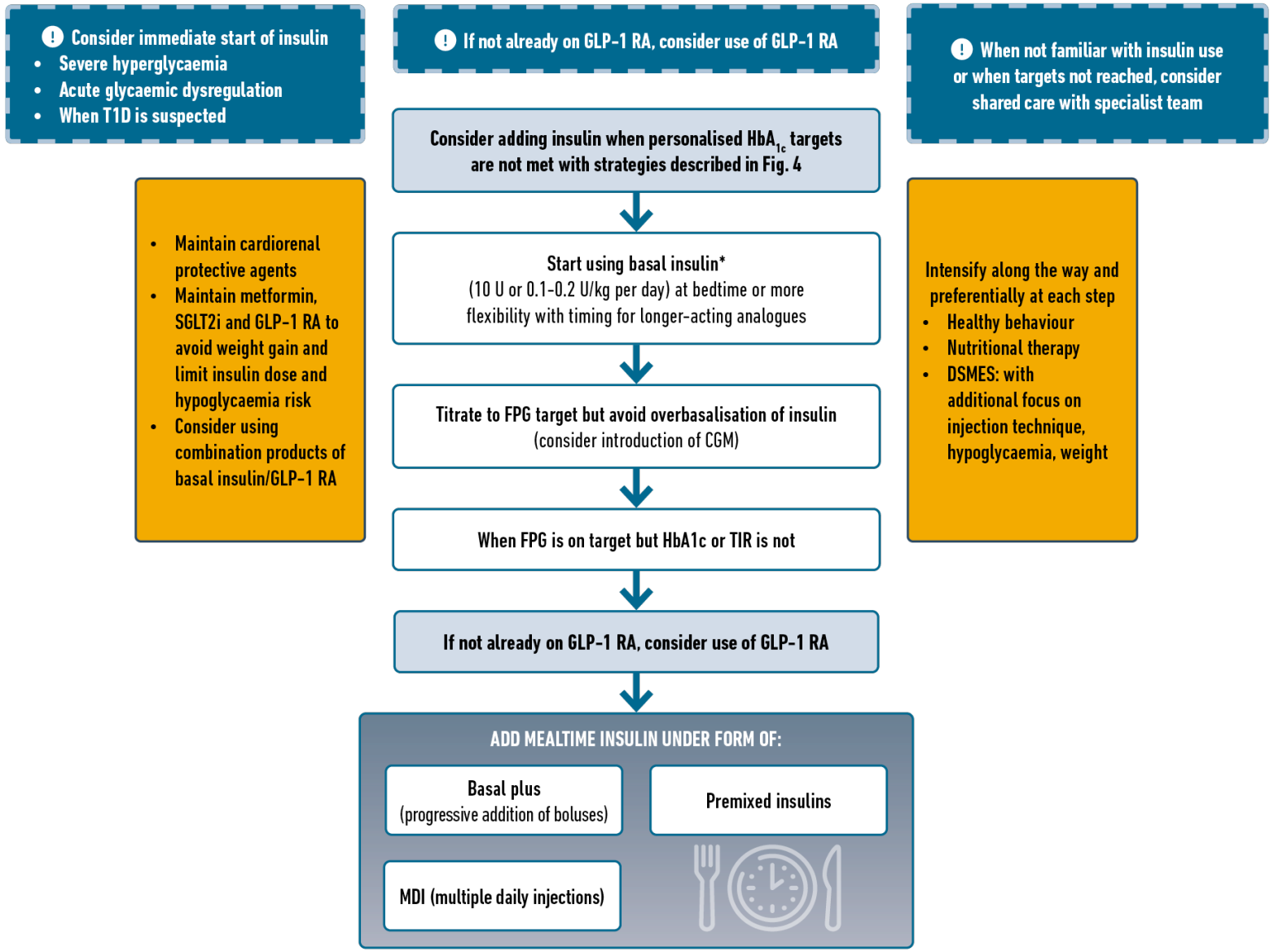
+ ↑ Hba1c
>8%

→ Insulina Basal

+ ↑ Hba1c
>9%

→ Insulina Basal

FIGURE 5: PLACE OF INSULIN[1]



*NPH Insulin or preferably analogue to reduce nocturnal hypoglycaemia risk

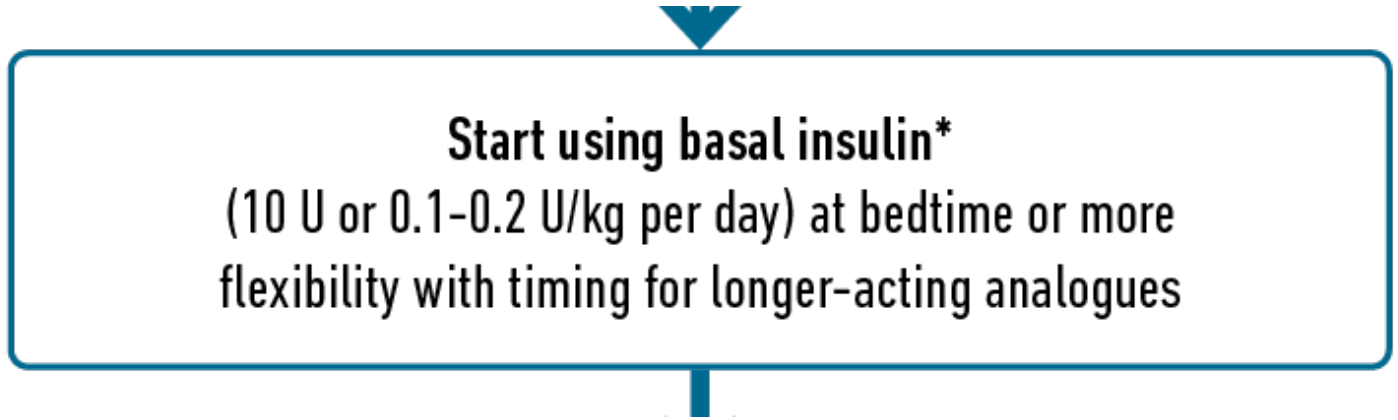
CGM, Continuous Glucose Monitoring; DSMES, Diabetes Self-Management Education and Support; FPG, Fasting Plasma Glucose; GLP-1 RA, Glucagon-Like Peptide-1 Receptor Agonist; SGLT2i, Sodium-Glucose Cotransporter-2 Inhibitor; T1D, Type 1 Diabetes; TIR, Time in Range.

1, More details can be found in Davies M, D'Alessio DA, Fradkin J et al. Management of Hyperglycaemia in Type 2 Diabetes, 2018. A Consensus Report by the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD). Diabetologia 2018 61(12):2461–2498, and American Diabetes Association Professional Practice Committee, Draznin B, Aroda VR et al. 9. Pharmacologic Approaches to Glycemic Treatment: Standards of Medical Care in Diabetes-2022. Diabetes Care. 2022 Jan 1;45(Suppl 1):S125–43.

Davies MJ, Aroda VR, Collins BS, Gabbay RA, Green J, Maruthur NM, Rosas SE, Del Prato S, Mathieu C, Mingrone G, Rossing P, Tankova T, Tsapas A, Buse JB

Diabetes Care 2022; https://doi.org/10.2337/dci22-0034. *Diabetologia* 2022; https://doi.org/10.1007/s00125-022-05787-2.

FIGURE 5: PLACE OF INSULIN[1]



*NPH Insulin or preferably analogue to reduce nocturnal hypoglycaemia risk

CGM, Continuous Glucose Monitoring; DSMES, Diabetes Self-Management Education and Support; FPG, Fasting Plasma Glucose; GLP-1 RA, Glucagon-Like Peptide-1 Receptor Agonist; SGLT2i, Sodium-Glucose Cotransporter-2 Inhibitor; T1D, Type 1 Diabetes; TIR, Time in Range.

1, More details can be found in Davies M, D'Alessio DA, Fradkin J et al. Management of Hyperglycaemia in Type 2 Diabetes, 2018. A Consensus Report by the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD). Diabetologia 2018 61(12):2461–2498, and American Diabetes Association Professional Practice Committee, Draznin B, Aroda VR et al. 9. Pharmacologic Approaches to Glycemic Treatment: Standards of Medical Care in Diabetes-2022. Diabetes Care. 2022 Jan 1;45(Suppl 1):S125–43.

Davies MJ, Aroda VR, Collins BS, Gabbay RA, Green J, Maruthur NM, Rosas SE, Del Prato S, Mathieu C, Mingrone G, Rossing P, Tankova T, Tsapas A, Buse JB

Diabetes Care 2022; https://doi.org/10.2337/dci22-0034. *Diabetologia* 2022; https://doi.org/10.1007/s00125-022-05787-2.

Glicemia Basal

#1

2

2-4

UI

Glucometria	Ds Insulina : 24
250	
240	
187	
178	
145	
90	
180	
101	
157	
153	
64	
156	
125	
161	
140	
125	
140	
124	
136	
178	
100	
115	
161	
111	
90	

Con qué?

NPH

Glargina

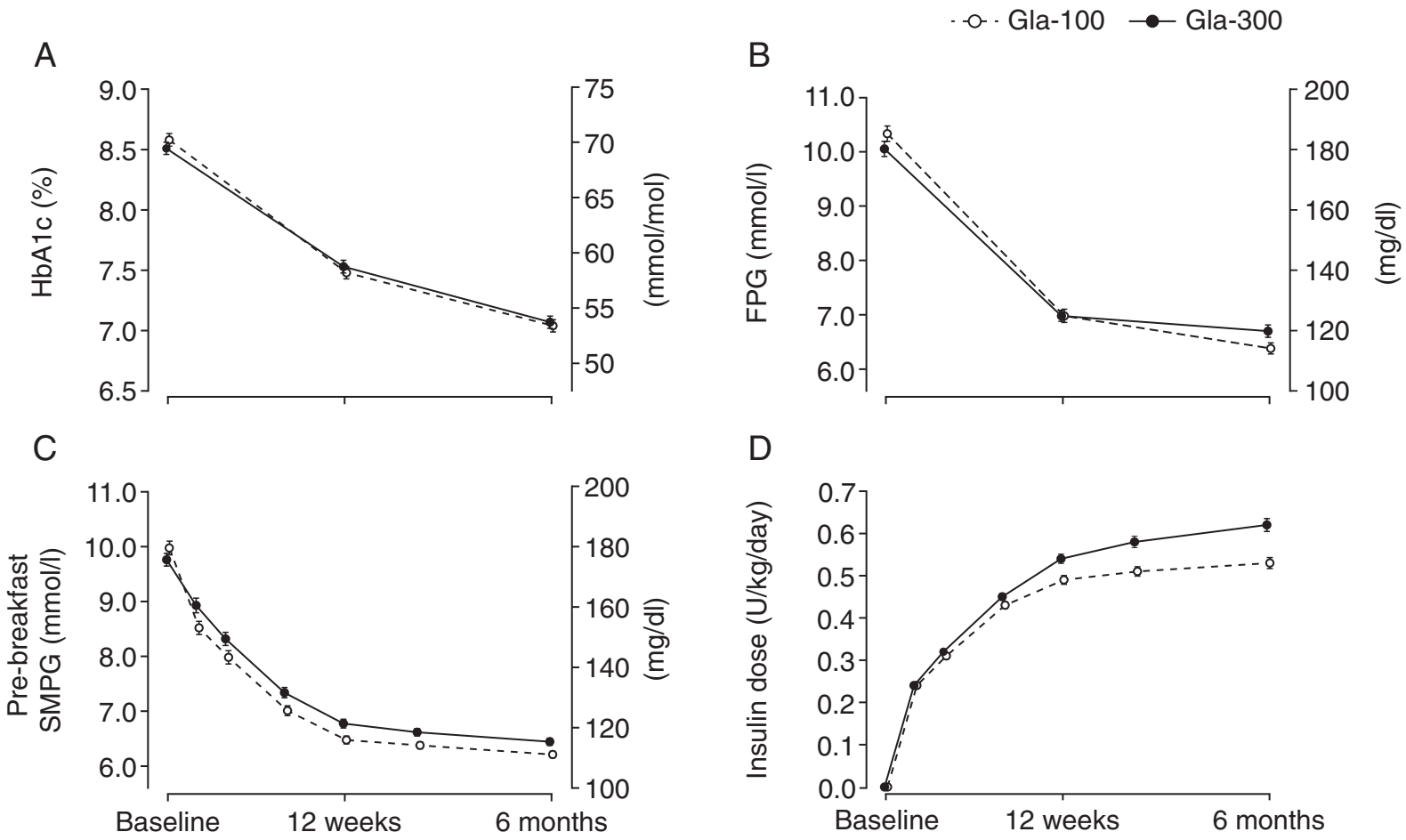
Detemir

Glargina U300

Degludec

New insulin glargine 300 U/ml compared with glargine 100 U/ml in insulin-naïve people with type 2 diabetes on oral glucose-lowering drugs: a randomized controlled trial (EDITION 3)

G. B. Bolli[1], M. C. Riddle[2], R. M. Bergenstal[3], M. Ziemen[4], K. Sestakauskas[5], H. Goyeau[6], P. D. Home[7] & on behalf of the EDITION 3 study investigators



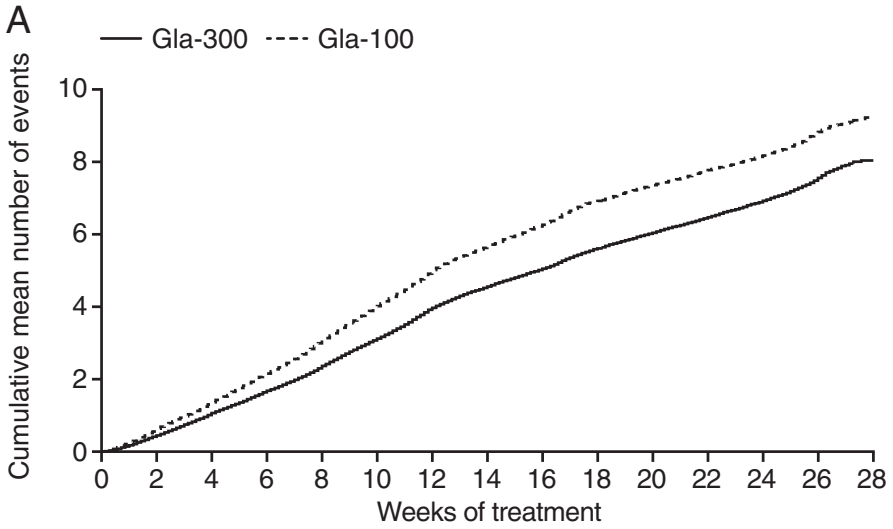
Diabetes, Obesity and Metabolism 17: 386–394, 2015

Diabetes, Obesity and Metabolism 17: 859–867, 2015.

Patient-level meta-analysis of the EDITION 1, 2 and 3 studies: glycaemic control and hypoglycaemia with new insulin glargine 300 U/ml versus glargine 100 U/ml in people with type 2 diabetes

R. Ritzel[1], R. Roussel[2,3,4], G. B. Bolli[5], L. Vinet[6], C. Brulle-Wohlhueter[7], S. Glezer[7] & H. Yki-Järvinen[8]

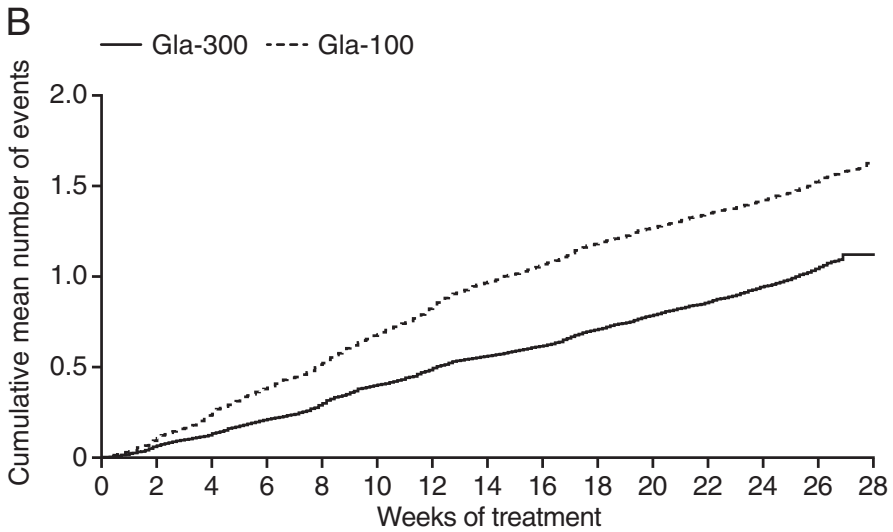
Any time of day (24 h)



RR 0.86, 95% CI 0.77–0.97; p = 0.0116

14%

Nocturnal (00:00–05:59 h)



Tasa de eventos anualizada < 70 mg/dl

2.10 vs 3.06, RR 0.69, 95% CI 0.57–0.84; p = 0.0002

31%

Diabetes, Obesity and Metabolism 17: 859–867, 2015.

@eldoctorcastillo

Estudios Randomizados y Controlados (Glargina U300 Tujeo ®)

EDITION BEGIN → U300 vs U100

BRIGHT → U300 vs IDeg

CONCLUDE → U300 vs Ideg 200

Estudios de Vida Real (RWE)

Insulina Degludec

DELIVER

More Similarities Than Differences Testing Insulin Glargine 300 Units/mL Versus Insulin Degludec 100 Units/mL in Insulin-Naive Type 2 Diabetes: The Randomized Head-to-Head BRIGHT Trial

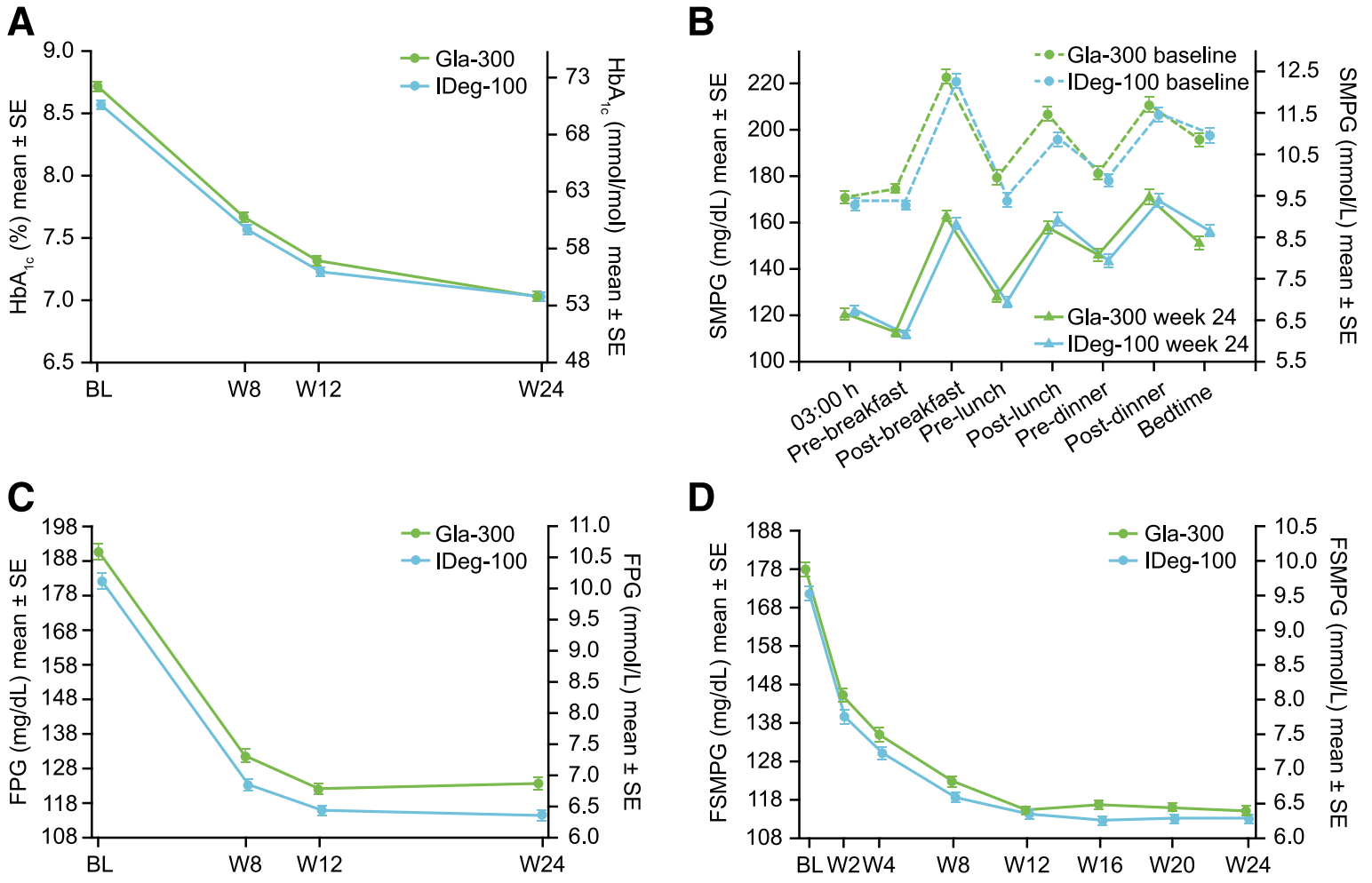
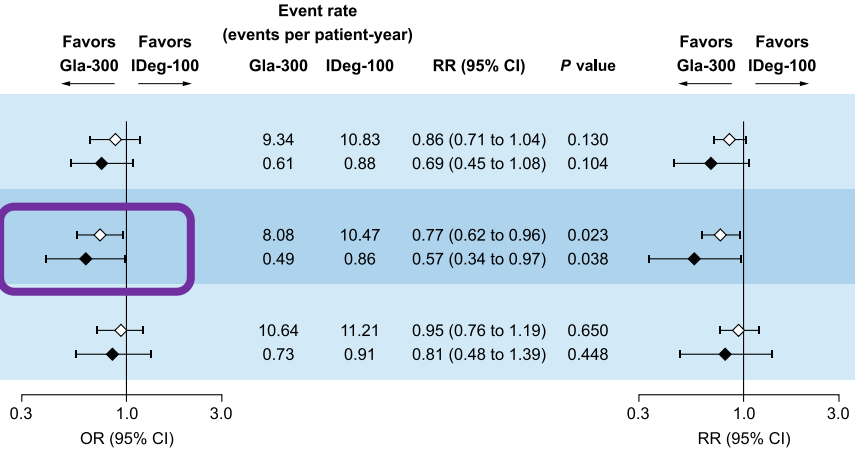


Figure 1—HbA_{1c} levels (*A*), eight-point SMPG profiles (*B*), FPG levels (*C*), and fasting SMPG levels (*D*) over 24 weeks of treatment, ITT population. BL, baseline; FSMPG, fasting SMPG; W, week. (A high-quality color representation of this figure is available in the online issue.)

More Similarities Than Differences Testing Insulin Glargine 300 Units/mL Versus Insulin Degludec 100 Units/mL in Insulin-Naive Type 2 Diabetes: The Randomized Head-to-Head BRIGHT Trial

A Anytime (24-h) hypoglycemia

	Incidence, %				Event rate (events per patient-year)			
	Gla-300	IDeg-100	OR (95% CI)	*P* value	Gla-300	IDeg-100	RR (95% CI)	*P* value
24-week period								
Confirmed (≤70 mg/dL [≤3.9 mmol/L])	66.5	69.0	0.88 (0.66 to 1.17)	0.371	9.34	10.83	0.86 (0.71 to 1.04)	0.130
Confirmed (<54 mg/dL [<3.0 mmol/L])	14.7	18.4	0.76 (0.53 to 1.08)	0.123	0.61	0.88	0.69 (0.45 to 1.08)	0.104
0–12 weeks								
Confirmed (≤70 mg/dL [≤3.9 mmol/L])	47.4	54.3	0.74 (0.57 to 0.97)	0.030	8.08	10.47	0.77 (0.62 to 0.96)	0.023
Confirmed (<54 mg/dL [<3.0 mmol/L])	7.8	11.7	0.63 (0.40 to 0.99)	0.040	0.49	0.86	0.57 (0.34 to 0.97)	0.038
13–24 weeks								
Confirmed (≤70 mg/dL [≤3.9 mmol/L])	54.1	55.8	0.93 (0.72 to 1.22)	0.618	10.64	11.21	0.95 (0.76 to 1.19)	0.650
Confirmed (<54 mg/dL [<3.0 mmol/L])	9.8	11.2	0.86 (0.56 to 1.33)	0.505	0.73	0.91	0.81 (0.48 to 1.39)	0.448



B Nocturnal (0000–0559 h) hypoglycemia

	Incidence, %				Event rate (events per patient-year)			
	Gla-300	IDeg-100	OR (95% CI)	*P* value	Gla-300	IDeg-100	RR (95% CI)	*P* value
24-week period								
Confirmed (≤70 mg/dL [≤3.9 mmol/L])	28.6	28.8	0.99 (0.74 to 1.32)	0.931	1.83	2.26	0.81 (0.58 to 1.12)	0.204
Confirmed (<54 mg/dL [<3.0 mmol/L])	6.1	6.1	1.00 (0.58 to 1.72)	0.991	0.24	0.22	1.09 (0.60 to 2.00)	0.777
0–12 weeks								
Confirmed (≤70 mg/dL [≤3.9 mmol/L])	15.2	18.8	0.77 (0.54 to 1.08)	0.133	1.42	2.20	0.65 (0.43 to 0.98)	0.040
Confirmed (<54 mg/dL [<3.0 mmol/L])	2.8	3.5	0.80 (0.38 to 1.69)	0.564	0.16	0.19	0.85 (0.40 to 1.79)	0.662
13–24 weeks								
Confirmed (≤70 mg/dL [≤3.9 mmol/L])	21.4	21.0	1.03 (0.74 to 1.42)	0.881	2.24	2.33	0.96 (0.66 to 1.40)	0.839
Confirmed (<54 mg/dL [<3.0 mmol/L])	4.5	3.8	1.18 (0.61 to 2.29)	0.620	0.33	0.26	1.27 (0.57 to 2.83)	0.555

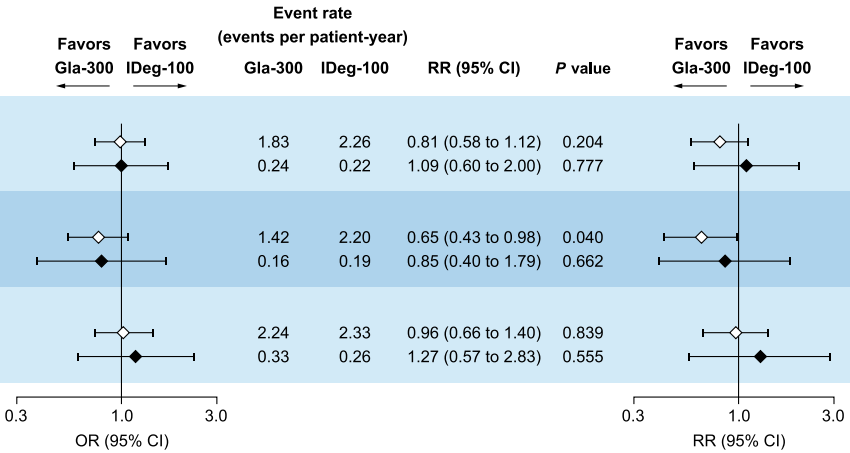


Figure 2—Hypoglycemia at any time of day (24 h) (*A*) or during the nocturnal period (0000–0559 h) (*B*), safety population. Nominal *P* values are provided. (A high-quality color representation of this figure is available in the online issue.)

Estudios Randomizados y Controados (RCT)

EDITION
BEGIN

U300 vs U100

BRIGHT

U300 vs IDeg

CONCLUDE

U300 vs Ideg 200

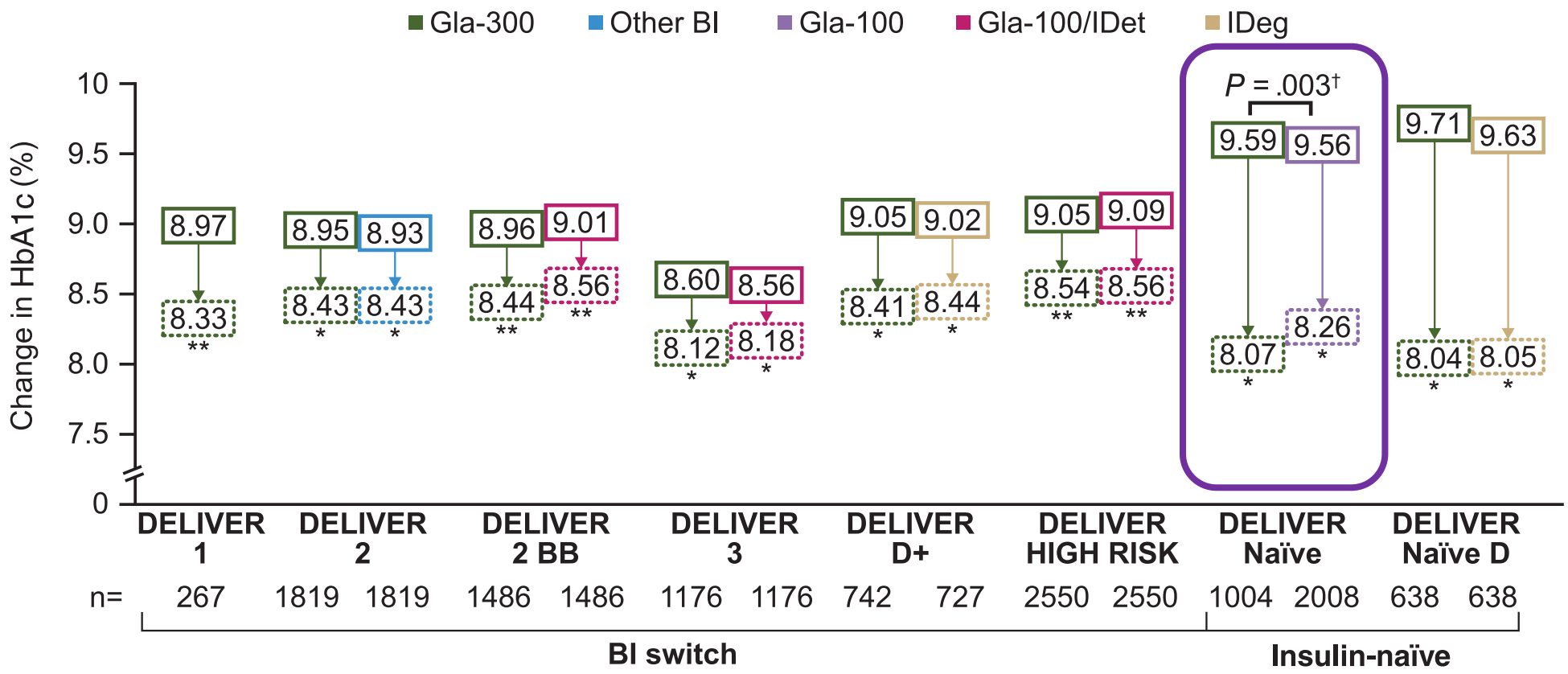
Estudios de Vida Real (RWE)

DELIVER

REVIEW ARTICLE

WILEY

Insulin glargine 300 units/mL for the treatment of individuals with type 2 diabetes in the real world: A review of the DELIVER programme



El super problema…

\+ Hba1c

> 7%

Insulina Basal


Intensificación de la Insulina

…y el avance del tratamiento con esquemas complejos puede asociarse con varias desventajas

	Ventajas	Desventajas
Adición de una insulina rápida a una IB	• Starting with a single prandial dose (with largest meal of the day) is simple and effective* • Can be advanced to multiple prandial doses if necessary • Greater flexibility for people on irregular schedules*	• **Riesgo de hipoglucemia** • Múltiples inyecciones diarias • **Ganancia de peso**
Cambio a una pre-mezcla de insulina	• Esquema simplificado vs esquema basal-bolo*	• No disponible en todos los países • Dificultad para la titulación • Aumenta el comsumo de alimentos* • **Aumenta riesgo de ganancia de peso y de hipoglucemia***
Adición de una inyección diaria o semanal de AR-GLP-1.	• Eficacia similar a otras opciones de intensificación (tales como basal +/basal–bolo) • Menor riesgo de ganancia de peso e hipoglucemia vs esquemas intensivos de insulina*	• Eventos adversos gastrointestinales* • **Requerimiento de inyecciones adicionales** • Titulación para lograr dosis de mantenimiento
Combinación de relación fija de IB + AR GLP1.	• Accion normoglucemiante potente vs el uso individual de sus componentes* • Mayor duración del efecto glucémivo vs la adición de la IB solamente* • Menor ganancia de peso (o efecto neutron) y menor riesgo de hipoglucemia vs esquemas intensivos de insulina*	• Dosis máxima de IB llega a 60 U para iGlarLixi y 50 U para iDegLira

- *Noted in multiple guidelines. BI, basal insulin; FRC, fixed-ratio combination; GI, gastrointestinal; GLP 1 RA, glucagon-like peptide-1 receptor agonist; U, units.
American Diabetes Association. Diabetes Care 2021;44(Suppl 1):S111–S124.; Davies MJ, et al. Diabetes Care 2018;41:2669–701;
Nuffer W, et al. Ther Adv Endocrinol Metab 2018;9:69–79; Ilag LL, et al. Clinical Ther 2007;29:1254–70; LeRoith D, et al. J Clin Endocrinol Metab 2019;104:1520–74

…y el avance del tratamiento con esquemas complejos puede asociarse con varias desventajas

Adición de una insulina rápida a una IB

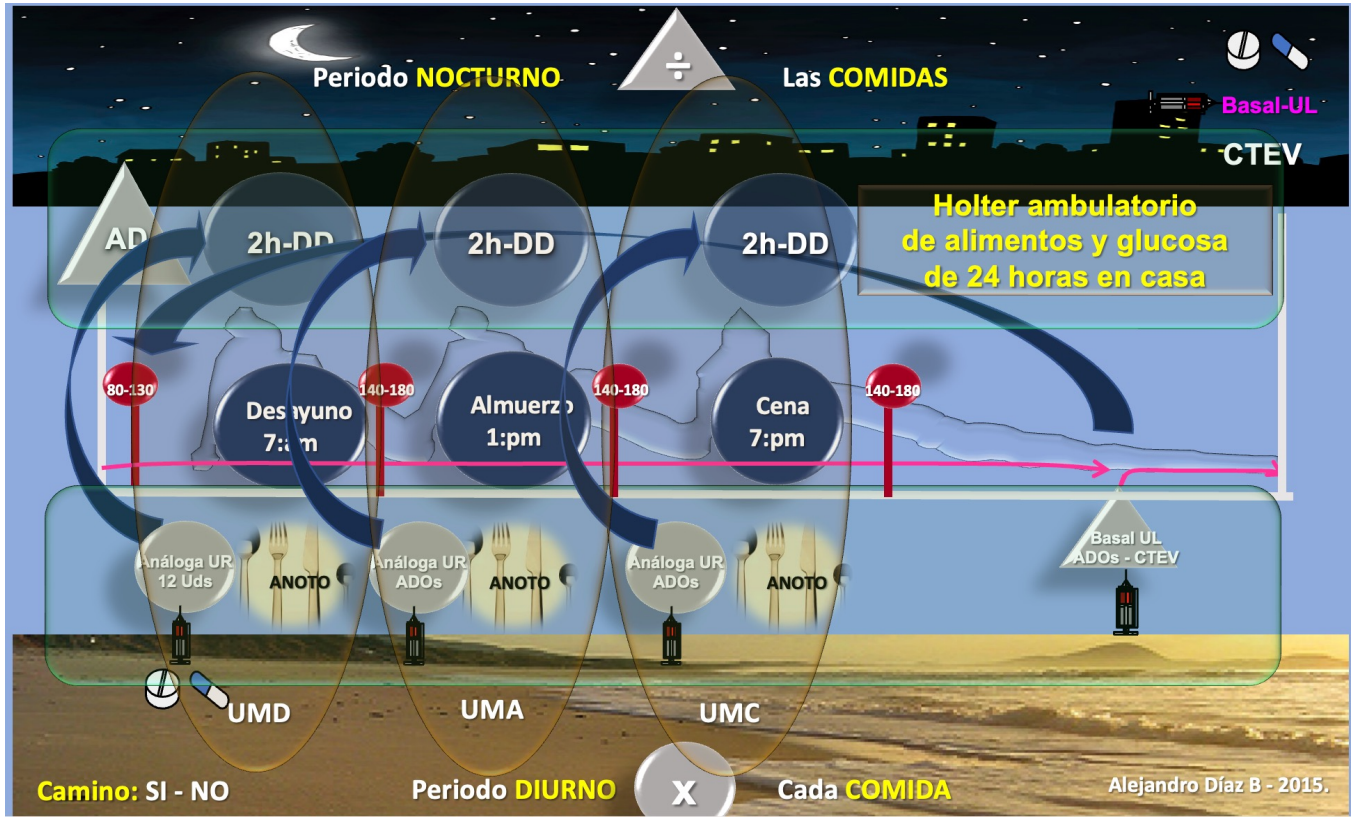
4 agujas diarias

3-7 glucometrías

Conteo de CHO

Titule la Basal

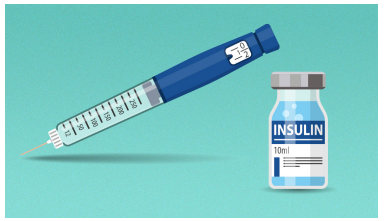
MUCHA EDUCACIÓN !!!!

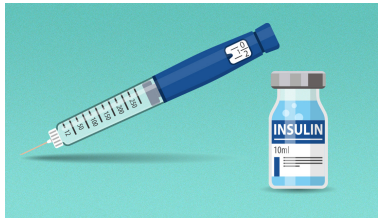


- Ther Adv Endocrinol Metab 2018;9:69–79; Ilag LL, et al. Clinical Ther 2007;29:1254–70; J Clin Endocrinol Metab 2019;104:1520–74

Ratio

Sensibilidad





2682

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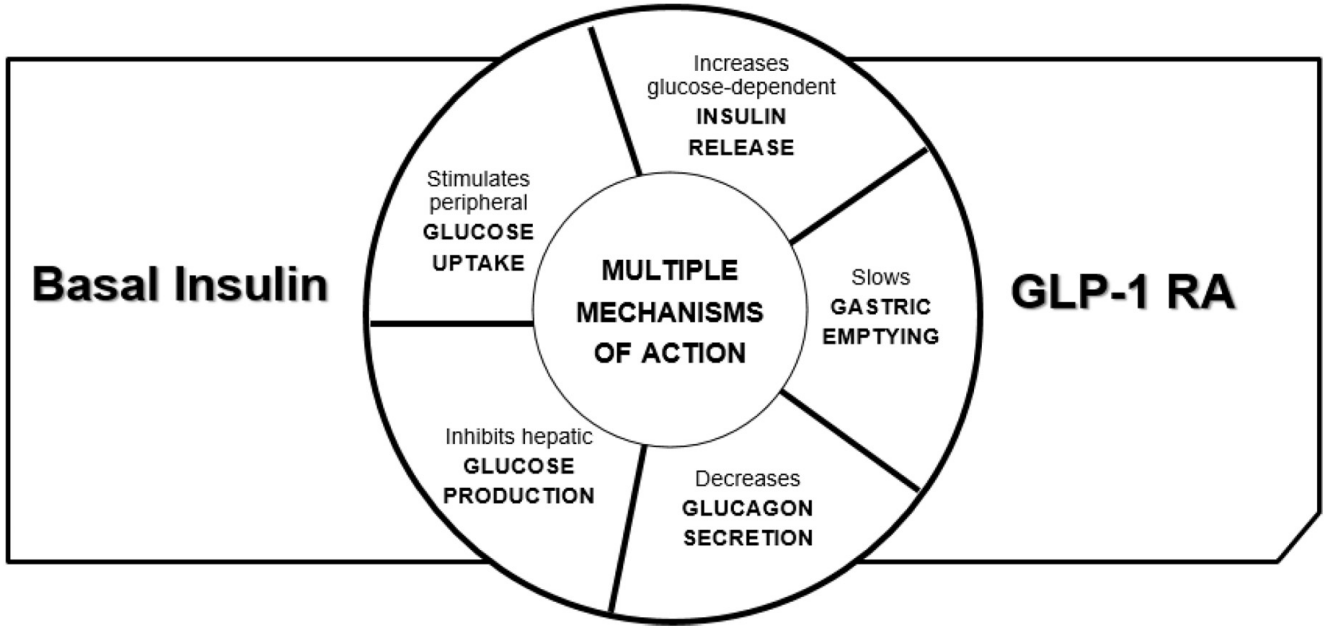
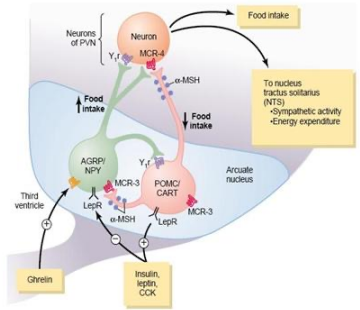
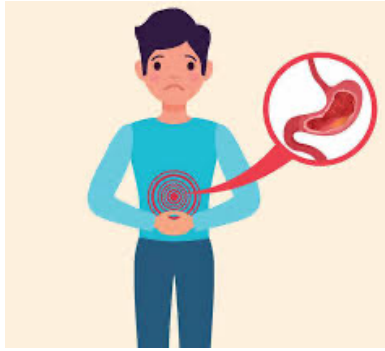
When should fixed ratio basal insulin/glucagon-like peptide-1 receptor agonists combination products be considered?

Pos prandial







Journal of Diabetes and Its Complications

Terapia Vigente ¡¡

Gracias

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