HOSPITAL UNIVERSITARIO SAN CECILIO

UNIDAD INSUFICIENCIA CARDIACA

III Jornadas sobre

Atención Multidisciplinar del Paciente con Insuficiencia Cardíaca

PUNTOS DE ENCUENTRO EN IC

¿Qué papel juegan la obesidad y la diabetes en el desarrollo de la IC?

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11 Mayo 2023

PLR 67 años

Exfumadora
DM tipo 2
HTA – Hipercolesterolemia – IAM – ICC
Obesidad P 83,5 Kg; T 156 cm, IMC 34
HbA1c 7,1%

Cardiología

- Rehabilitación - Educación
- ARA / IECA
- B Bloqueantes
- Antagonistas aldosterona
- Diuréticos
- Estatinas
- sGLT2

Nefrología

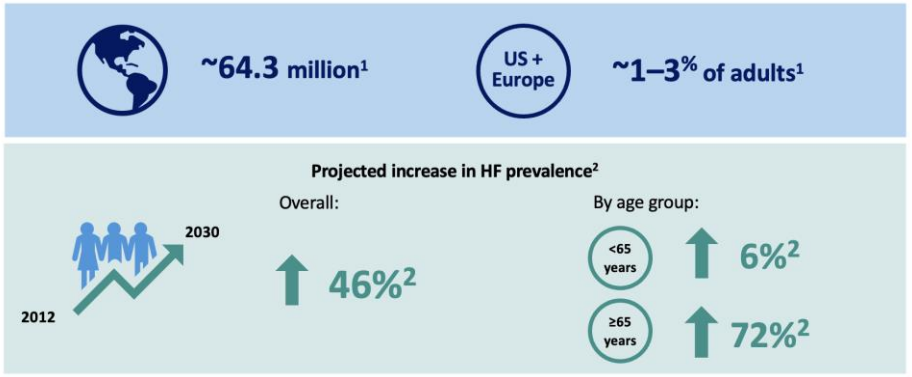
- sGLT2

Endocrinología y Nutrición

- Educación diabetológica
- Fármacos insulínicos y no insulínicos
- Otros

Atención Primaria

ICFEp: Compleja fisiopatología



Often 2–4 comorbidities co-exist in HFpEF

Fisiopatología compleja
Poco comprendida

Común

- **Metabólica (Diabetes / Obesidad)**
- Hipertensiva

Rara

- Enfermedades de depósito (sarcoidosis, amyloidosis, glucogenosis..)
- Cardiomiopatías hipertróficas hereditarias

HFpEF, heart failure with preserve ejection fraction
Metra M et al. Lancet 2017;390:1981–1995

Obesidad causa “raíz” en la ICFEp

Sobrepeso / Obesidad

80%

Casi el 80% de pacientes con ICCFEp tienen sobrepeso u obesidad: más que el doble que la población general[1,2]

La Obesidad juega un papel crítico en la fisiopatología de la ICCFEp[3]

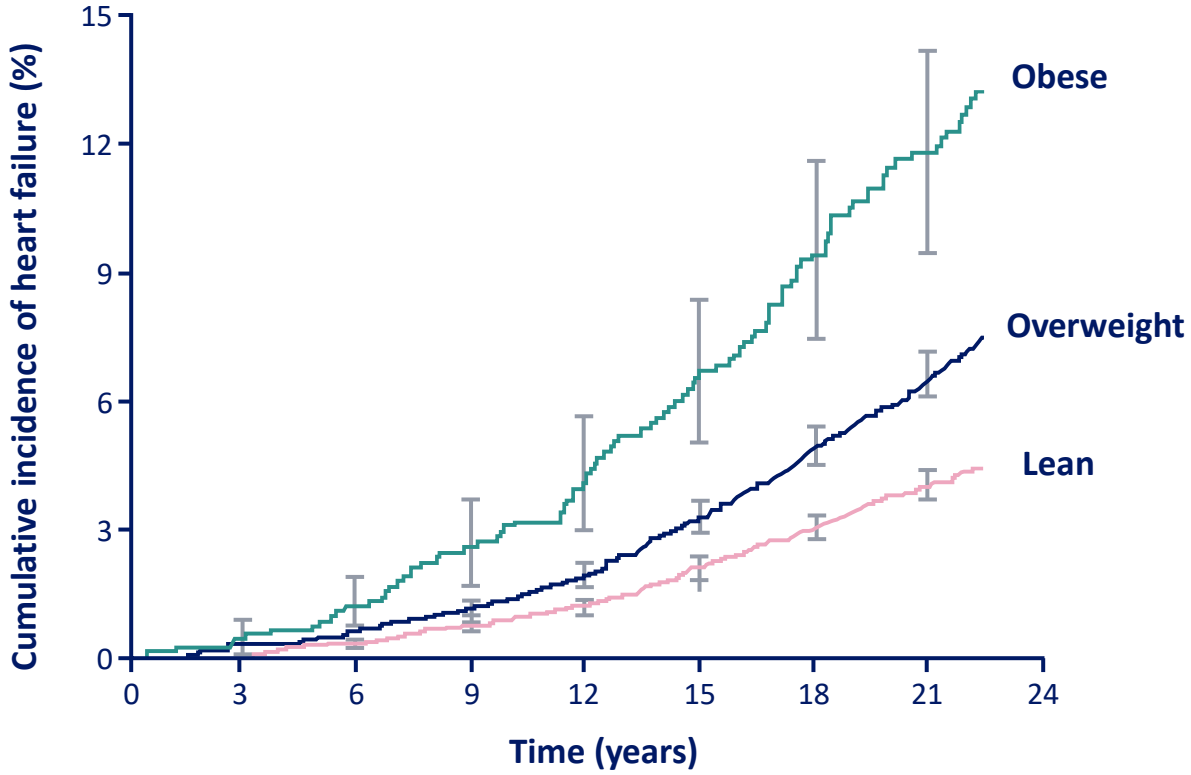
El exceso de grasa favorece la inflamación, HTA, resistencia a la insulina y además, dificulta el normal funcionamiento cardiaco, muscular, arterial y físico en general[3]

El incremento de la grasa intraabdominal es un fuerte e independiente factor predictor del deterioro físico en la ICCFEp[3]

HFpEF, heart failure with preserved ejection fraction.

1. Haass M et al. Circulation 2011;4:324–331; 2. Kitzman DW, Shah SJ. J Am Coll Cardiol 2016;68:200–203; 3. Haykowsky MJ et al. JACC Heart Fail 2018;6:640–649

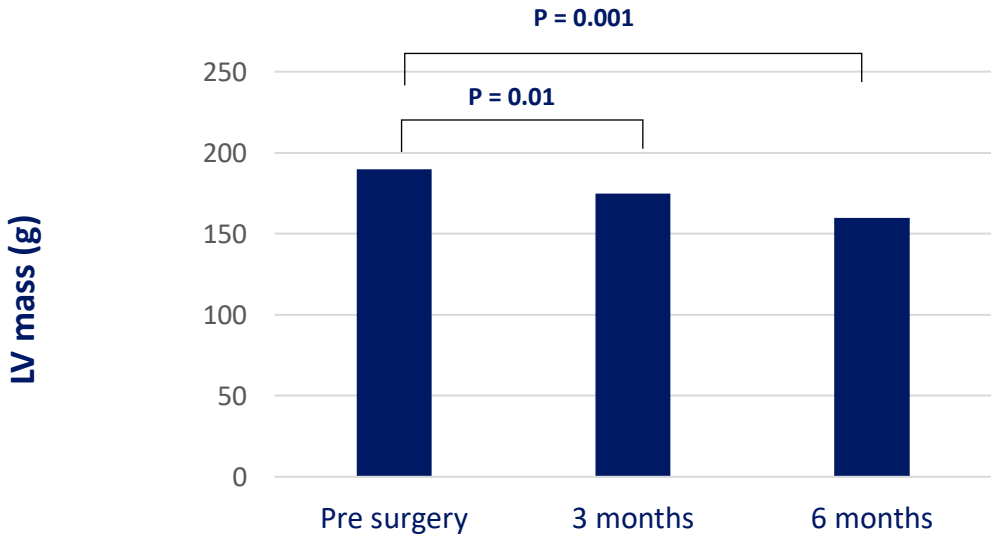
La Obesidad incrementa la incidencia de ICCFEp[1–3]

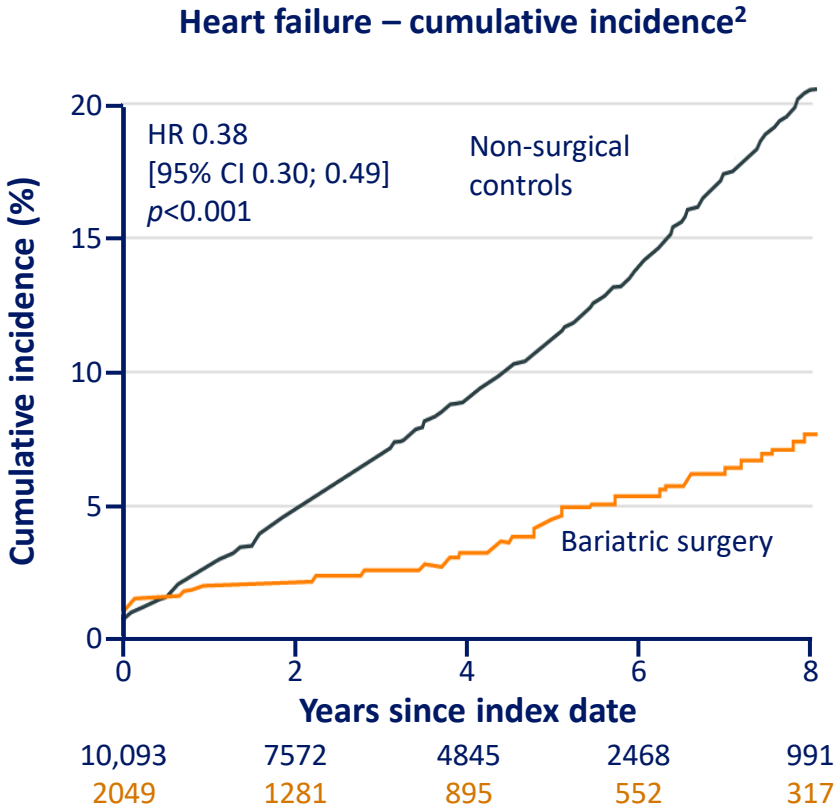


Association of Obesity-Related Traits With HF Subtypes in Sex-Pooled Analyses		
		Multivariable-adjusted
Predictor	Outcome	HR (95% CI)*
BMI	Incident HFpEF	1.34 (1.24; 1.45)
	Incident HFrEF	1.18 (1.10; 1.27)
Waist circumference	Incident HFpEF	1.32 (1.22; 1.44)
	Incident HFrEF	1.19 (1.10; 1.29)

**p-values <0.0001*
BMI, body mass index; CI, confidence interval; HF, heart failure; HFpEF, heart failure with preserved ejection fraction; HFrEF, heart failure with reduced ejection fraction; HR; hazard ratio
1. Kenchaiah S et al. Circulation 2009;119:44–52; 2. Kenchaiah S et al. N Engl J Med 2002;347:305–313; 3. Savji N et al. JACC Heart Fail 2018;6;701–709

La pérdida de peso por Cg Bariátrica tiene un gran impacto en el remodelado cardiaco y se asocia a una disminución del riesgo de Desarrollo de ICC

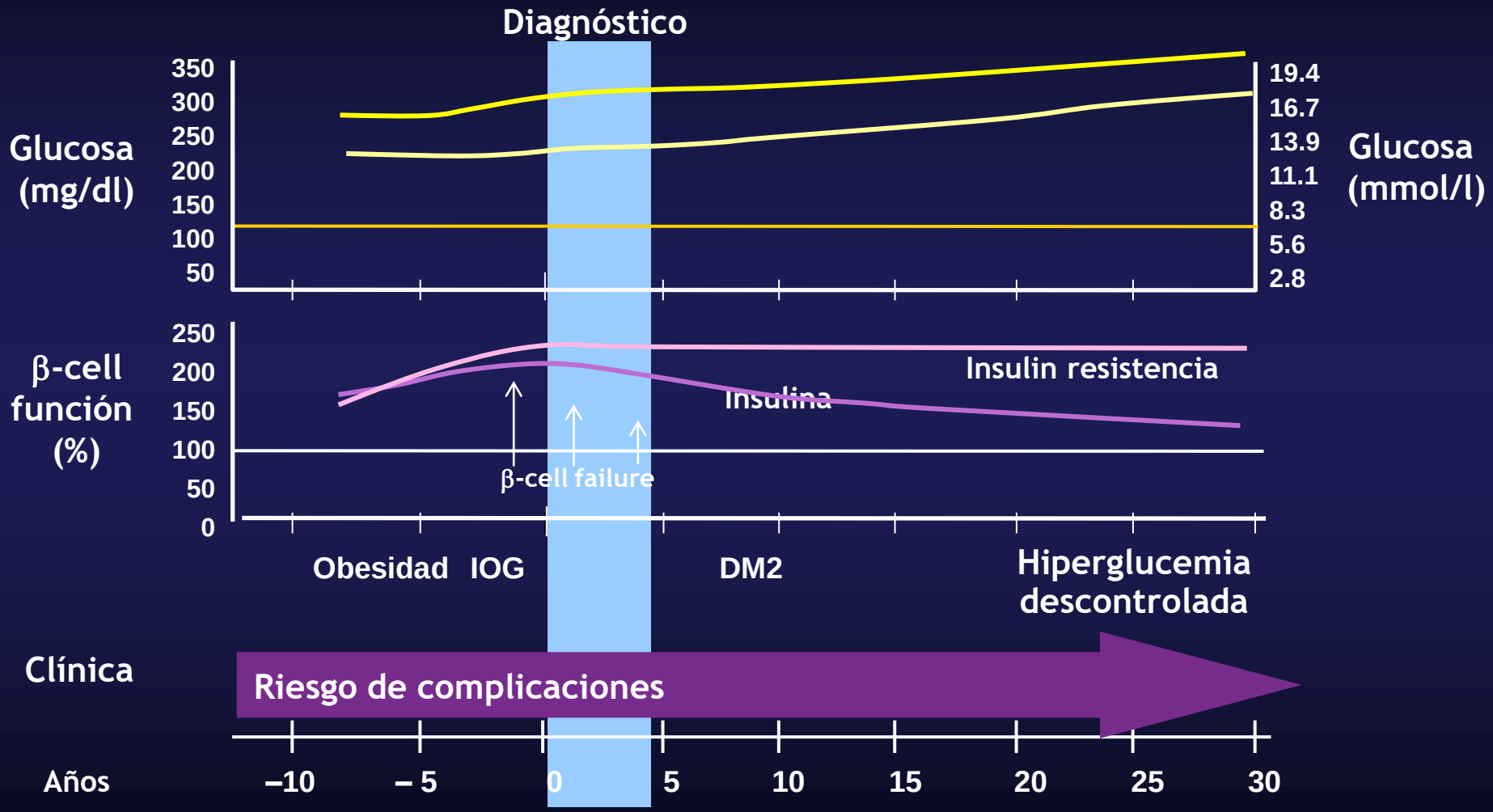




CI, confidence interval; LV, left ventricular; HR, hazard ratio; NYHA, New Your Heart Association classification (a lower NYHA indicates improved functional capacity)
1. Mikhalkova D et al. Obesity (Silver Spring) 2018 Feb;26:284–290; 2. Aminian A et al. JAMA 2019;322:1271–1282

Diabetes

20–45%

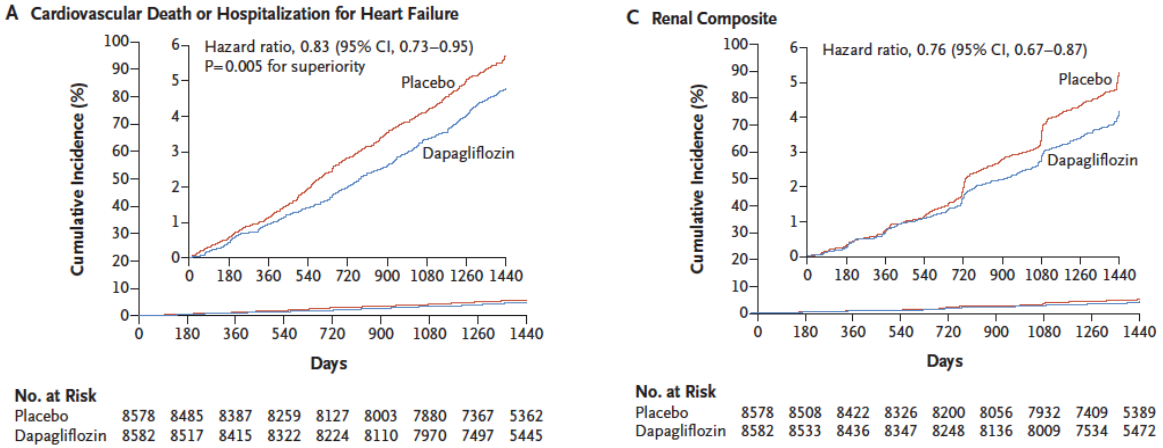


Adapted from Bergenstal RM. In: Textbook of Diabetes Mellitus, third edition: John Wiley & Sons; 2004:p995—1015.

Dapagliflozin and Cardiovascular Outcomes in Type 2 Diabetes

The NEW ENGLAND JOURNAL of MEDICINE

DOI: 10.1056/NEJMoa1812389



17%

24%

ORIGINAL ARTICLE

Empagliflozin, Cardiovascular Outcomes, and Mortality in Type 2 Diabetes

This article was published on September 17, 2015, at NEJM.org.

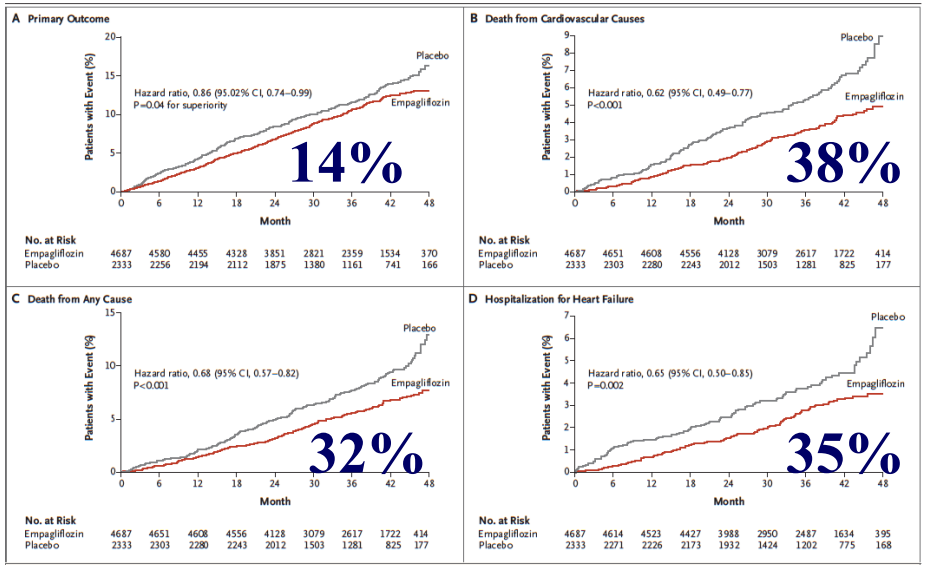


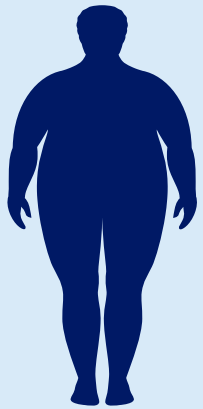
Figure 1. Cardiovascular Outcomes and Death from Any Cause.

Shown are the cumulative incidence of the primary outcome (death from cardiovascular causes, nonfatal myocardial infarction, or nonfatal stroke) (Panel A), cumulative incidence of death from cardiovascular causes (Panel B), the Kaplan–Meier estimate for death from any cause (Panel C), and the cumulative incidence of hospitalization for heart failure (Panel D) in the pooled empagliflozin group and the placebo group among patients who received at least one dose of a study drug. Hazard ratios are based on Cox regression analyses.

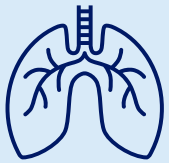
Comorbidities induce chronic systemic inflammation

Chronic inflammation affects the lungs, myocardium, skeletal muscle and kidneys, leading to diverse phenotypes of HFpEF

Endothelium–cardiomyocyte signalling involved in myocardial remodelling



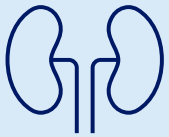
Obesity
T2D
HTN
Renal insufficiency



PH

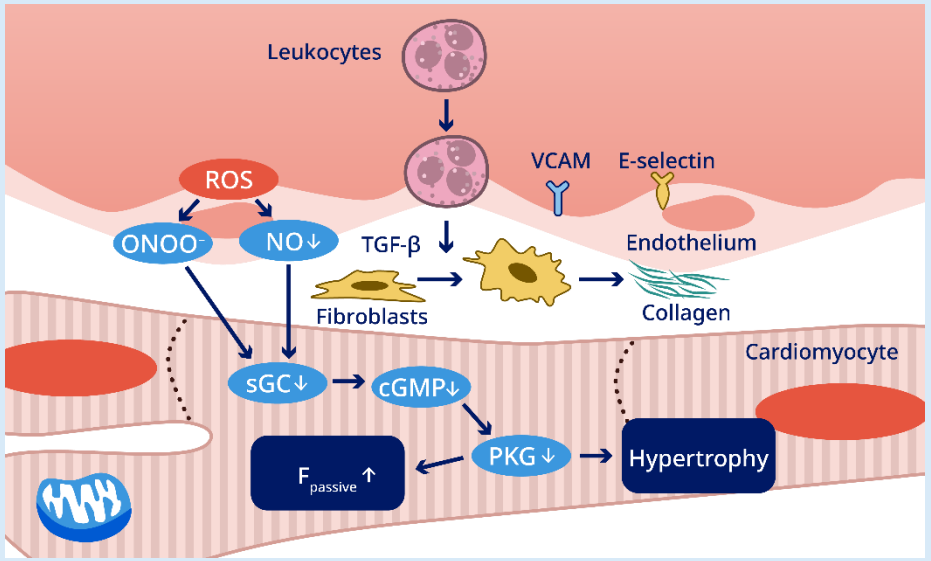
Myocardial remodelling

CRP, IL-1RL1, GDF-15



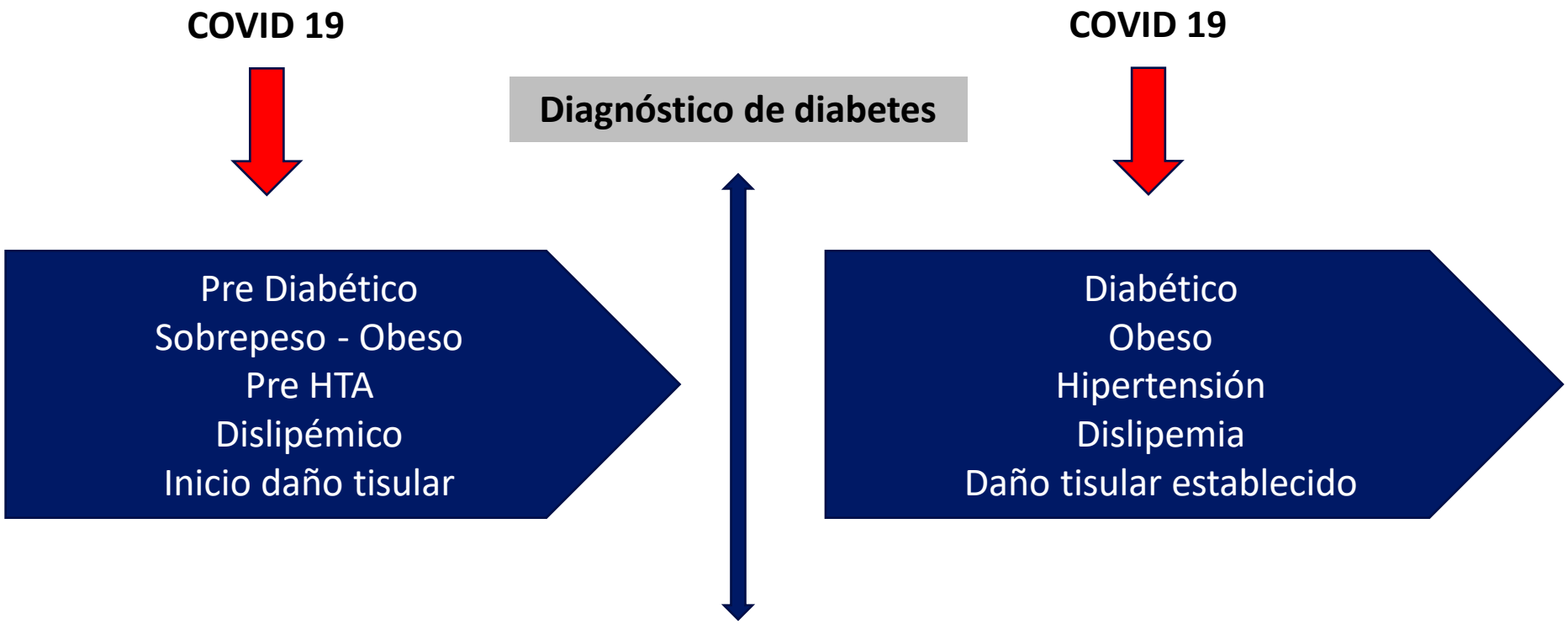
Na^+ retention

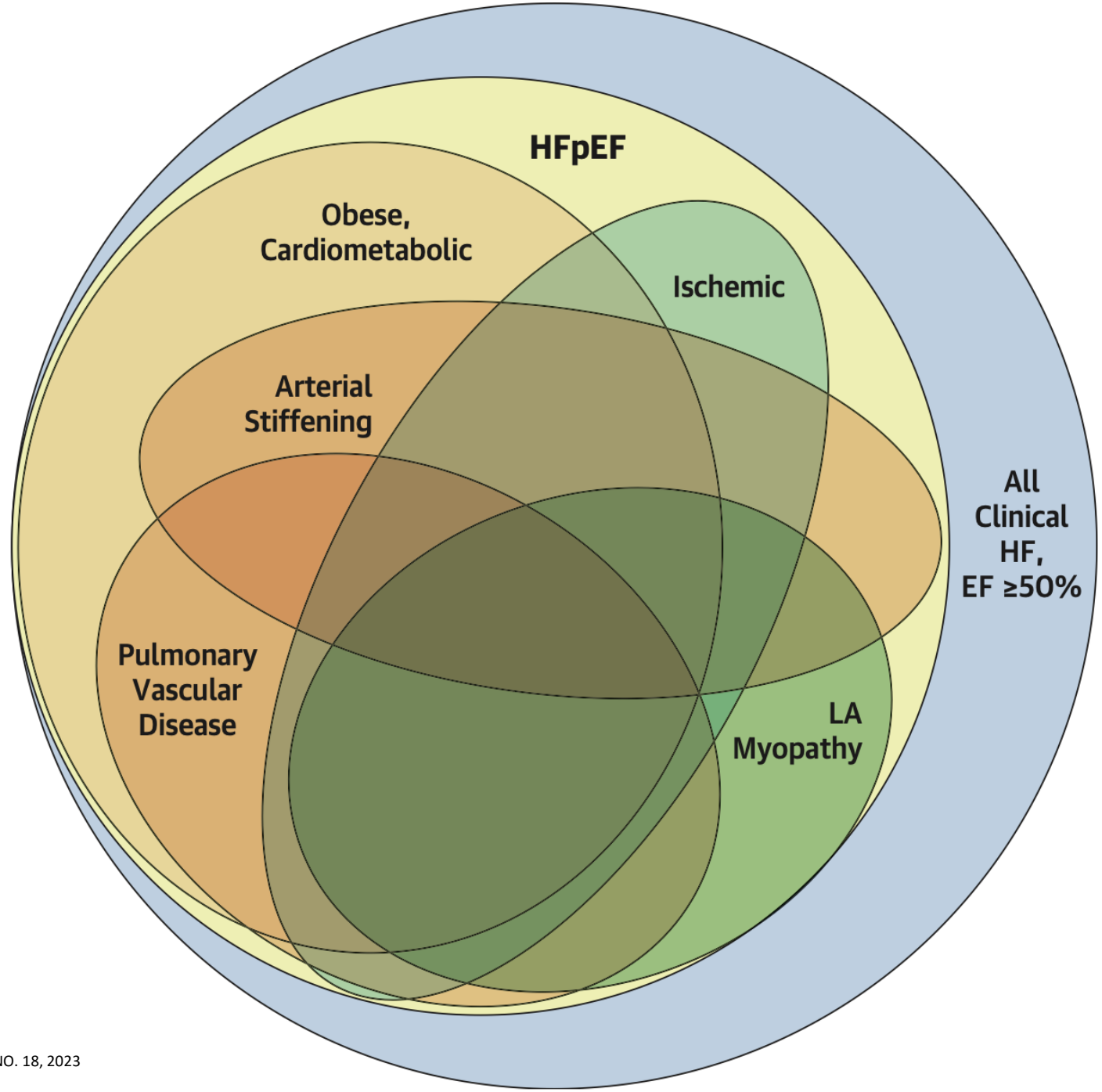
Deficient skeletal muscle oxygen extraction



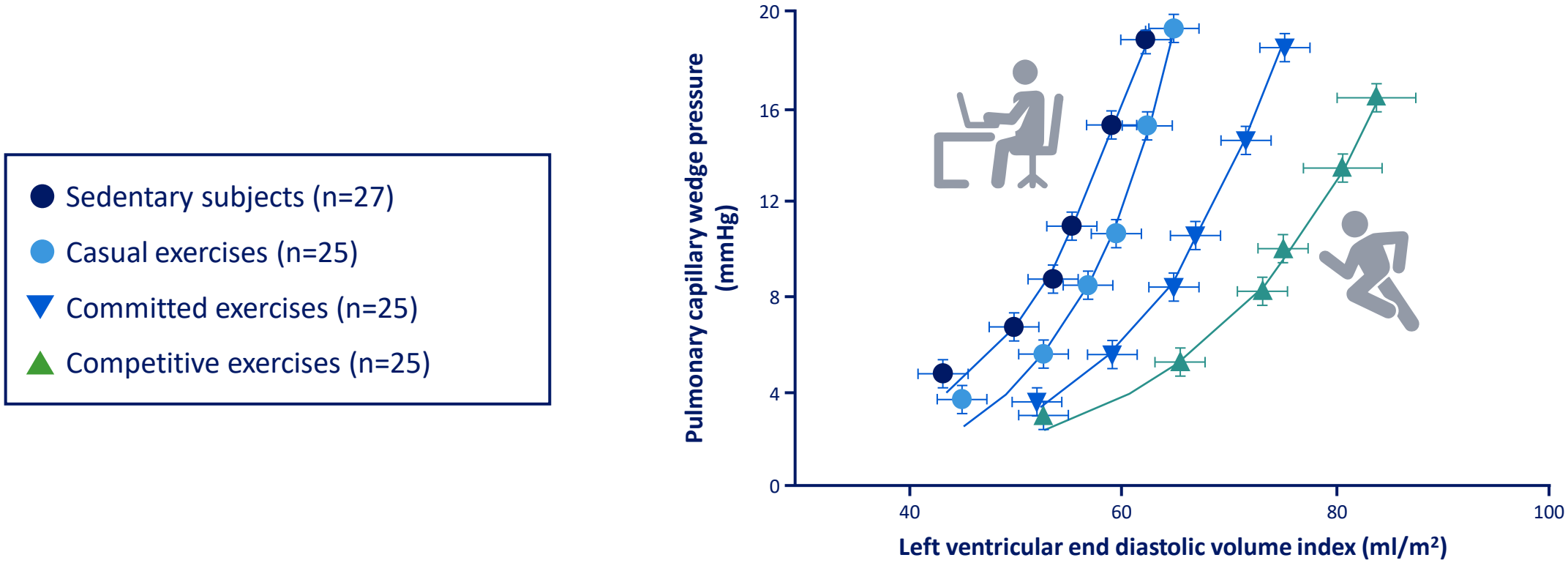
cGMP, cyclic guanosine monophosphate; CRP, C-reactive protein; GDF-15, growth differentiation factor-15; HFpEF, heart failure with preserved ejection fraction; HTN, hypertension; IL-1RL1, interleukin-1 receptor like 1; NO, nitric oxide; ONOO⁻, peroxynitrite; sGC, soluble guanylate cyclase; PH, pulmonary hypertension; PKG, protein kinase K; ROS, reactive oxygen species; TGF-β, transforming growth factor-β; VCAM, vascular cell adhesion protein

Shah SJ et al. Circulation 2016;134:73–90


COVID 19
COVID 19
Diagnóstico de diabetes
Pre Diabético
Sobrepeso - Obeso
Pre HTA
Dislipémico
Inicio daño tisular
Diabético
Obeso
Hipertensión
Dislipemia
Daño tisular establecido


HFpEF
Obese,
Cardiometabolic
Ischemic
Arterial
Stiffening
Pulmonary
Vascular
Disease
LA
Myopathy
All
Clinical
HF,
EF ≥50%

Ejercicio físico regular se asocial a una disminución significativa de la “rigidez” VI



LV, left ventricular
Bhella PS et al. J Am Coll Cardiol 2014;64:1257–1266

Tratamiento base cardiológico

Educación diabetológica

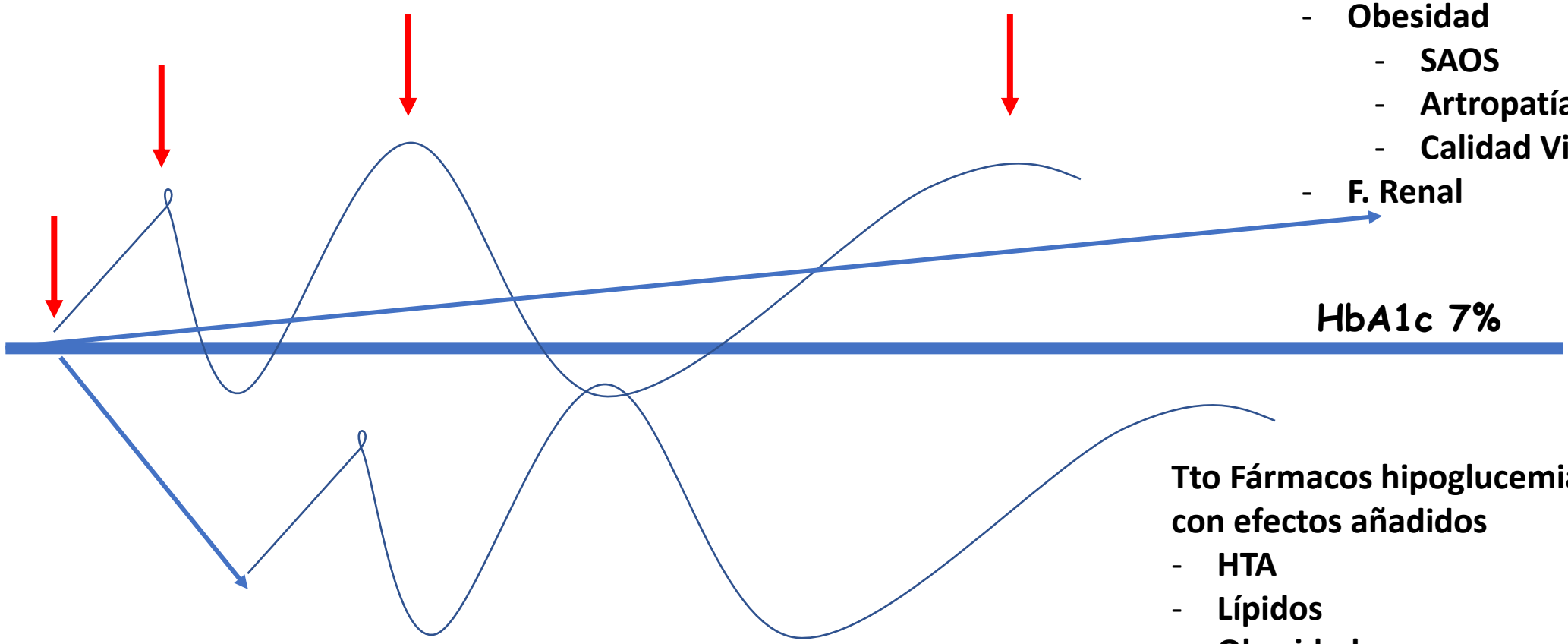
Rehabilitación cardiaca

sGLT2

aGLP1 (semaglutide)

Exfumadora
DM tipo 2
HTA – Hipercolesterolemia – IAM - ICC
Obesidad P 83,5 Kg; T 156 cm, IMC 34
HbA1c 7,1%
EUA 108,62

Mejoría clínica
Obesidad P 83,5 Kg – 69,5 Kg
IMC 28,6
HbA1c 5,3%
EUA negativa



Tto Clásico

- **HTA**
- **Lípidos**
- **Obesidad**
  - **SAOS**
  - **Artropatía**
  - **Calidad Vida**
- **F. Renal**

EDUCACION NUTRICIONAL
ACTIVIDAD FISICA

Tto Fármacos hipoglucemiantes con efectos añadidos

- **HTA**
- **Lípidos**
- **Obesidad**
  - **SAOS**
  - **Artropatía**
  - **Calidad Vida**
- **F. Renal**
- **Complicaciones CV**