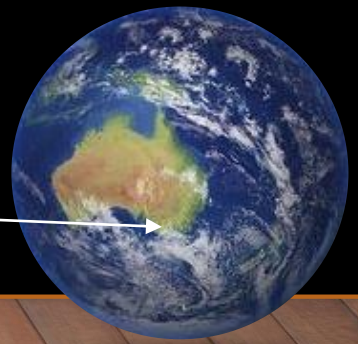
VERTIS CV
IS IT ALL CLASS?

Mark Cooper

from here



CONFLICT OF INTEREST

I have received honoraria for medical educational meetings conducted on behalf of pharmaceutical companies including: Merck/MSD, Lilly, Boehringer-Ingelheim, Astra Zeneca, Novartis and Servier

I have attended advisory boards of pharmaceutical companies including: Boehringer-Ingelheim, Astra Zeneca, Merck/MSD, MundiPharma and Reata.

I have received research support from Boehringer-Ingelheim & Novo

WHAT IS CLASS?

Things regarded as high-quality, integrity, status, or style

"a class act"

VERTIS-CV ☑

WHAT IS A DRUG CLASS ?

Drugs that share scientifically documented properties :

Chemical Structure ☑ SGLT2 inhibitors

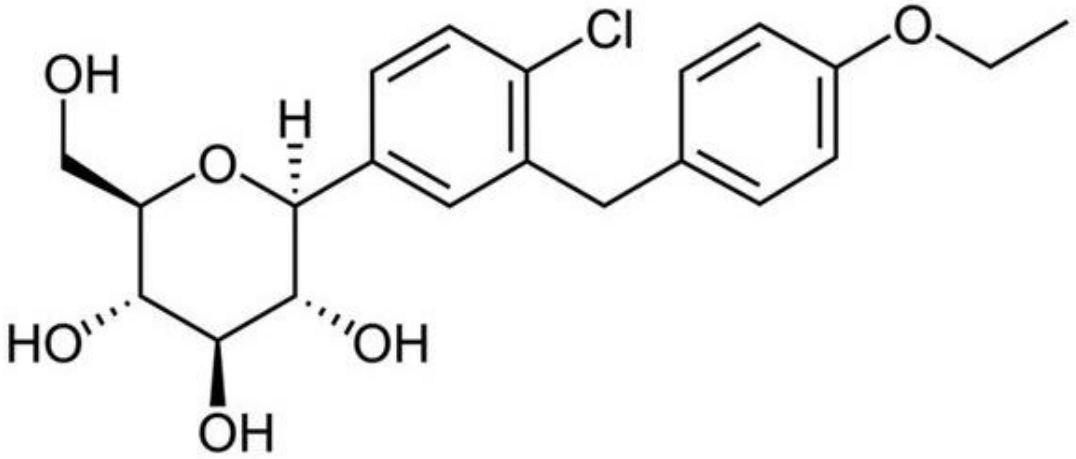
Mechanism of Action ☑ SGLT2 inhibitors

Physiological Effect ☑ SGLT2 inhibitors

https://www.fda.gov/media/77834

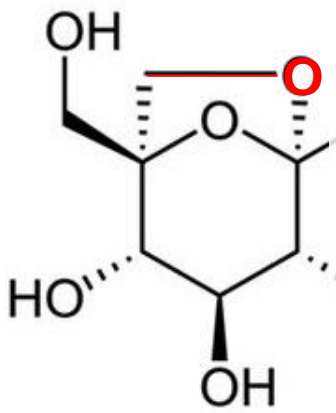
SPOT THE DIFFERENCE?

Dapagliflozin



Ertugliflozin

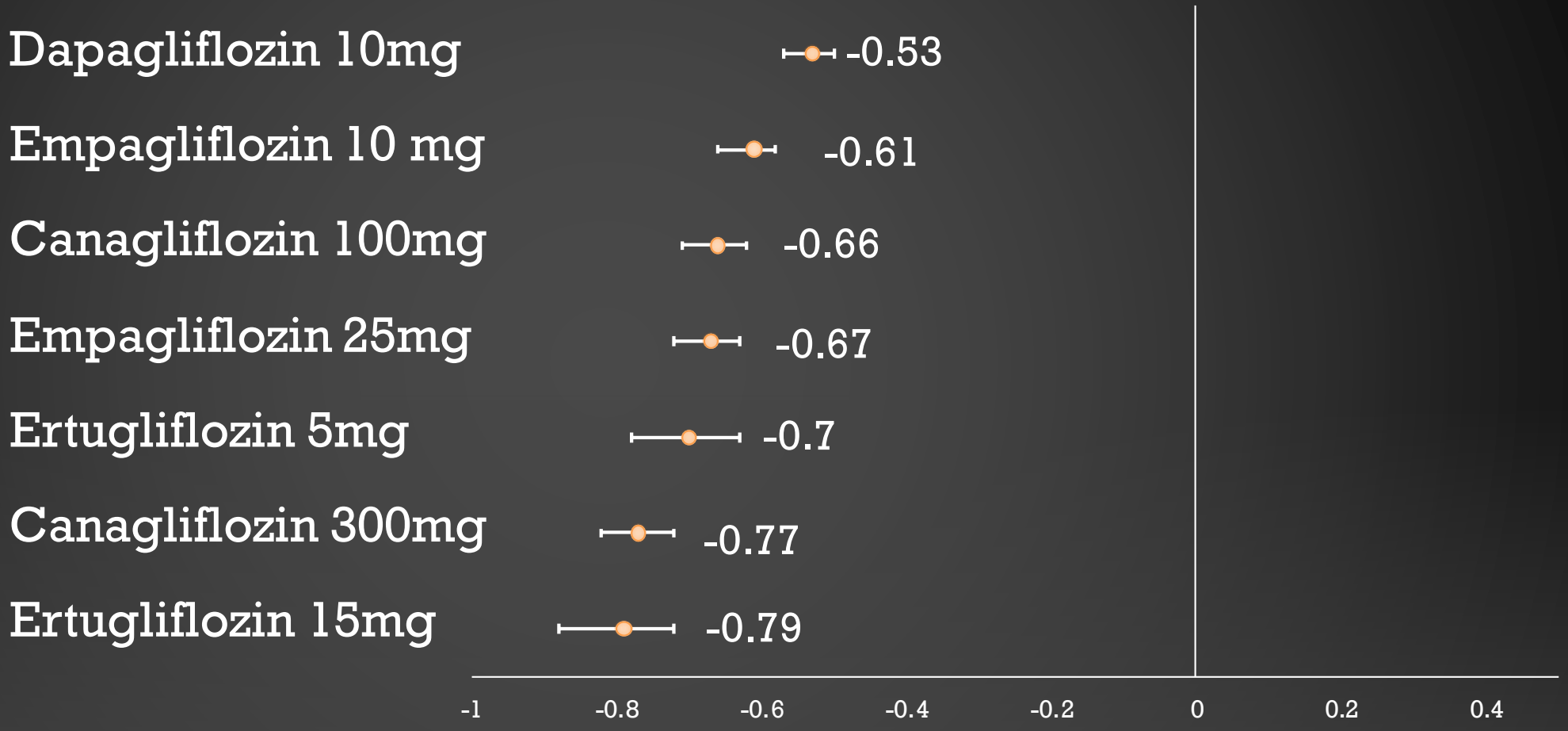
bridged ketal motif



confers rigidity that could potentially positively impact potency and selectivity for SGLT2. Possibly reduce the rate of phase 2 metabolism and improve potency.

	SGLT2 IC_{50} (nM)	SGLT1 IC_{50} (nM)	(SGLT2:SGLT1)
Dapagliflozin	1.2	1400	~ 1200-fold
Ertugliflozin	0.877	1960	~ 2200-fold

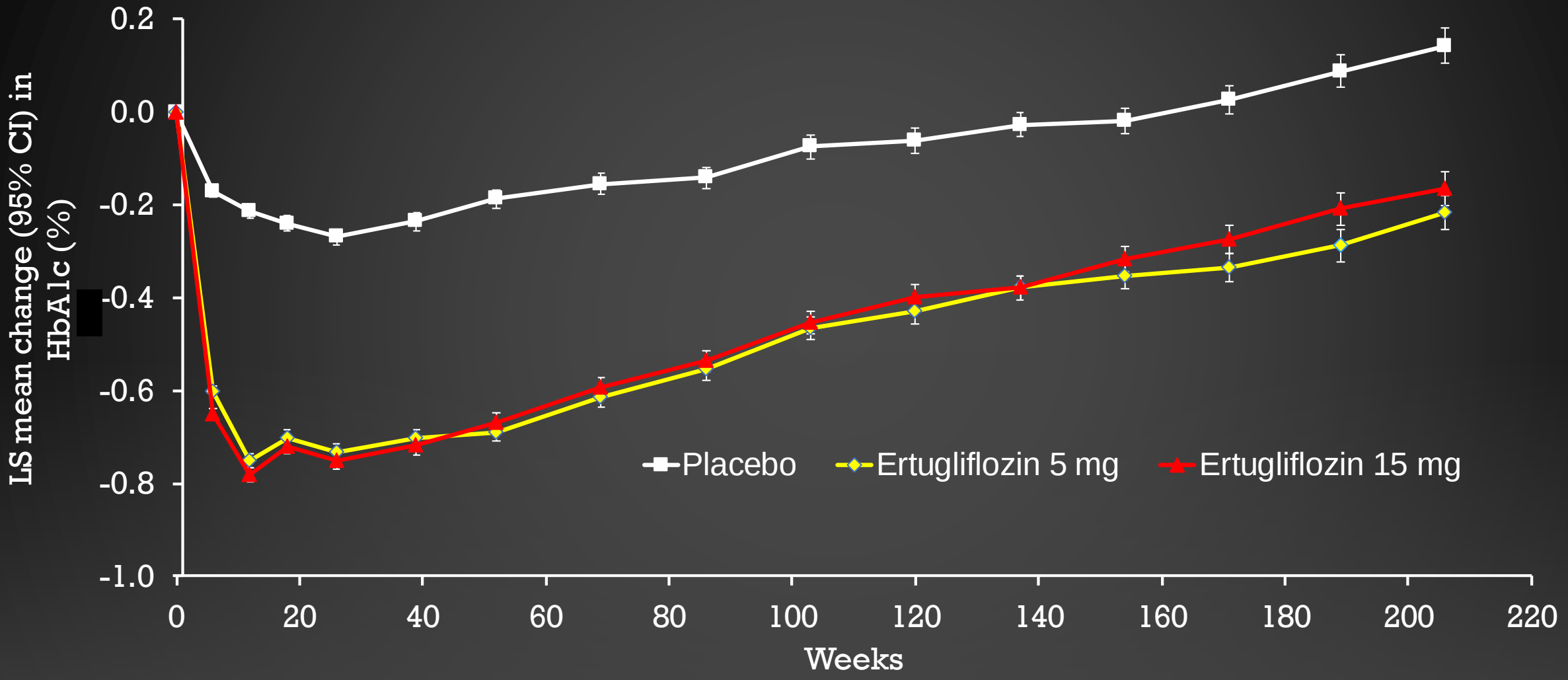
SPOT THE DIFFERENCE?



Predicted HbA1c response (95% CI) at 26 weeks on background oral treatment baseline HbA1c 8.0% and eGFR = 90ml/min/1.73m2

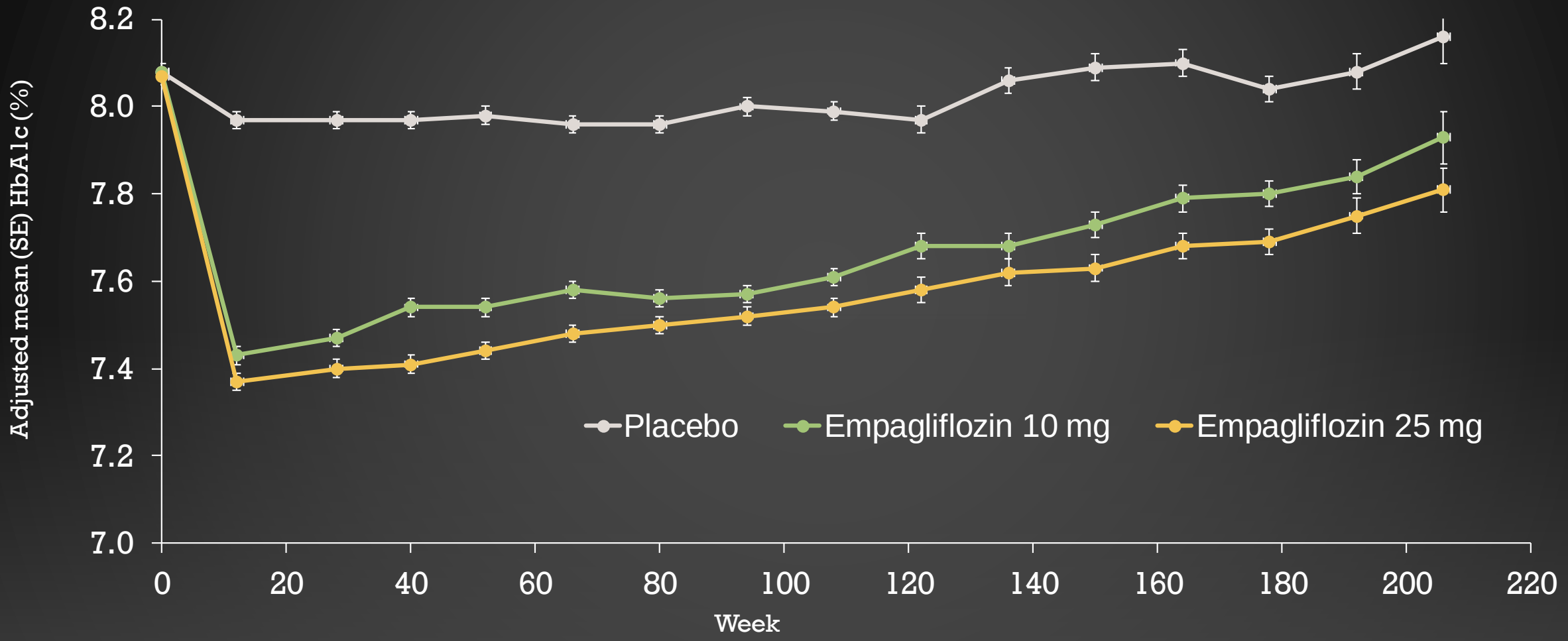
Fediuk d et al. Diabetes 2019 Jun; 68(Supplement 1): https://doi.org/10.2337/db19-1222-P

VERTIS CV Change in HbA1c over time

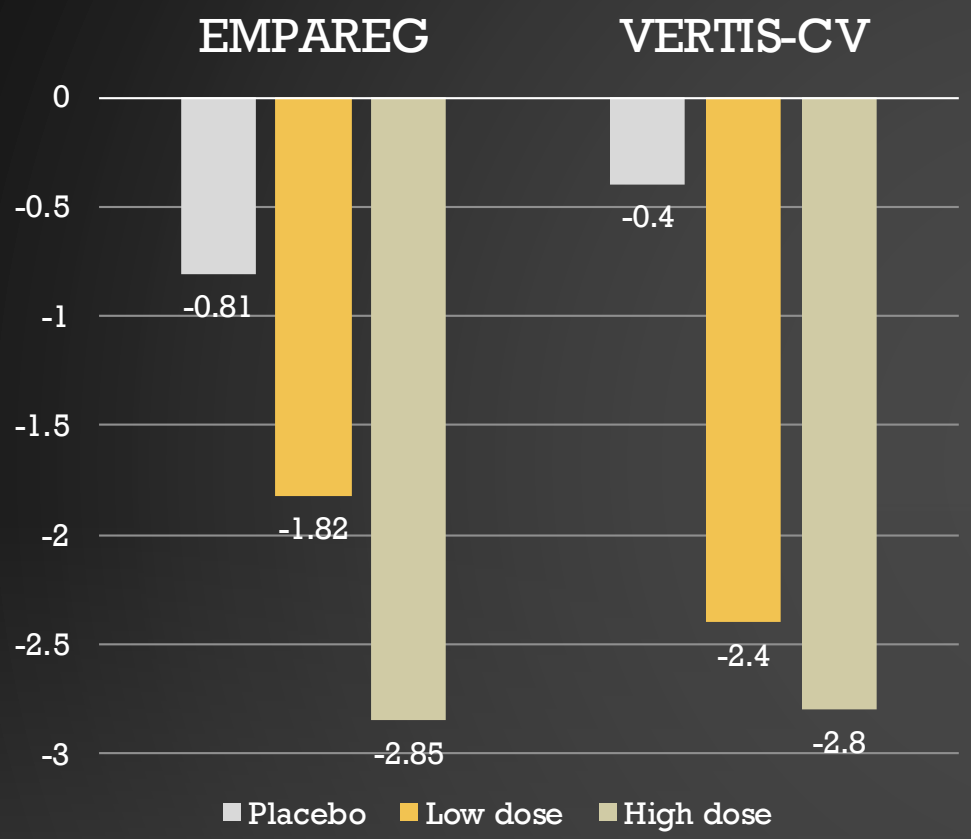


Doses of background antihyperglycemic medication were held constant for the initial 18 weeks of the study except for those patients meeting the glycemic rescue criteria.
CI, confidence interval; HbA1c, glycated hemoglobin; LS, least squares.

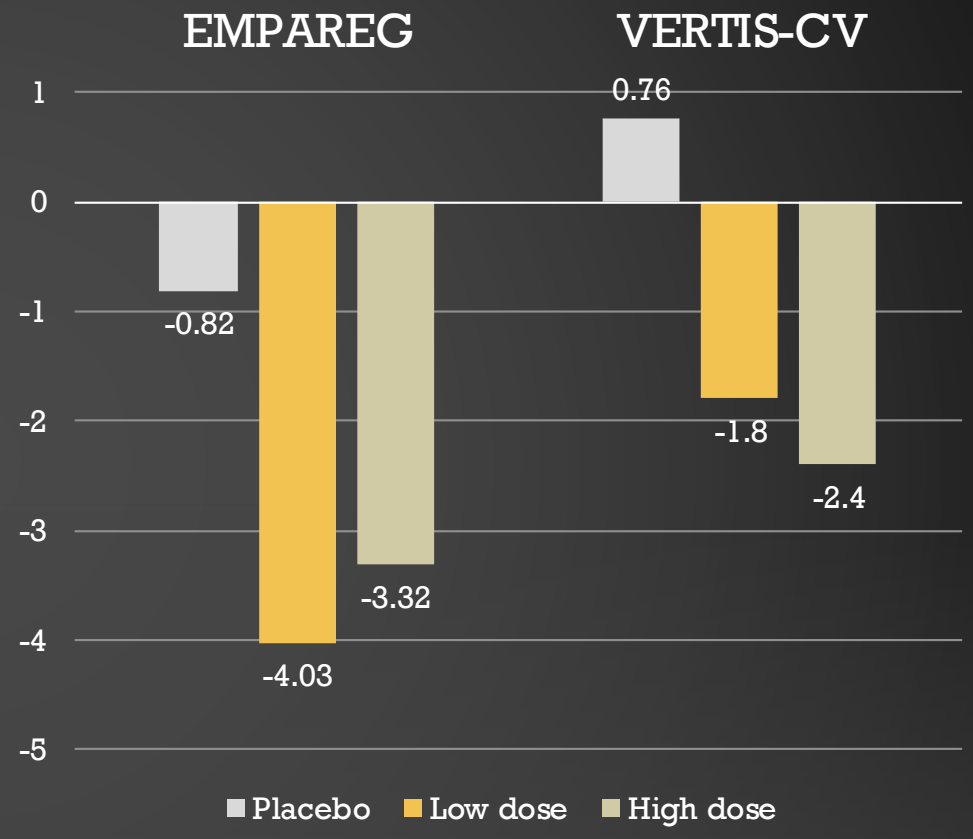
EMPA-REG Outcomes Change in HbA1c over time



SPOT THE DIFFERENCE?



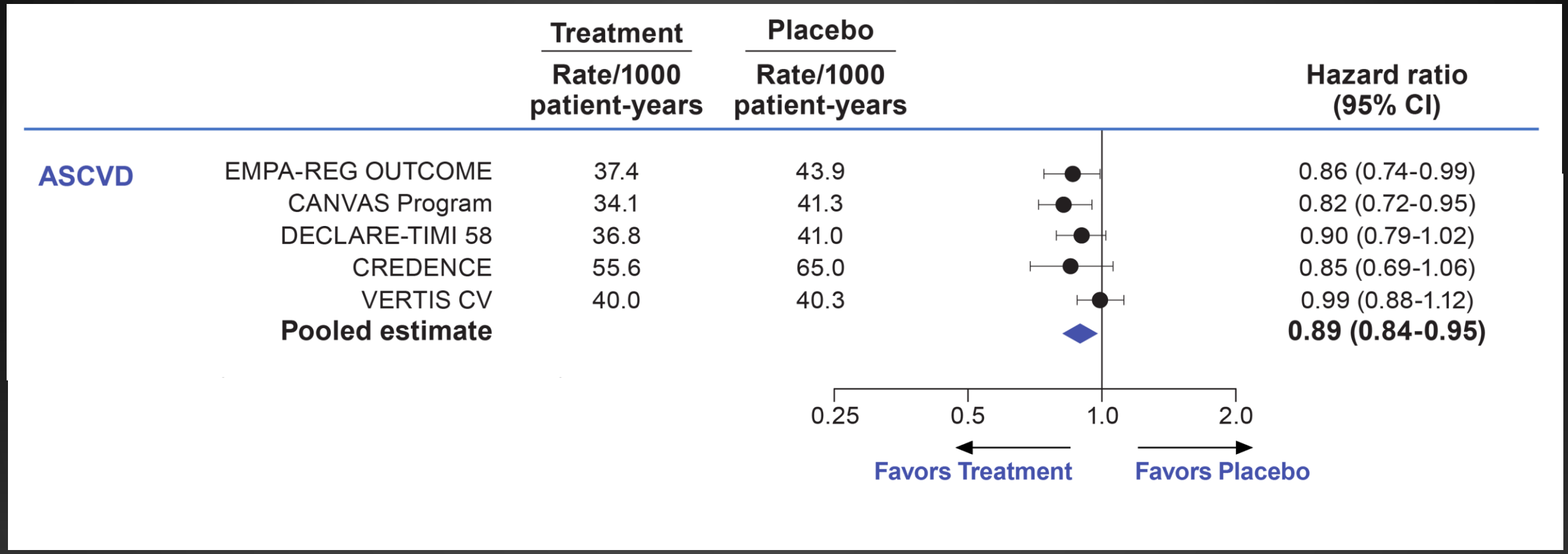
Weight loss*



Lower SBP*

*mean values at 12 months

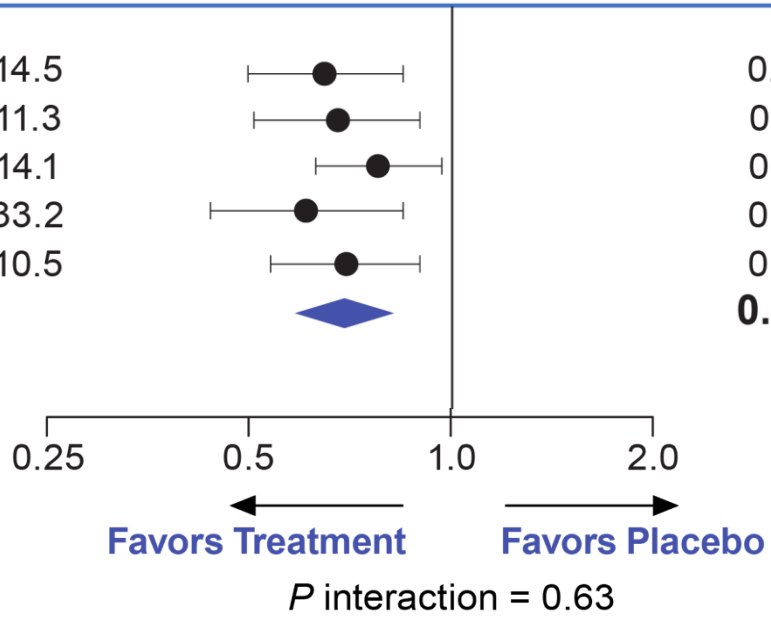
TIME TO FIRST MACE IN PATIENTS WITH ASCVD



ASCVD, atherosclerotic cardiovascular disease; CI, confidence interval; MACE, major adverse cardiovascular events.

TIME TO FIRST HOSPITALISATION FOR HEART FAILURE

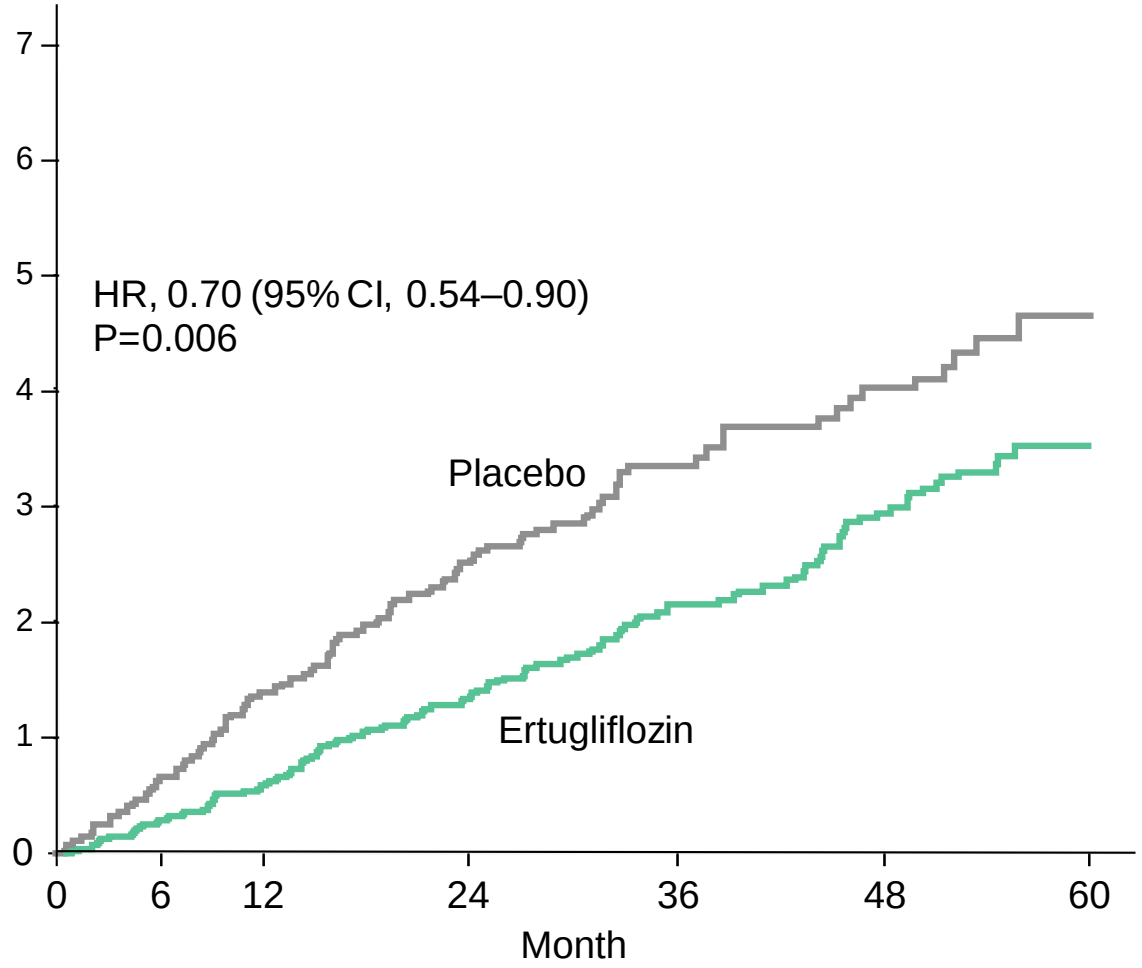
		Treatment Rate/1000 patient-years	Placebo Rate/1000 patient-years	Hazard ratio (95% CI)
ASCVD	EMPA-REG OUTCOME	9.4	14.5	0.65 (0.50-0.85)
	CANVAS Program	7.3	11.3	0.68 (0.51-0.90)
	DECLARE-TIMI 58	11.1	14.1	0.78 (0.63-0.97)
	CREDENCE	20.6	33.2	0.61 (0.44-0.85)
	VERTIS CV	7.3	10.5	0.70 (0.54-0.90)
				0.70 (0.62-0.78)

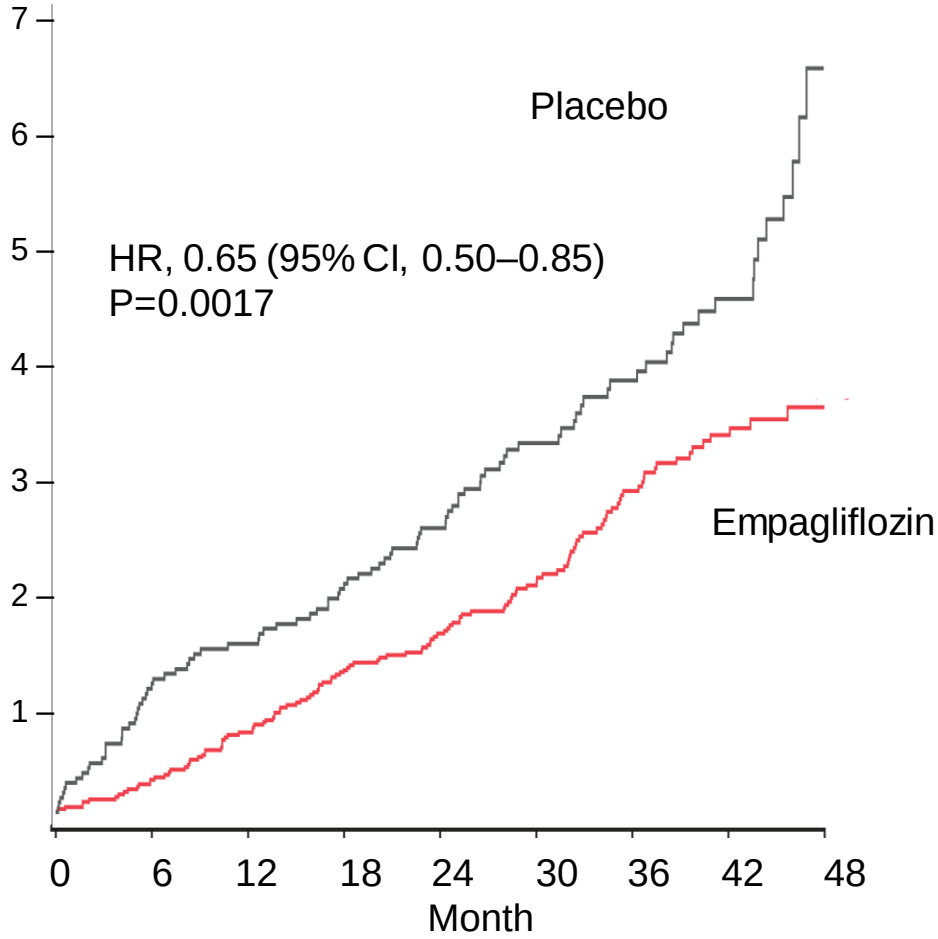


P interaction = 0.63

ASCVD, atherosclerotic cardiovascular disease; CI, confidence interval; HHF, hospitalization for heart failure.

TIME TO FIRST HHF – SPOT THE DIFFERENCE?





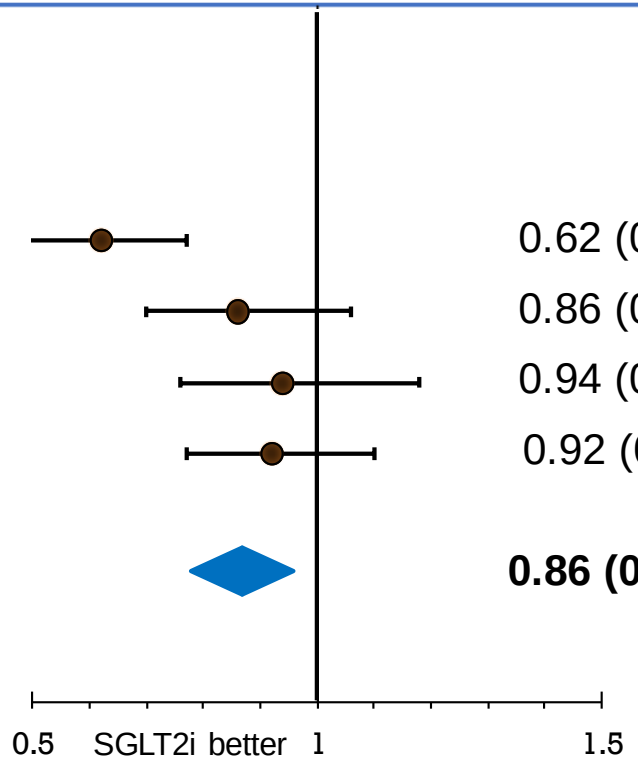
*Intention-to-treat analysis set that included all randomized patients with no upper limit on the ascertainment window for the superiority outcomes (N=5499 for ertugliflozin and N=2747 for placebo).
CI, confidence interval,; CV, cardiovascular; HFF, hospitalization for heart failure; HR, hazard ratio.

IS IT ALL JUST CLASS EFFECT?

- ✓ Chemical Structure
- ✓ Mechanism of Action
- ✓ HbA1c, Weight, BP
- ✓ CV Safety
- ✓ Reduced HHF
- ✓ Genital Mycoses, Ketoacidosis

TIME TO CV DEATH – IS THERE A DIFFERENCE?

Study name	Treatment Rate/1000 patient-years SGLT2 inhibitor	Placebo Rate/1000 patient-years Placebo	Hazard ratio (95% CI)
Patients with ASCVD			
EMPA-REG OUTCOME®[1,4]	12.4	20.2	0.62 (0.49, 0.77)
CANVAS Program[2,4]	14.8	16.8	0.86 (0.70, 1.06)
DECLARE-TIMI 53[3,4]	10.9	11.6	0.94 (0.76, 1.18)
VERTIS CV	17.6	19.0	0.92 (0.77,1.10)
Pooled analysis (all SGLT2 inhibitors)			**0.86 (0.78 – 0.96)**



CI, confidence interval; CV, cardiovascular.

IS THERE REALLY ANY DIFFERENCE?

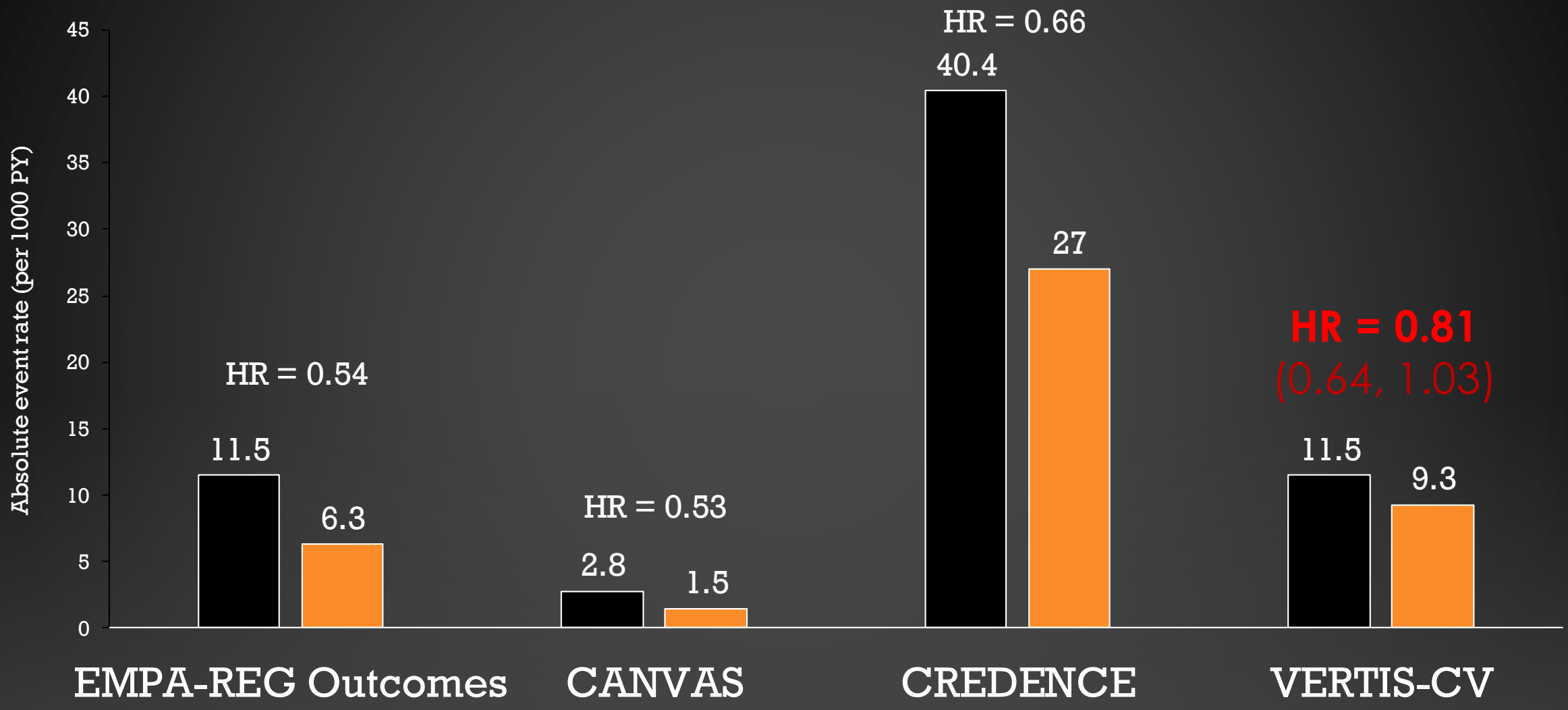
- Unlikely, based on so many similarities
- Not because of different baseline risk
- Not because of obvious trial/pop^{n} differences
- Not a head to head comparison
- Random fluctuations around a mean?

IS IT ALL JUST CLASS EFFECT?

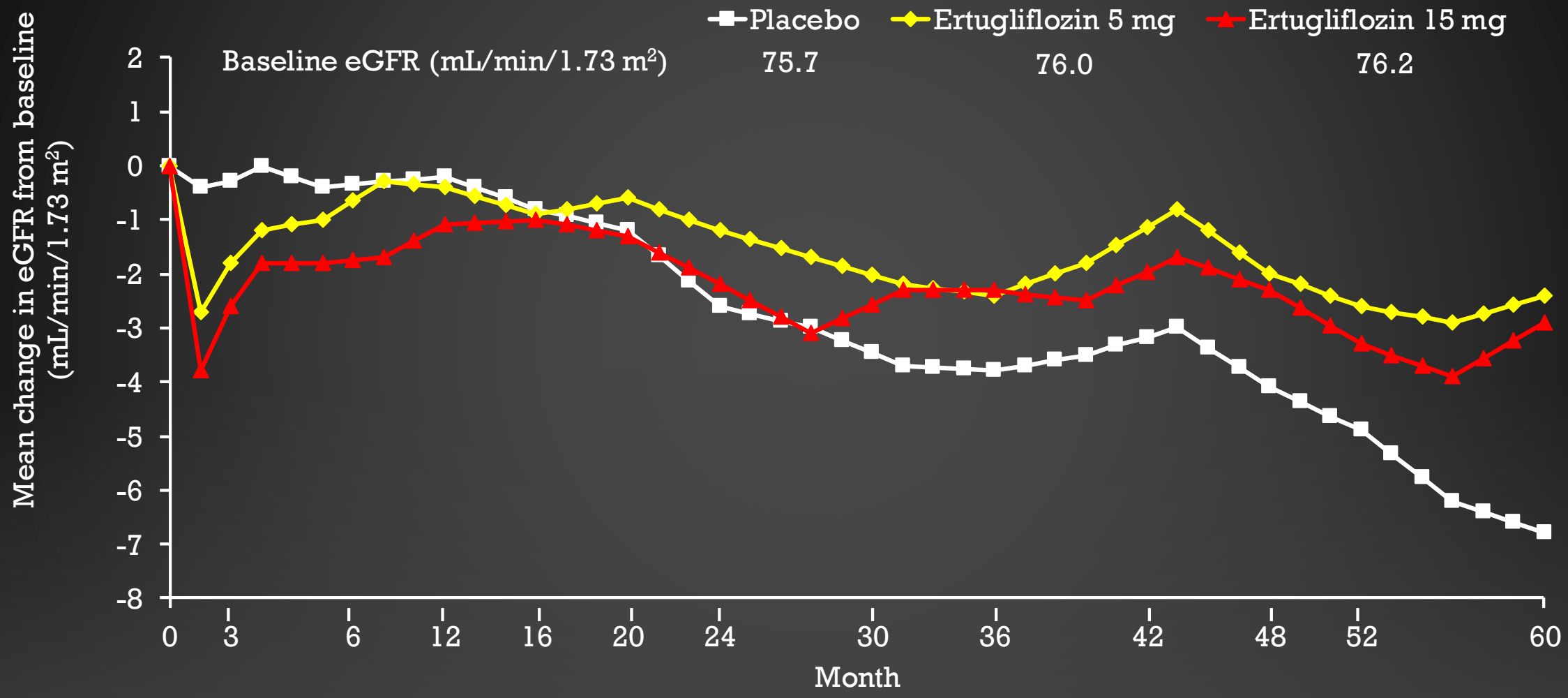
- ✓ Cardiovascular Death

- Renal Protection?

Doubling of serum creatinine, dialysis, transplantation or renal death

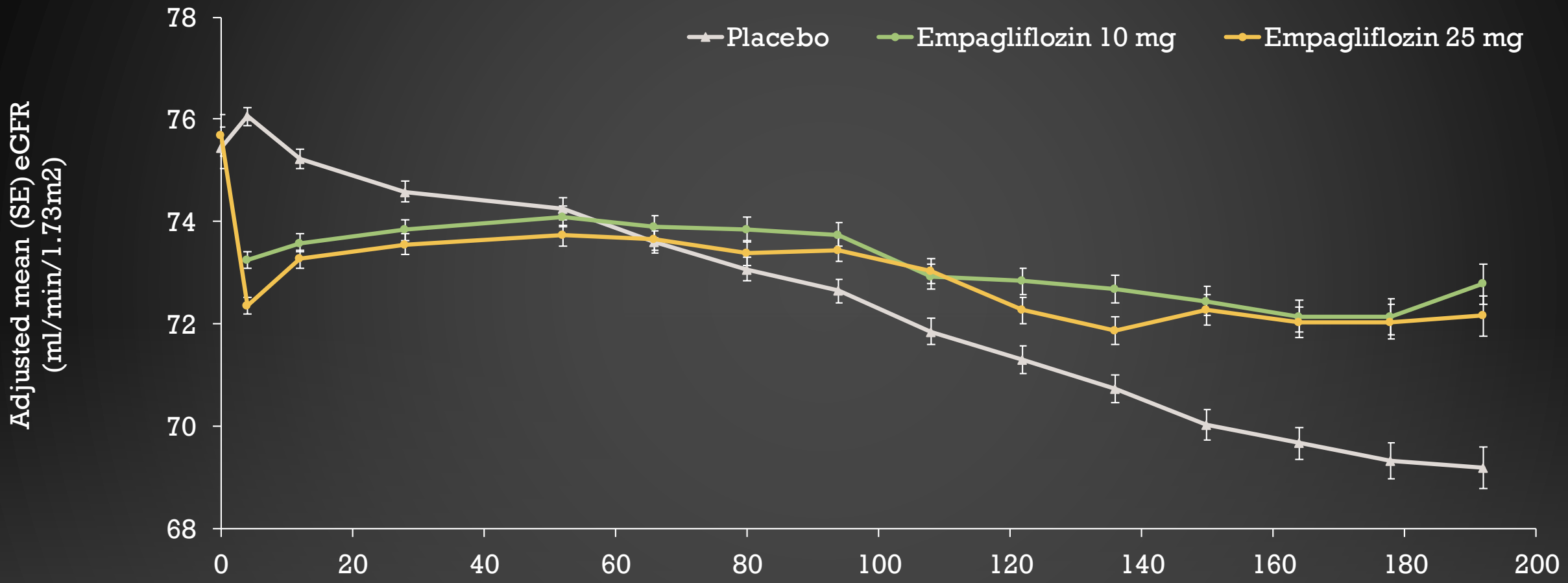


VERTIS CV change in eGFR over time

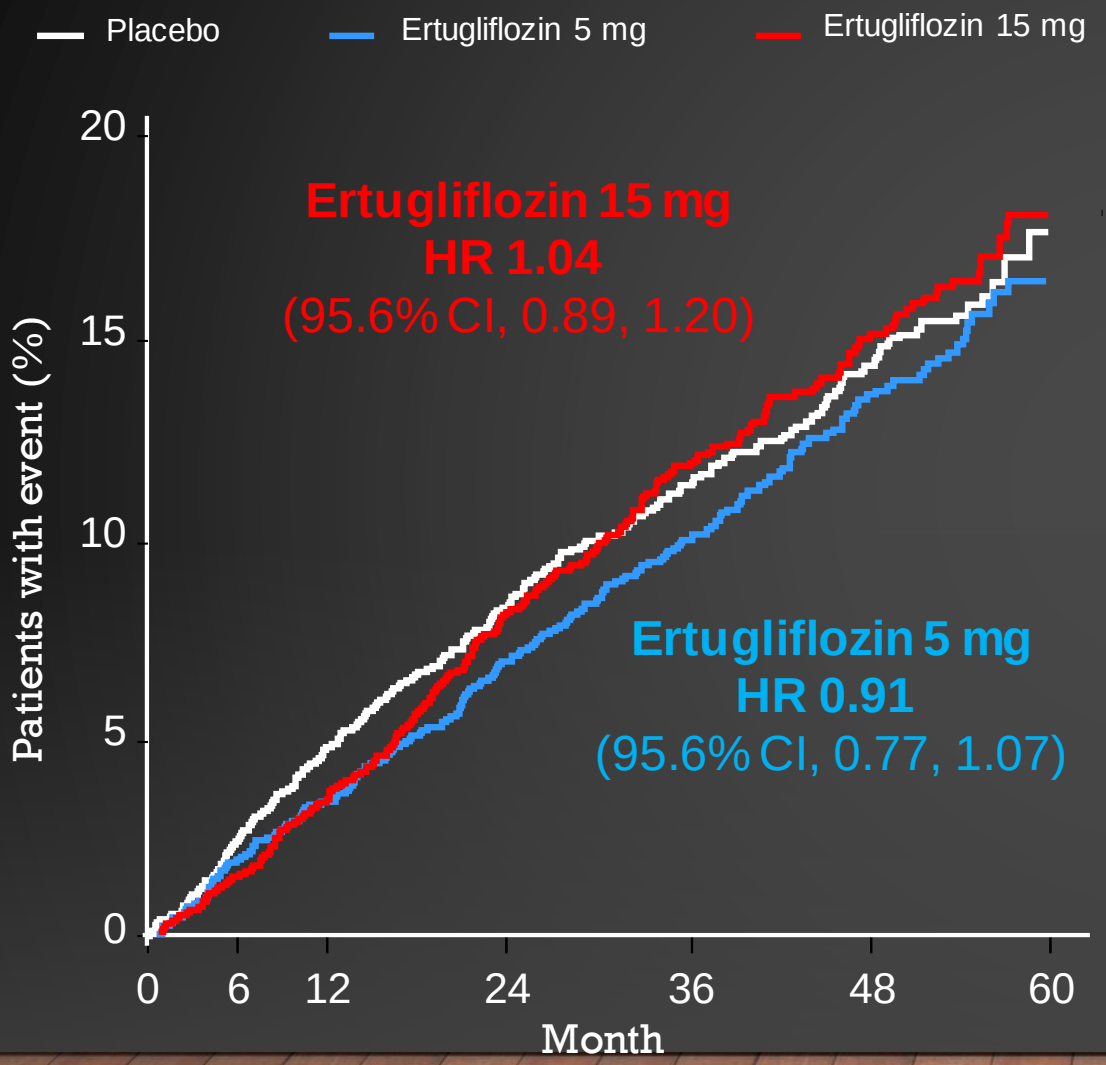


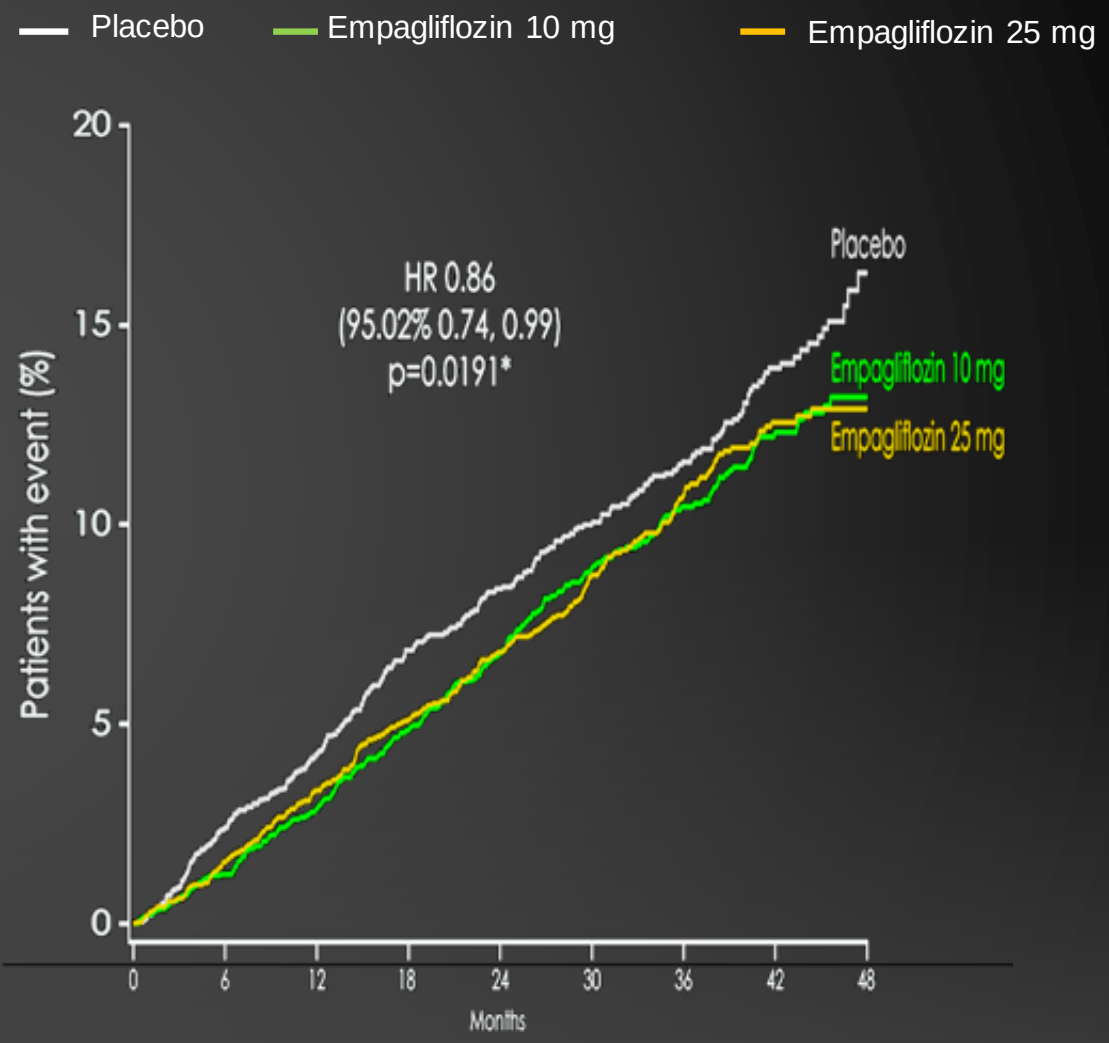
eGFR, estimated glomerular filtration rate.

EMPA-REG OUTCOMES change in eGFR over time



BUT WHAT HAPPENED TO THE DOSE?





*Full analysis set included all randomized patients who received at least one dose of study medication (N=2746 for ertugliflozin 5 mg, N=2747 for ertugliflozin 15 mg, and N=2745 for placebo). Only confirmed MACE events occurring up to 365 days after the last confirmed dose of study medication were included in the primary analysis.
CI, confidence interval; CV, cardiovascular; HR, hazard ratio; MACE, major adverse cardiovascular even; MI, myocardial infarction

VERTIS CV – it's probably all class

Mark Cooper (ADA 2020)