

Serum chloride predicts mortality risk in type 2 diabetes – analysis of 91,159 patients from the West of Scotland

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 Disclosures: none

BACKGROUND AND AIM

- Serum chloride (Cl⁻) is routinely measured and is an emerging risk factor for mortality and CV disease
- Low serum Cl⁻ is associated with higher mortality in the general population, those with hypertension, heart failure, chronic kidney disease and stroke
- Aim of this study is to determine if serum chloride is associated with mortality risk (all-cause, CV, MI, heart failure (HF), stroke) in adults with T2DM

METHODS

Study population

- Data were available for 91,159 adults with T2DM from the Scottish Care Information Diabetes Collaboration (SCI-DC) database through NHS Greater Glasgow and Clyde Saf haven
- Follow-up period was 10 years
- Patients were stratified into two groups based on serum chloride levels (<100 and ≥100 mmol/l)

Statistical methods

- KM, Cox-PH and Spline regression models were used to study the association between serum chloride and cause-specific mortality
- Model1 (KM)
- Model 2 (Cox-PH and Spline regression) was adjusted for age, sex, smoking, deprivation (SIMD), duration of diabetes, SBP, BMI and HBA1c

RESULTS

Demographics

Model 1

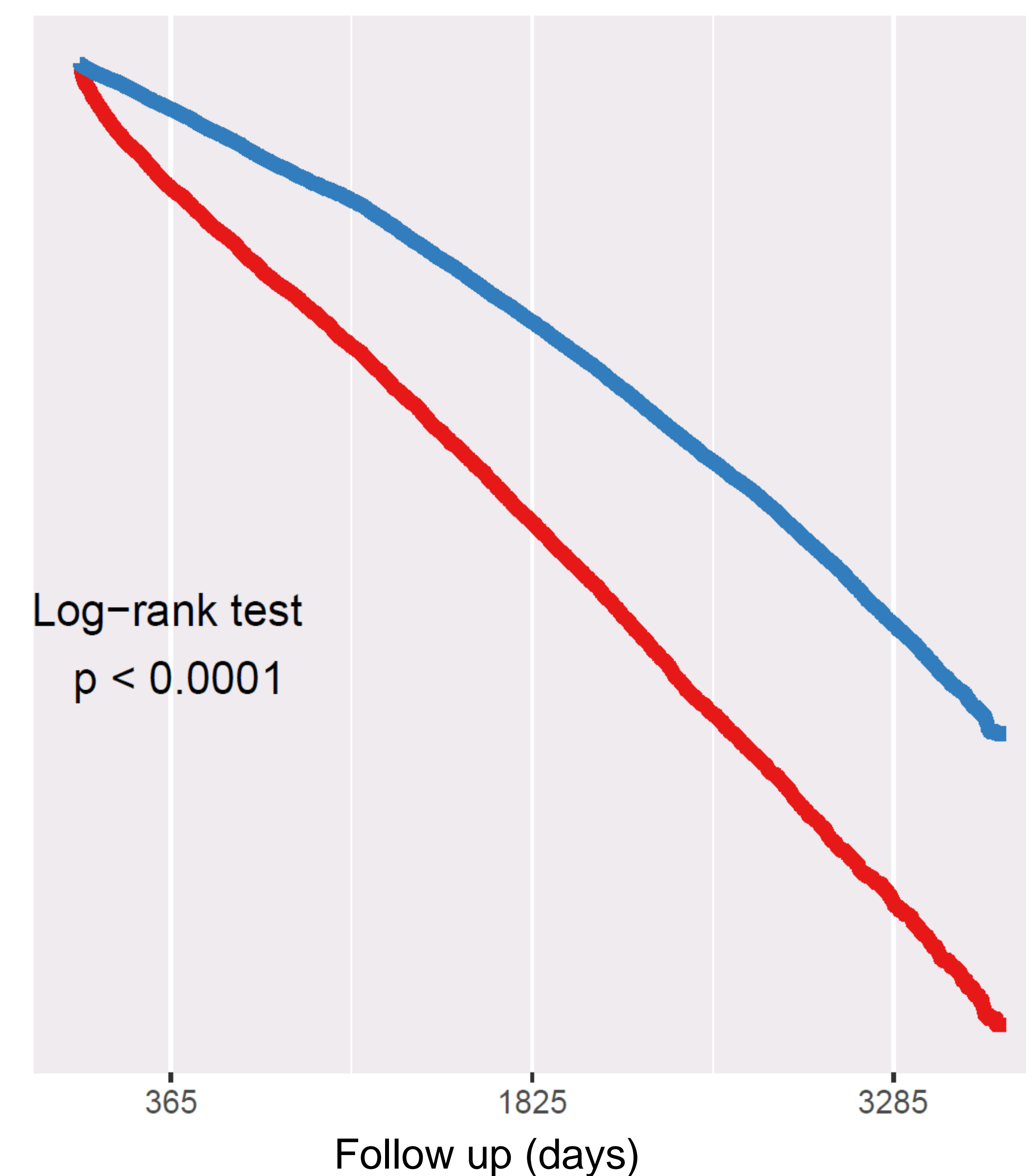
	All	Cl ⁻ <100 mmol/L	Cl ⁻ ≥100 mmol/L	P
	N=91,159	N=13,459	N=77,757	
Age, years (IQR)	61.4 (50.3-71.6)	62.5 (50.9-73.1)	61.2 (50.2-71.4)	<0.001
Female, N (%)	42774 (47)	6270 (47)	36504 (47)	0.4
Cl ⁻ , mmol/L (SD)	102.9 (3.6)	96.7 (3)	103.9 (2.5)	<0.001
Na ⁺ , mmol/L (SD)	138.6 (3.1)	135.3 (3.8)	139.2 (2.5)	<0.001

Model 2

	All
	N=24,408
Age, years (SD)	59.7 (12.7)
Female, N (%)	10779 (44.2)
Smoker, N (%)	12996 (53.2)
SIMD quintile (%)	
1	10014 (41)
2	4529 (18.6)
3	3504 (14.4)
4	2760 (11.3)
5	3601 (14.8)
T2DM duration, years (SD)	6.5 (4.9)
SBP, mmHg (SD)	134 (19)
BMI, kg/m ² (SD)	31.1 (5.9)
HBA1c, % (SD)	7.8 (1.87)
Cl ⁻ , mmol/L (SD)	102.2 (12.2)

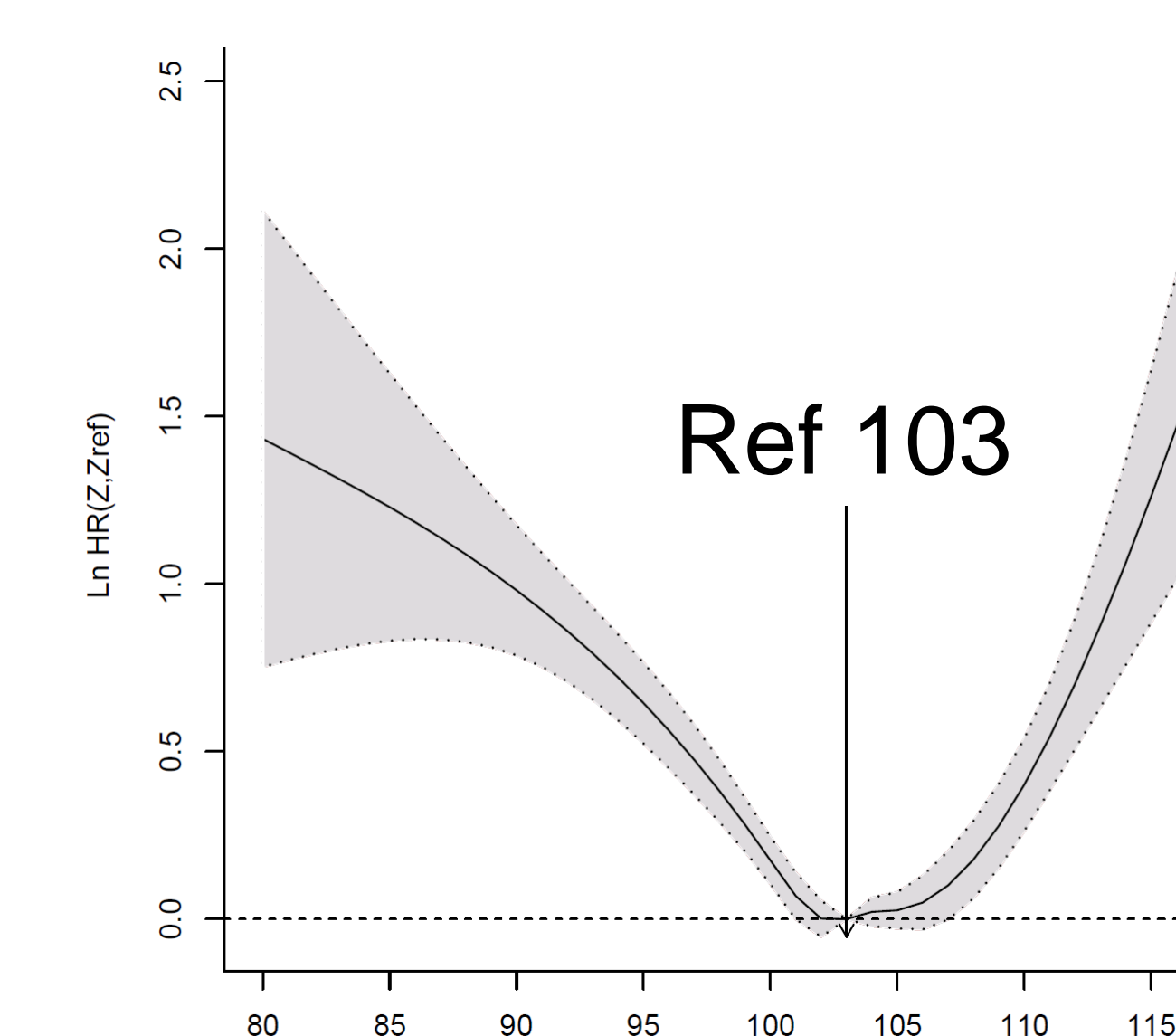
Univariate All-Cause Mortality

Model 1 All-cause (N=20,304)

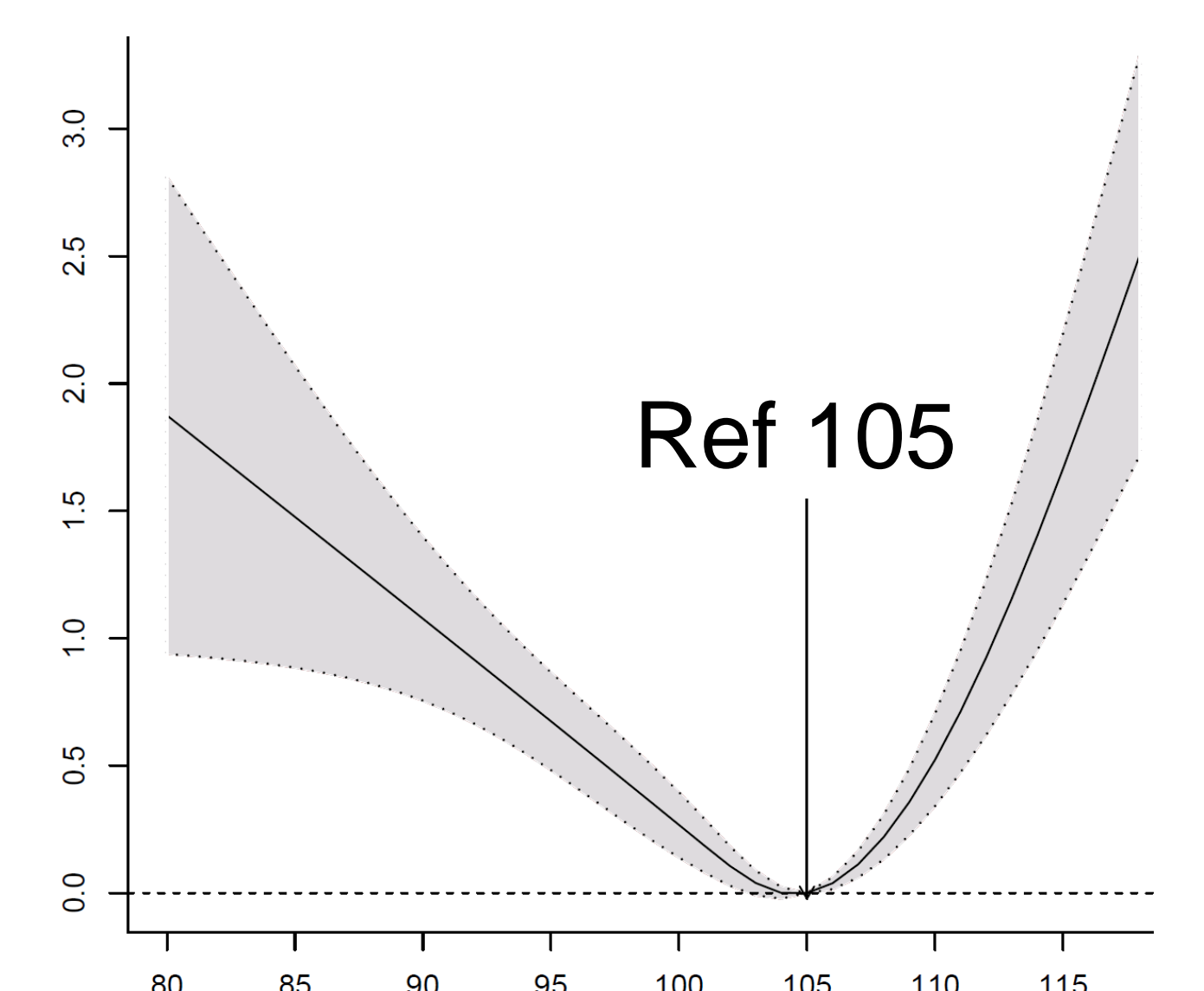


Adjusted Cause Specific Mortality

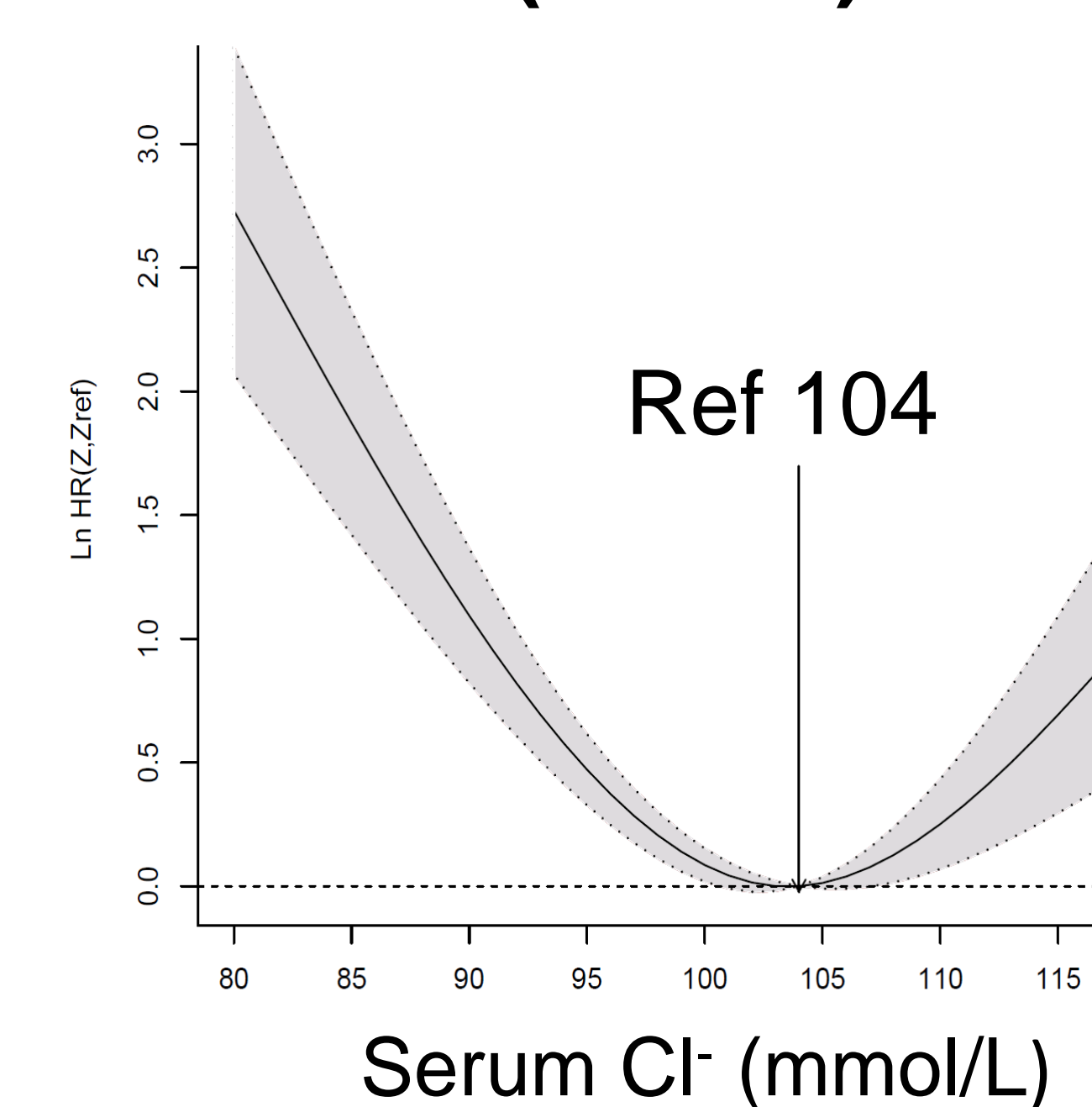
Model 2 All-cause (N=3,300)



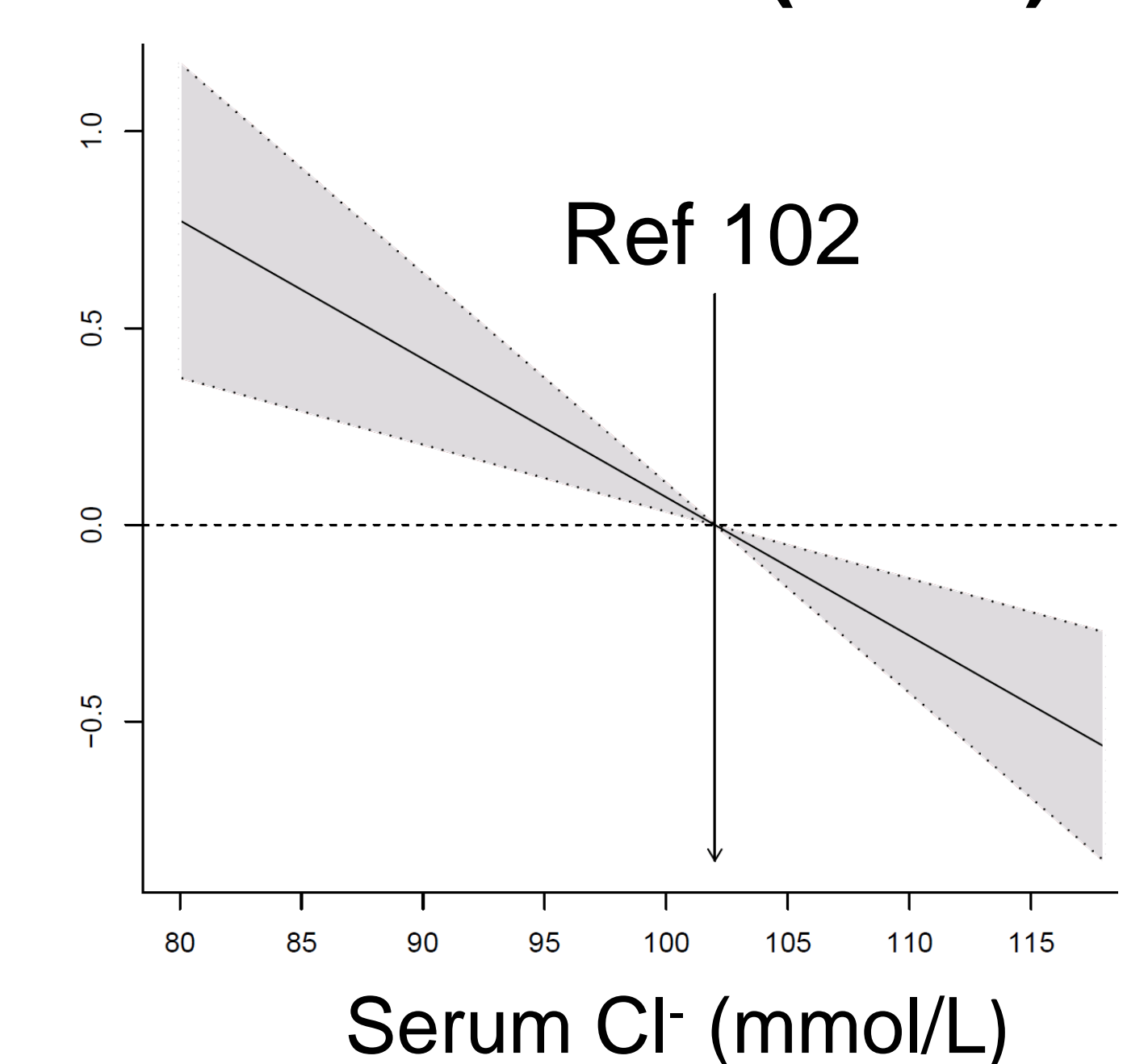
All-CV (N=1,003)



Stroke (N=212)



Heart failure (N=31)



CONCLUSION

- Low serum chloride, within the normal laboratory reference range, is associated with greater risk of all-cause mortality and cardiovascular mortality