SUPPLEMENTAL DATA

Mild hyponatremia is not associated with degradation of trabecular bone microarchitecture despite bone mass loss

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Supplementary Table 1. Multivariable ordered logistic regression analysis for the prediction of normal bone density (T-score > -1), osteopenia (T-score > -2.5 and ≤ -1) or osteoporosis (T-score ≤ -2.5) as ordered categorical outcomes at lumbar spine, total hip and femoral neck. Effect sizes are reported in terms of proportional odds ratio. Significant p-values are highlighted in bold. Abbreviations: 25OH-VitD, 25-hydroxyvitamin D; BMI, body mass index; CI, confidence interval; CKD G4-G5, chronic kidney disease stage G4-G5; GC, glucocorticoid; pOR, proportional odds ratio; ref, reference.

Parameter	**Lumbar spine T-score category**			**Total hip T-score category**			**Femoral neck T-score category**		
	pOR	**95%CI**	**p-value**	**pOR**	**95%CI**	**p-value**	**pOR**	**95%CI**	**p-value**
Hyponatremia	0.64	(0.37, 1.10)	0.101	1.59	(1.06, 2.37)	**0.025**	1.30	(0.78, 2.16)	0.300
Age (per 10 years increase)	1.39	(1.27, 1.53)	**<0.001**	1.92	(1.66, 2.23)	**<0.001**	2.02	(1.80, 2.28)	**<0.001**
Female sex	3.51	(2.92, 4.22)	**<0.001**	6.98	(5.79, 8.40)	**<0.001**	3.41	(2.83, 4.10)	**<0.001**
Race/ethnicity									
Non-Hispanic White	1 (ref)			1 (ref)			1 (ref)		
Non-Hispanic Black	0.51	(0.39, 0.66)	**<0.001**	0.56	(0.39, 0.82)	**0.004**	0.37	(0.28, 0.48)	**<0.001**
Hispanic	1.93	(1.41, 2.63)	**<0.001**	0.88	(0.63, 1.23)	0.456	0.86	(0.62, 1.21)	0.375
Other	2.01	(1.27, 3.19)	**0.004**	0.82	(0.41, 1.65)	0.572	0.98	(0.50, 1.94)	0.959
Current smoking	1.32	(1.02, 1.71)	**0.038**	1.97	(1.49, 2.60)	**<0.001**	1.37	(1.14, 1.63)	**0.001**
BMI category									
Normal weight	1 (ref)			1 (ref)			1 (ref)		
Overweight	0.54	(0.41, 0.72)	**<0.001**	0.31	(0.26, 0.37)	**<0.001**	0.39	(0.32, 0.47)	**<0.001**
Obesity	0.33	(0.27, 0.41)	**<0.001**	0.17	(0.12, 0.24)	**<0.001**	0.17	(0.13, 0.23)	**<0.001**
Underweight	3.42	(1.55, 7.52)	**0.003**	4.84	(1.92, 12.21)	**0.002**	2.43	(1.11, 5.31)	**0.028**
25OH-VitD (per 10 ng/mL increase)	0.86	(0.77, 0.96)	**0.008**	0.83	(0.70, 0.98)	**0.027**	0.77	(0.68, 0.87)	**<0.001**
Diabetes mellitus	0.85	(0.64, 1.13)	0.253	0.96	(0.67, 1.37)	0.814	0.88	(0.73, 1.06)	0.168
CKD G4-G5	1.08	(0.68, 1.70)	0.733	1.90	(1.01, 3.56)	**0.046**	2.14	(1.12, 4.07)	**0.022**
Loop diuretics	1.22	(0.80, 1.87)	0.346	1.66	(1.08, 2.56)	**0.022**	1.26	(0.77, 2.07)	0.344
Thiazide diuretics	0.81	(0.63, 1.04)	0.100	0.88	(0.68, 1.13)	0.307	0.79	(0.61, 1.02)	0.064
Potassium-sparing diuretics	0.77	(0.49, 1.21)	0.247	0.77	(0.46, 1.29)	0.313	0.73	(0.46, 1.16)	0.176
History of chronic GC treatment	0.84	(0.48, 1.48)	0.538	0.97	(0.56, 1.68)	0.916	1.19	(0.85, 1.67)	0.308

Supplementary Table 2. Sensitivity analyses for the prediction of T-score at lumbar spine, total hip and femoral neck. In Model 1, patients actively treated with anti-osteoporotic drugs (n=243) were excluded. In Model 2, patients were reclassified as hyponatremic or normonatremic according to glucose-corrected sodium values (maintaining <135 mmol/L as the threshold for the definition of hyponatremia). In Model 3, low plasma osmolality (<275 mOsm/kg) was considered as a predictor instead of hyponatremia. All models are adjusted for the same set of covariates as the primary analysis. Significant p-values are highlighted in bold. Abbreviations: CI, confidence interval; β-coeff, β-coefficient.

Parameter	**Lumbar spine T-score**			**Total hip T-score**			**Femoral neck T-score**		
	β-coeff.	**95%CI**	**p-value**	**β-coeff.**	**95%CI**	**p-value**	**β-coeff.**	**95%CI**	**p-value**
Model 1									
Hyponatremia	+0.15	(-0.14, +0.43)	0.303	-0.22	(-0.41, -0.02)	**0.030**	-0.11	(-0.33, +0.11)	0.299
Model 2									
Hyponatremia (glucose-corrected)	+0.24	(-0.09, +0.57)	0.146	-0.12	(-0.31, +0.07)	0.215	+0.02	(-0.19, +0.24)	0.835
Model 3									
Low plasma osmolality	+0.09	(-0.07, +0.26)	0.261	-0.01	(-0.13, +0.11)	0.824	+0.05	(-0.07, +0.16)	0.424

Supplementary Table 3. Sensitivity analyses for the prediction of TBS. In Model 1, patients actively treated with anti-osteoporotic drugs (n=243) were excluded. In Model 2, patients were reclassified as hyponatremic or normonatremic according to glucose-corrected sodium values (maintaining <135 mmol/L as the threshold for the definition of hyponatremia). In Model 3, low plasma osmolality (<275 mOsm/kg) was considered as a predictor instead of hyponatremia. All models are adjusted for the same set of covariates as the primary analysis. Significant p-values are highlighted in bold. Abbreviations: CI, confidence interval; TBS, trabecular bone score; β-coeff, β-coefficient.

Parameter	**Lumbar spine TBS**		
	β-coeff.	**95%CI**	**p-value**
Model 1			
Hyponatremia	+0.016	(-0.011, +0.042)	0.242
Model 2			
Hyponatremia (glucose-corrected)	+0.017	(-0.010, +0.044)	0.211
Model 3			
Low plasma osmolality	+0.005	(-0.004, +0.015)	0.266