

Supplementary Table SI. Normal range of coagulation biomarkers

Variable	Min.	Max.
Coagulation biomarker:		
Prothrombin time [s]	9.8	14.00
Activated partial thromboplastin time [s]	25.00	36.00
Fibrinogen [g/l]	2.00	4.00
International normalized ratio	0.8	1.2
D-dimer [mg/l]	0	0.55
Platelets [10^9 /l]	125	350
Mean platelet volume [fl]	7.8	11.0
Bone turnover markers:		
β -cross-linked C-terminal telopeptide of type I [ng/l]	43.0	783.0
25-hydroxyvitamin D [nmol/l]	0	30.00
Procollagen type I N propeptide [μ g/l]	9.06	76.24
Osteocalcin [μ g/l]	6.00	24.66
Calcium [mmol/l]	2.10	2.60

Supplementary Table SII. Correlation of coagulation biomarkers with patients' characteristics among three groups

Parameter		Age		BMI		Sex		Hypertension	
		<i>r</i>	<i>P</i> -value	<i>r</i>	<i>P</i> -value	<i>r</i>	<i>P</i> -value	<i>r</i>	<i>P</i> -value
Normal (<i>N</i> = 46)	PT	-0.169	0.262	-0.355	0.015	-0.005	0.973	-0.361	0.014
	APTT	-0.123	0.417	-0.154	0.305	-0.256	0.086	-0.091	0.548
	FIB	0.002	0.990	0.210	0.161	0.042	0.780	0.134	0.373
	INR	-0.183	0.222	-0.346	0.019	0.000	1.000	-0.314	0.034
	D-dimer	0.260	0.081	-0.009	0.955	-0.177	0.240	-0.005	0.972
	PLT	-0.187	0.213	-0.139	0.357	0.097	0.523	-0.124	0.412
	MPV	-0.139	0.356	0.076	0.616	-0.048	0.754	0.259	0.083
Osteopenia (<i>N</i> = 129)	PT	0.131	0.138	0.017	0.844	0.179	0.043	0.004	0.960
	APTT	-0.102	0.250	-0.036	0.684	0.043	0.629	0.034	0.700
	FIB	0.056	0.527	-0.071	0.423	0.030	0.740	0.130	0.143
	INR	0.124	0.162	0.002	0.983	0.176	0.047	-0.001	0.992
	D-dimer	0.298	0.001	0.112	0.206	-0.054	0.543	0.134	0.130
	PLT	-0.114	0.197	-0.086	0.335	0.093	0.294	0.049	0.578
	MPV	0.009	0.922	0.005	0.953	-0.140	0.113	-0.057	0.521
Osteoporosis (<i>N</i> = 131)	PT	0.221	0.011	0.019	0.830	-0.167	0.056	0.156	0.076
	APTT	-0.024	0.789	-0.056	0.522	-0.240	0.006	-0.071	0.420
	FIB	0.064	0.464	-0.100	0.256	0.009	0.918	-0.069	0.435
	INR	0.225	0.010	0.023	0.797	-0.166	0.058	0.142	0.106
	D-dimer	0.277	0.001	0.026	0.767	-0.082	0.352	0.050	0.570
	PLT	-0.001	0.995	-0.021	0.808	0.041	0.641	-0.027	0.759
	MPV	-0.073	0.407	-0.007	0.938	-0.097	0.269	0.083	0.346

BMI – body mass index, PT – prothrombin time, APTT – activated partial thromboplastin time, FIB – fibrinogen, INR – international normalized ratio, PLT – platelets, MPV – mean platelet volume, **Boldface** indicates *p*-value < 0.05.

Supplementary Table SIII. Correlation of coagulation biomarkers with bone turnover markers among three groups

Variable		β -CTX		25-(OH)D		PINP		Osteocalcin		Calcium	
		<i>r</i>	<i>P</i> -value	<i>r</i>	<i>P</i> -value	<i>r</i>	<i>P</i> -value	<i>r</i>	<i>P</i> -value	<i>r</i>	<i>P</i> -value
Normal (<i>N</i> = 46)	PT	-0.109	0.469	-0.016	0.914	-0.068	0.653	-0.175	0.243	-0.110	0.465
	APTT	0.038	0.804	-0.146	0.332	-0.068	0.653	0.101	0.503	-0.285	0.055
	FIB	-0.166	0.271	0.283	0.056	-0.163	0.279	-0.192	0.202	0.323	0.029
	INR	-0.108	0.475	0.006	0.970	-0.067	0.659	-0.165	0.274	-0.054	0.722
	D-dimer	-0.266	0.074	0.076	0.614	-0.187	0.213	-0.247	0.099	0.000	0.999
	PLT	0.016	0.917	0.401	0.006	-0.033	0.825	0.036	0.812	0.458	0.001
	MPV	0.121	0.422	-0.128	0.396	0.169	0.262	0.129	0.392	-0.097	0.523
Osteopenia (<i>N</i> = 129)	PT	0.169	0.055	0.081	0.360	0.199	0.024	0.065	0.463	-0.227	0.010
	APTT	0.062	0.482	-0.155	0.078	-0.007	0.933	0.052	0.556	0.010	0.908
	FIB	-0.015	0.866	0.040	0.653	0.096	0.279	0.015	0.864	0.166	0.060
	INR	0.189	0.032	0.104	0.239	0.218	0.013	0.081	0.362	-0.215	0.014
	D-dimer	-0.001	0.995	0.067	0.167	0.129	0.145	0.082	0.357	0.005	0.959
	PLT	0.056	0.527	0.194	0.028	0.142	0.109	0.115	0.195	0.146	0.099
	MPV	-0.088	0.319	-0.298	0.001	-0.020	0.822	-0.107	0.225	0.135	0.127
Osteoporosis (<i>N</i> = 131)	PT	-0.178	0.041	0.232	0.008	-0.092	0.297	-0.208	0.017	-0.041	0.644
	APTT	-0.072	0.414	-0.207	0.018	0.060	0.498	0.058	0.508	-0.176	0.045
	FIB	-0.029	0.746	0.086	0.331	-0.048	0.586	-0.121	0.170	-0.060	0.495
	INR	-0.185	0.035	0.258	0.003	-0.097	0.271	-0.217	0.013	-0.046	0.601
	D-dimer	0.031	0.723	0.007	0.936	-0.037	0.672	-0.129	0.142	-0.258	0.003
	PLT	0.090	0.305	0.119	0.176	-0.054	0.541	-0.024	0.786	0.030	0.736
	MPV	0.041	0.646	-0.181	0.039	0.033	0.708	0.012	0.888	0.021	0.808

β -CTX – β -cross-linked C-terminal telopeptide of type I, 25 (OH)D – 25-hydroxyvitamin D, PINP – procollagen type I N propeptide, PT – prothrombin time, APTT – activated partial thromboplastin time, FIB – fibrinogen, INR – international normalized ratio, PLT – platelets, MPV – mean platelet volume, **boldface** indicates *p*-value < 0.05.

Supplementary Table SIV. Correlation of coagulation biomarkers with bone mineral density among three groups

Variable		Lumbar spine		Femoral neck		Ward's triangle		Total hip	
		<i>r</i>	<i>P</i> -value	<i>r</i>	<i>P</i> -value	<i>r</i>	<i>P</i> -value	<i>r</i>	<i>P</i> -value
Normal (<i>N</i> = 46)	PT	−0.090	0.551	0.169	0.261	0.085	0.572	0.166	0.269
	APTT	0.100	0.511	0.163	0.279	0.011	0.944	−0.030	0.843
	FIB	0.009	0.955	0.105	0.486	−0.025	0.871	0.037	0.809
	INR	−0.117	0.440	0.209	0.164	0.082	0.588	0.123	0.414
	D-dimer	−0.135	0.369	−0.090	0.551	−0.139	0.355	0.053	0.726
	PLT	−0.137	0.362	0.125	0.408	−0.010	0.945	0.159	0.290
	MPV	0.018	0.906	0.083	0.582	0.050	0.742	−0.018	0.906
Osteopenia (<i>N</i> = 129)	PT	0.055	0.539	−0.107	0.230	−0.070	0.428	−0.075	0.401
	APTT	−0.047	0.593	0.100	0.260	0.113	0.203	−0.019	0.832
	FIB	0.006	0.943	−0.031	0.729	−0.050	0.571	−0.086	0.334
	INR	0.046	0.607	−0.109	0.218	−0.061	0.492	−0.090	0.311
	D-dimer	0.101	0.253	−0.057	0.521	−0.145	0.102	−0.026	0.769
	PLT	−0.079	0.373	0.006	0.947	0.029	0.744	−0.016	0.854
	MPV	−0.036	0.688	−0.032	0.721	0.076	0.392	−0.121	0.171
Osteoporosis (<i>N</i> = 131)	PT	0.011	0.901	0.009	0.917	−0.045	0.609	−0.088	0.318
	APTT	−0.012	0.891	0.115	0.190	0.127	0.148	−0.018	0.839
	FIB	−0.079	0.369	−0.147	0.093	−0.146	0.095	−0.143	0.104
	INR	0.010	0.910	0.008	0.927	−0.039	0.660	−0.086	0.328
	D-dimer	−0.052	0.553	−0.288	0.001	−0.289	0.102	−0.207	0.018
	PLT	−0.014	0.876	−0.014	0.874	0.015	0.863	0.000	0.996
	MPV	−0.035	0.693	0.064	0.466	0.038	0.666	0.036	0.681

PT – prothrombin time, APTT – activated partial thromboplastin time, FIB – fibrinogen, INR – international normalized ratio, PLT – platelets, MPV – mean platelet volume. **Boldface** indicates *p*-value < 0.05.

Supplementary Table SV. Canonical correlation analysis of the three sets of variables

Variables	Canonical correlation pair	Canonical correlation coefficient	<i>F</i>	<i>P</i> -value
X1 and Y	1	0.328	1.694	0.007
	2	0.220	1.030	0.423
	3	0.143	0.653	0.831
	4	0.094	0.459	0.885
	5	0.058	0.333	0.802
X2 and Y	1	0.370	2.917	< 0.001
	2	0.325	2.351	< 0.001
	3	0.238	1.491	0.102
	4	0.095	0.596	0.782
	5	0.084	0.699	0.553
X3 and Y	1	0.268	1.496	0.048
	2	0.227	1.071	0.378
	3	0.082	0.344	0.969
	4	0.069	0.357	0.839

X1 indicates patients' basic characteristics (age, body mass index, sex, stage of bone mass, and hypertension). X2 indicates the bone turnover markers (β-cross-linked C-terminal telopeptide of type I, 25-hydroxyvitamin D, procollagen type I N propeptide, osteocalcin, and calcium). X3 indicates bone mineral density in various anatomical regions (lumbar spine 1-4, femoral neck, ward's triangle, and total hip). The dependent variable Y indicates coagulation biomarkers (prothrombin time, activated partial thromboplastin time, fibrinogen, international normalized ratio, platelets, and mean platelet volume). **Boldface** indicates *p*-value < 0.05.

Supplementary Table SVI. Logistic regression analysis between international normalized ratio and characteristics, bone turnover markers, and bone mineral density

Characteristics	Univariate analysis	
	OR (95% CI)	P-value
Age	1.007 (0.917–1.105)	0.888
Stage of bone mass:		
Normal	Reference	
Osteopenia	0.948 (0.096–9.349)	0.964
Osteoporosis	0.333 (0.034–3.247)	0.344
25-(OH)D	0.981 (0.941–1.022)	0.360
Calcium	0.153 (0.008–2.779)	0.205
Lumbar spine	0.095 (0.001–13.830)	0.354
Femoral neck	0.046 (0.000–34.859)	0.362
Ward's triangle	0.098 (0.000–58.691)	0.476
Total hip	0.142 (0.000–52.432)	0.518

25-(OH)D – 25-hydroxyvitamin D, OR – odds ratio, CI – confidence interval.

Supplementary Table SVII. Logistic regression analysis between fibrinogen and characteristics, bone turnover markers, and bone mineral density

Characteristics	Univariate analysis	
	OR (95% CI)	P-value
Age	1.036 (1.004–1.069)	0.027
Stage of bone mass:		
Normal	Reference	
Osteopenia	0.552 (0.212–1.433)	0.222
Osteoporosis	0.558 (0.289–1.080)	0.344
25-(OH)D	1.008 (0.997–1.020)	0.170
Lumbar spine	0.480 (0.102–2.257)	0.480
Femoral neck	0.163 (0.018–1.522)	0.112
Ward's triangle	0.203 (0.024–1.746)	0.146
Total hip	0.199 (0.026–1.523)	0.120

25-(OH)D – 25-hydroxyvitamin D, OR – odds ratio, CI – confidence interval; **boldface** indicates p-value < 0.05.**Supplementary Table SVIII.** Logistic regression analysis between platelets and characteristics, bone turnover markers, and bone mineral density

Characteristics	Univariate analysis	
	OR (95% CI)	P-value
Age	1.021 (0.983–1.060)	0.277
Stage of bone mass:		
Normal	Reference	
Osteopenia	0.677 (0.238–1.921)	0.463
Osteoporosis	0.367 (0.155–0.867)	0.022
25-(OH)D	0.992 (0.977–1.007)	0.301
Calcium	1.052 (0.053–20.962)	0.974
Lumbar spine	0.406 (0.062–2.666)	0.348
Femoral neck	0.943 (0.070–12.647)	0.964
Ward's triangle	0.491 (0.039–6.223)	0.583
Total hip	0.356 (0.032–4.023)	0.404

25-(OH)D – 25-hydroxyvitamin D, OR – odds ratio, CI – confidence interval, **boldface** indicates p-value < 0.05.