Table S1 Correlation analysis of CT value between T10-T12 and L1

	Index (r)	P
T10&L1	0.926	< 0.001**
T11&L1	0.945	< 0.001**
T12&L1	0.979	< 0.001**
Mean value of T10-T12&L1	0.964	< 0.001**

**, $p < 0.01$

Table S2 Correlation analysis between T10-L1 CT value and T value of lumbar bone density-

	r	P
T10	0.632	＜0.001**
T11	0.573	＜0.001**
T12	0.553	＜0.001**
L1	0.571	＜0.001**
T10-T12 mean CT value	0.597	＜0.001**
T10-L1 mean CT value	0.593	＜0.001**

**, $p<0.01$

Table S3 ROC curve of CT value in vertebral bodies

	ROC area	Sensitivity	specificity	index	CT value
T10	0.913	90.5	84.5	0.755	151
T11	0.887	90.5	80.0	0.705	138
T12	0.863	81.0	83.3	0.643	132
L1	0.860	76.2	86.4	0.695	133
Mean of T10-T12	0.894	81.0	86.7	0.676	142
Mean of T10-L1	0.890	81.0	88.3	0.693	138

Table S4 CT value compared with DXA in the diagnosis of bone mass abnormality

		DXA		total
		+	-	
	+	50	3	53
CT value	-	9	19	28
	total	59	22	81

Table S5 Comparison of area under ROC curve between different vertebral bodies

	Area under ROC	95% confidence interval	Z value	P
T10 and T11	0.029	-0.009 - 0.066	1.510	0.131
T10 and T12	0.052	0.001 - 0.102	2.004	0.045*
T10 and L1	0.055	-0.006 - 0.116	1.761	0.078
T10 and mean T10-T12	0.019	-0.007- 0.046	1.426	0.154
T10and mean T10-L1	0.024	-0.006 - 0.053	1.587	0.113

*, $p < 0.05$

Table S6 BMD normal group VS BMD reduced group

factor	t/z	P
age(year)	1.072	0.290
COPD history(year)	-0.960	0.337
long-term inhaled corticosteroids，n(%)	1.467	0.226
mMRC	-2.049	0.040*
Weight (kg)	-1.822	0.068
BMI(kg/m2)	-3.639	0.001**
PaO_2(mmHg)	1.666	0.103
SaO_2(%)	-1.078	0.281
Ca (mmol/L)	-2.103	0.035*
25-hydroxyvitamin D3 (ng/mL)	-0.657	0.511
FEV_1(L)	-1.444	0.149
FEV_1%(%)	-1.01	0.313
FVC(L)	-1.409	0.159

**, p＜0.01, *, p＜0.05

Table S7 BMD normal group VS osteoporosis group

factor	t/z	P
age(year)	2.967	0.004**
COPD history(year)	-3.204	0.001**
long-term inhaled corticosteroids，n(%)	6.496	0.011*
mMRC	-3.072	0.002**
Weight (kg)	-3.452	0.001**
BMI(kg/m2)	-4.413	0.001**
PaO2(mmHg)	2.630	0.011*
SaO2(%)	-2.721	0.007**
Ca (mmol/L)	-3.929	0.001**
25-hydroxyvitamin D3 (ng/mL)	-2.438	0.015**
FEV1(L)	-2.901	0.004**
FEV1%(%)	-2.588	0.010**
FVC(L)	-2.508	0.012*

**, p＜0.01, *, p＜0.05

Table S8 BMD reduced group VS osteoporosis group

factor	t/z	P
age(year)	1.403	0.166
COPD history(year)	-1.702	0.089
long-term inhaled corticosteroids，n(%)	1.488	0.223
mMRC	-1.247	0.212
Weight (kg)	-1.468	0.142
BMI(kg/m2)	-1.191	0.234
PaO2(mmHg)	0.927	0.358
SaO2(%)	-1.549	0.121
Ca (mmol/L)	-0.706	0.481
25-hydroxyvitamin D3 (ng/mL)	-1.819	0.069
FEV1(L)	-1.145	0.252
FEV1%(%)	-1.137	0.255
FVC(L)	-1.027	0.304

TableS9 Assignment instructions

Factor	name	Assignment
age(year)	X1	CV
COPD history(year)	X2	CV
long-term inhaled corticosteroids，n(%)	X3	negative-1，positive-2
mMRC	X4	CV
Weight (kg)	X5	CV
BMI(kg/m2)	X6	CV
PaO2(mmHg)	X7	CV
SaO2(%)	X8	CV
Ca (mmol/L)	X9	CV
25-hydroxyvitamin D3 (ng/mL)	X10	CV
FEV1(L)	X11	CV
FEV1%(%)	X12	CV
FVC(L)	X13	CV
BMD	Y	OCV

CV, continuous variable

OCV, ordered categorical variable

Table S10 Correlation between IL-6 and bone metabolic factor

Factor	r	P
ALP	-0.15	0.897
TPINP	0.049	0.662
N-OST	-0.014	0.903
β-crossl	-0.254	0.022*

*, $p < 0.05$

Table S11 Correlation between TNF-α and bone metabolic factor

Factor	r	P
ALP	0.284	0.023*
TPINP	-0.11	0.930
N-OST	0.003	0.979
β-crossl	0.110	0.389

*, $p < 0.05$