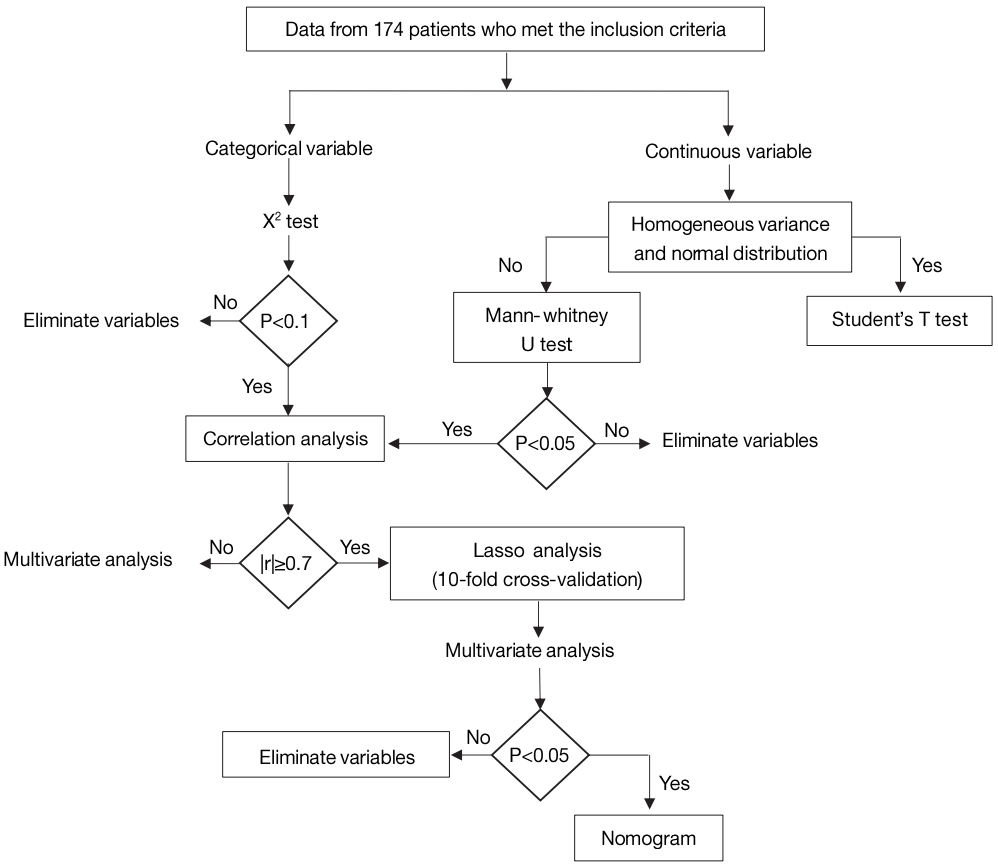

Figure S1 Flow chart of data analysis.

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Table S1 The correlation coefficient of cytokines, dosimetric performance, and clinical signs

	Sex	COPD	V20	Stage	RT techniques	IL6_2W	CRP_2W	IL6_4W	CRP_4W	IL6_6W	CRP_6W	IL6_12W	CRP_12W
Sex	1.000	0.173	-0.075	-0.261	-0.167	-0.090	0.011	0.008	0.048	-0.064	-0.094	-0.038	-0.075
COPD	-0.173	1.000	0.157	-0.005	-0.079	0.145	0.116	0.120	0.111	0.085	0.137	0.053	0.016
V20	-0.075	-0.105	1.000	0.107	0.158	0.137	0.130	0.173	0.128	0.197	0.139	0.177	0.198
Stage	0.261	-0.005	0.107	1.000	0.001	0.174	0.157	0.211	0.024	0.229	0.210	0.248	0.198
RT techniques	0.167	-0.079	0.158	0.001	1.000	0.058	-0.004	-0.000	0.053	0.016	0.076	-0.033	-0.013
IL6_2W	0.090	0.145	0.137	0.174	0.058	1.000	0.605	0.650	0.515	0.516	0.482	0.536	0.506
CRP_2W	0.101	0.116	0.130	0.157	-0.004	0.605	1.000	0.506	0.527	0.429	0.383	0.430	0.383
IL6_4W	0.008	0.120	0.173	0.211	0.000	0.650	0.506	1.000	0.590	0.805	0.633	0.656	0.554
CRP_4W	0.048	0.111	0.128	0.241	0.053	0.515	0.527	0.590	1.000	0.562	0.634	0.534	0.508
IL6_6W	0.646	0.085	0.197	0.229	0.016	0.516	0.429	0.805	0.562	1.000	0.738	0.741	0.713
CRP_6W	0.094	0.137	0.139	0.210	0.076	0.482	0.383	0.633	0.634	0.738	1.000	0.693	0.733
IL6_12W	0.038	0.053	-0.177	0.248	0.033	0.536	0.430	0.656	0.534	0.741	0.693	1.000	0.752
CRP_12W	0.075	0.016	-0.198	0.198	-0.013	0.506	0.383	0.554	0.508	0.713	0.733	0.752	1.000

COPD, chronic obstructive pulmonary disease; MLD, mean dose of total lungs; V20, lungs volume receiving more than 20 Gy; IL-6, interleukin-6; CRP, C-reactive protein; W, week; RT, radiotherapy.

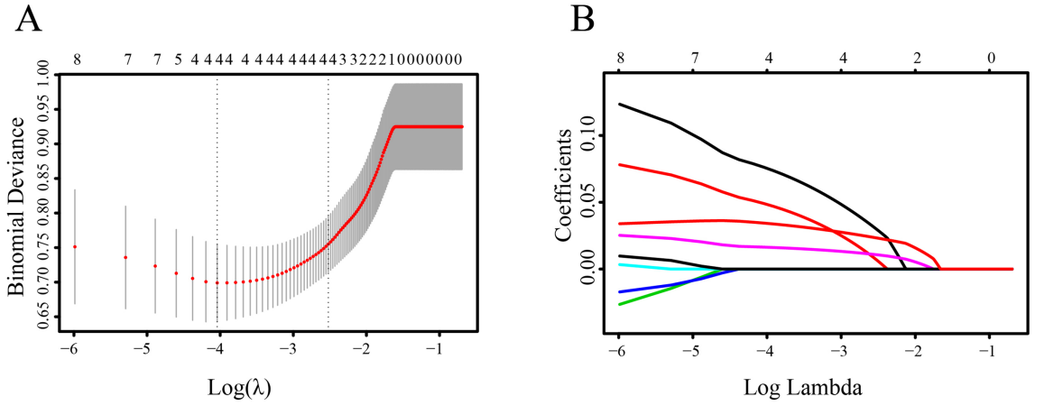

Figure S2 Feature selection using LASSO analysis. (A) Selection of the tuning parameter (λ) in the LASSO analysis used 10-fold cross-validation. The two dashed lines were drawn at the optimal values by using the minimum criteria and the 1 standard error of the minimum criteria (the 1-SE criteria). The model based on the 1-SE criteria is optimal. (B) Regression coefficients for 8 variables. As λ increases, the coefficient value of each variable gradually approaches zero.

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Table S2 LASSO analysis

Characteristics	Coefficient
Intercept	-2.470472411
IL6_2W	0.013929215
CRP_2W	0
IL6_4W	0
CRP_4W	0
IL6_6W	0
CRP_6W	0.008858466
IL6_12W	0
CRP_12W	0.020841995

The optimal λ (1-SE criteria) was used to obtain the exact value of the final regression coefficient, and the optimal λ was obtained after ten-fold cross-validation.

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