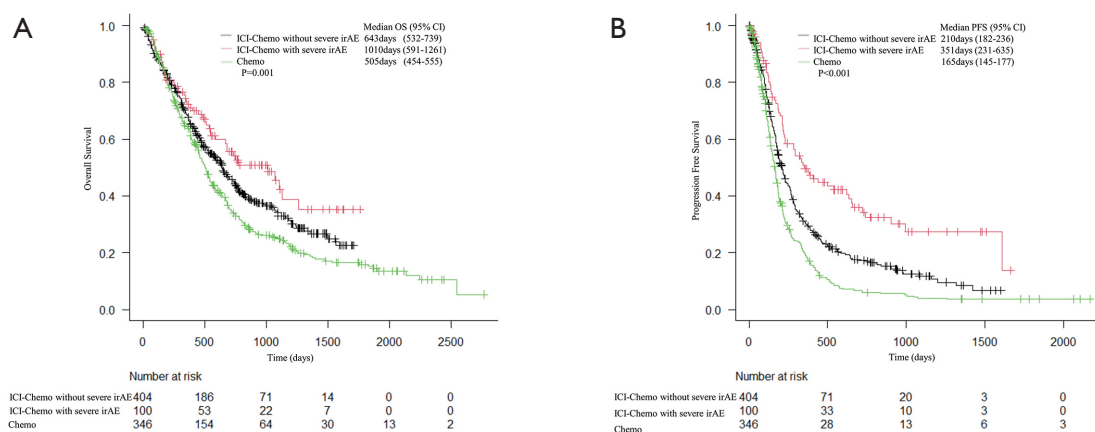


**Figure S1** Study flow chart. Mild CIP: grade 1–2 checkpoint inhibitor pneumonitis; severe CIP: grade  $\geq 3$  checkpoint-inhibitor pneumonitis; Chemo: chemotherapy alone; ICI-Chemo: combined immunotherapy and chemotherapy. CIP, checkpoint-inhibitor pneumonitis; irAE immune-related adverse event.

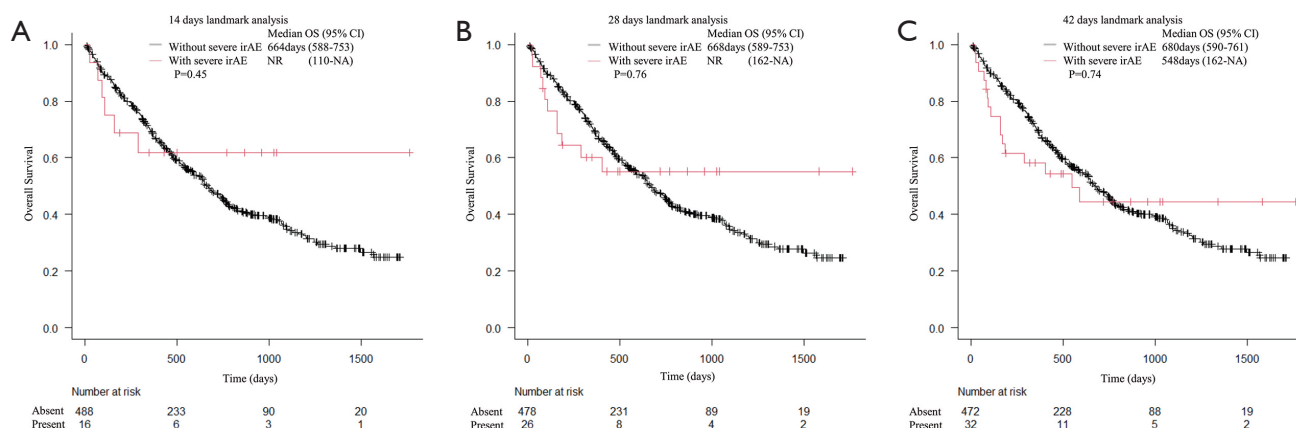
**Table S1** Immune-related adverse events by the kind of irAE type

Events	ICI			P value
	Atezolizumab (N=99)	Pembrolizumab (N=335)	Nivolumab + ipilimumab (N=69)	
Pneumonitis grade 1–2	8 (8.1)	39 (11.6)	8 (11.6)	0.597
Pneumonitis grade 3–5	2 (2.0)	30 (9.0)	6 (8.7)	0.067
Hepatitis/impaired liver function	1 (1.0)	11 (3.3)	3 (4.3)	0.390
Skin toxicity	1 (1.0)	8 (2.4)	6 (8.7)	0.009
Adrenal insufficiency	0	5 (1.5)	5 (7.2)	0.002
Colitis	2 (2.0)	4 (1.2)	1 (1.4)	0.826
Pituitary inflammation	0	4 (1.2)	3 (4.3)	0.053

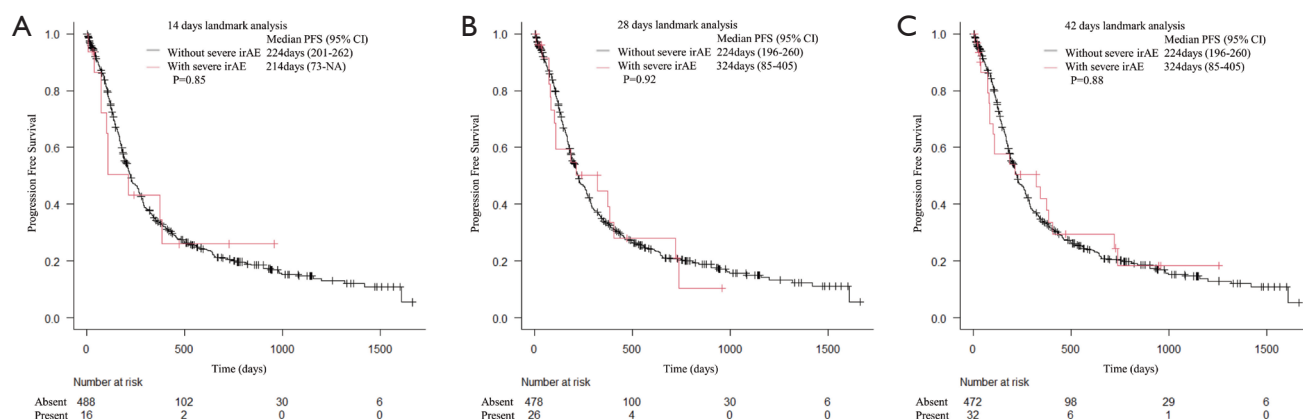
Data are expressed as N (%). The types of irAEs are shown for the 503 patients who received either pembrolizumab, atezolizumab, or nivolumab + ipilimumab as immunotherapy among the 504 patients who received combination immunotherapy and chemotherapy as first-line therapy. Grade 1–2 irAEs were collected only for pneumonitis. ICI, immune checkpoint inhibitor; irAE, immune-related adverse events.



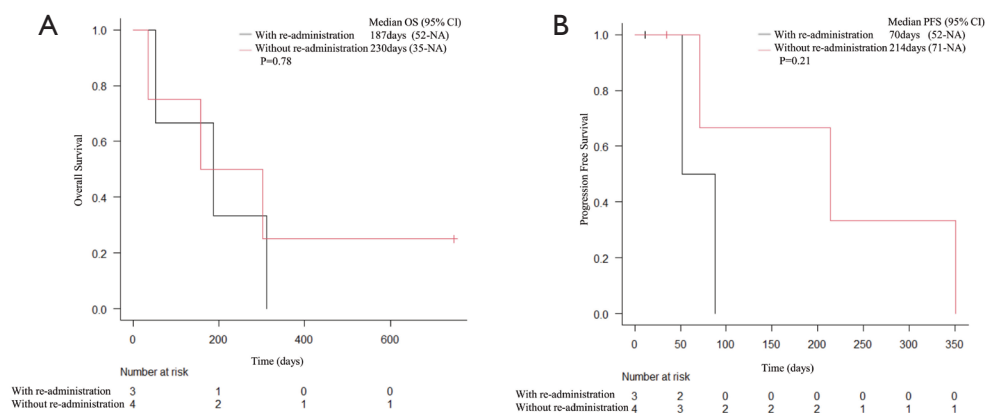
**Figure S2** Kaplan-Meier curves for OS (A) and PFS (B) in three groups of patients: those who received combined immunotherapy and chemotherapy and had no grade  $\geq 3$  irAEs (ICI-Chemo without severe irAE), those who received combined immunotherapy and chemotherapy and had grade  $\geq 3$  irAEs (ICI-Chemo with severe irAE), and those who received chemotherapy alone (Chemo). CI, confidence interval; irAE, immune-related adverse event; OS, overall survival; PFS, progression-free survival.



**Figure S3** Kaplan-Meier curves at days 14 (A), 28 (B), and 42 (C) of the landmark analysis for OS in patients who received combined immunotherapy and chemotherapy by the presence of grade  $\geq 3$  irAEs. Without severe irAE: patients without grade  $\geq 3$  irAEs; with severe irAE: patients with grade  $\geq 3$  irAEs. CI, confidence interval; irAE, immune-related adverse event; NA, not available; NR, not reached; OS, overall survival.



**Figure S4** Kaplan-Meier curves at days 14 (A), 28 (B), and 42 (C) of the landmark analysis for PFS in patients who received combined immunotherapy and chemotherapy by the presence of grade  $\geq 3$  irAEs. Without severe irAE: patients without grade  $\geq 3$  irAEs; with severe irAE: patients with grade  $\geq 3$  irAEs. CI, confidence interval; irAE, immune-related adverse event; PFS, progression-free survival; NA, not available.



**Figure S5** Kaplan-Meier curves for OS (A) and PFS (B) with or without re-administration of ICIs in patients who received combined immunotherapy and chemotherapy and had mild CIP. CI, confidence interval; CIP, checkpoint-inhibitor pneumonitis; ICI, immune checkpoint inhibitor; NA, not available; OS, overall survival; PFS, progression-free survival.