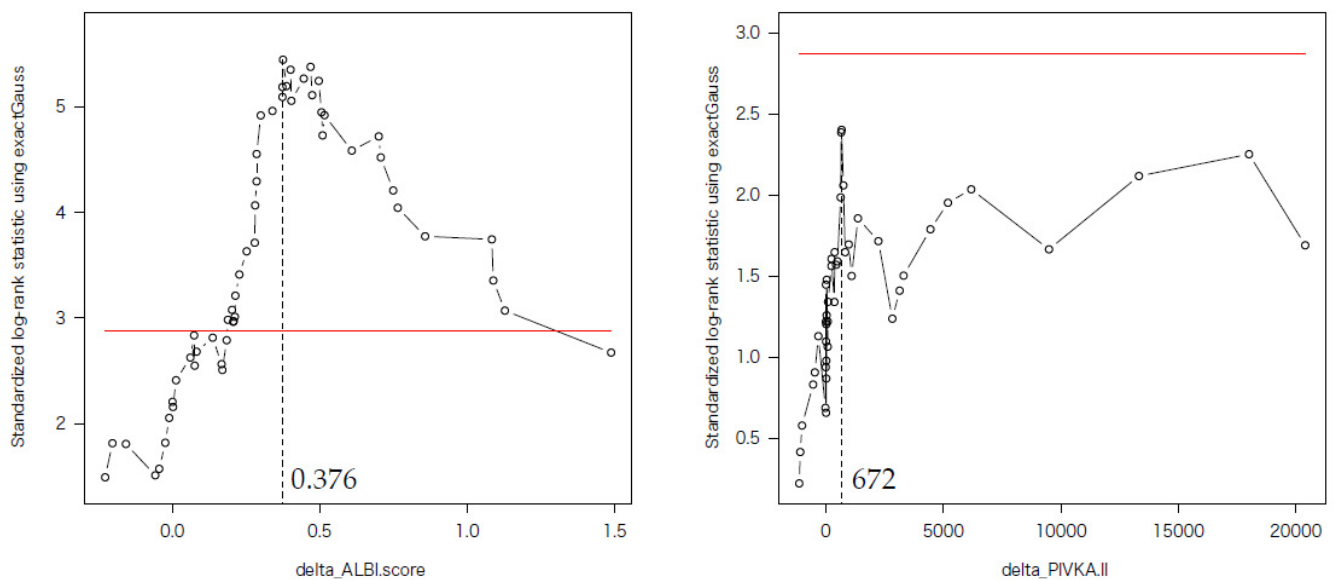
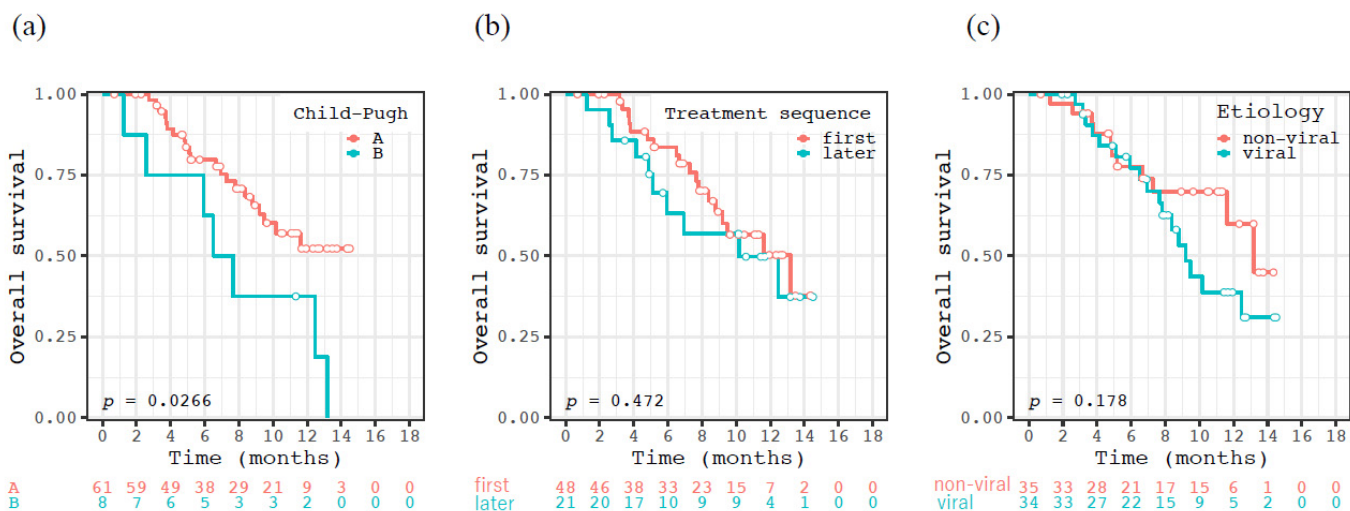


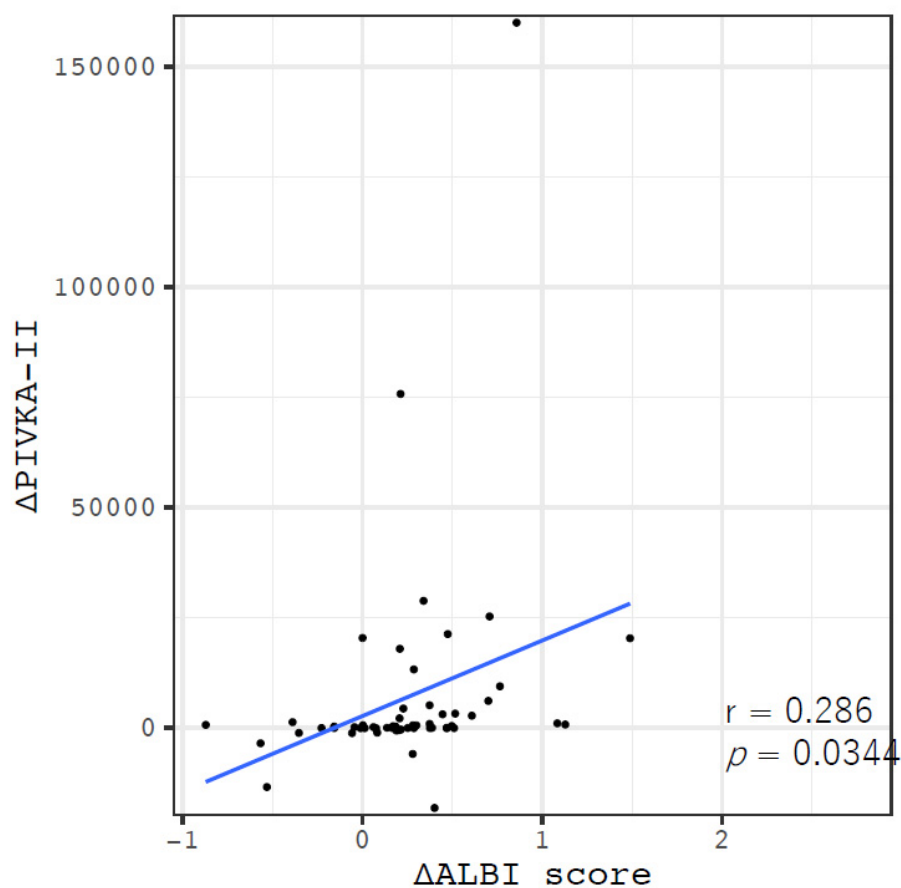
**Figure S1.** Kaplan–Meier curve for overall survival divided into two groups who had progression disease within three months and who did not.



**Figure S2.** The result of the optimal cutoff values of the  $\Delta$  ALBI score and  $\Delta$  PIVKA-II according to the maximally selected rank statistics



**Figure S3:** Kaplan–Meier curve for overall survival divided by Child–Pugh A and B (a), first-line and later-line (b), and viral hepatitis and non-viral hepatitis (c).



**Figure S4.** A correlation between the  $\Delta$  ALBI score and  $\Delta$  PIVKA-II.

**Table S1.** Univariate and multivariate analyses of possible risk factors for overall survival among the changes of clinical indicators within 3 months by Cox proportional hazards model using AFP and PIVKA-II change ratio instead of  $\Delta$  AFP and  $\Delta$  PIVKA-II

Variables	univariate analysis		multivariate analysis	
	HR (95%CI)	P value	HR (95%CI)	P value
$\Delta$ Child-Pugh score /3 months	1.971 (1.420–2.737)	<0.001		
$\Delta$ ALBI score /3 months	2.951 (1.956–4.453)	< 0.001	5.785 (1.822–18.37)	0.003
$\Delta$ Albumin (g/dL) /3 months	0.167 (0.069–0.409)	< 0.001		
$\Delta$ AST (U/L) /3 months	1.001 (0.991–1.011)	0.846		
$\Delta$ ALT (U/L) /3 months	0.999 (0.985–1.014)	0.925		
$\Delta$ T-Bil (mg/dL) /3 months	1.276 (1.092–1.490)	0.002		
$\Delta$ PT (%) /3 months)	0.985 (0.966–1.004)	0.120		
AFP change ratio*	1.025 (1.003–1.047)	0.023	1.023 (0.998–1.045)	0.110
PIVKA-II change ratio*	1.015 (0.996–1.033)	0.118		

\* defined by AFP and PIVKA-II values at 3 months after Atez/Bev treatment divided by their values before the treatment

**Table S2.** Univariate and multivariate analyses of possible risk factors for overall survival in 54 patients who did not have progression disease at 3 months

Variables	univariate analysis		multivariate analysis	
	HR (95%CI)	P value	HR (95%CI)	P value
$\Delta$ Child-Pugh score /3 months	1.778 (1.236–2.557)	0.002		
$\Delta$ ALBI score /3 months	4.417 (2.171–8.985)	< 0.001	1.893 (0.422-8.491)	0.405
$\Delta$ Albumin (g/dL) /3 months	0.281(0.095–0.827)	0.021		
$\Delta$ AST (U/L) /3 months	1.030 (1.003–1.057)	0.027	1.028 (0.997-1.060)	0.075
$\Delta$ ALT (U/L) /3 months	1.037 (1.007–1.069)	0.016		
$\Delta$ T-Bil (mg/dL) /3 months	1.252 (1.072–1.461)	0.004		
$\Delta$ PT (%) /3 months)	0.982 (0.961–1.002)	0.080		
$\Delta$ AFP (ng/mL) /3 months	1.002 (0.999–1.004)	0.152		
$\Delta$ PIVKA-II (mAU/mL) /3 months	1.002 (1.001–1.003)	0.007	1.002 (1.000–1.003)	0.033