Supplementary Table 1 Best tumor responses as per Response Evaluation Criteria in Solid Tumors version 1.1 in regorafenib combined with programmed cell death-1 inhibitor and regorafenib monotherapy groups, *n* (%)

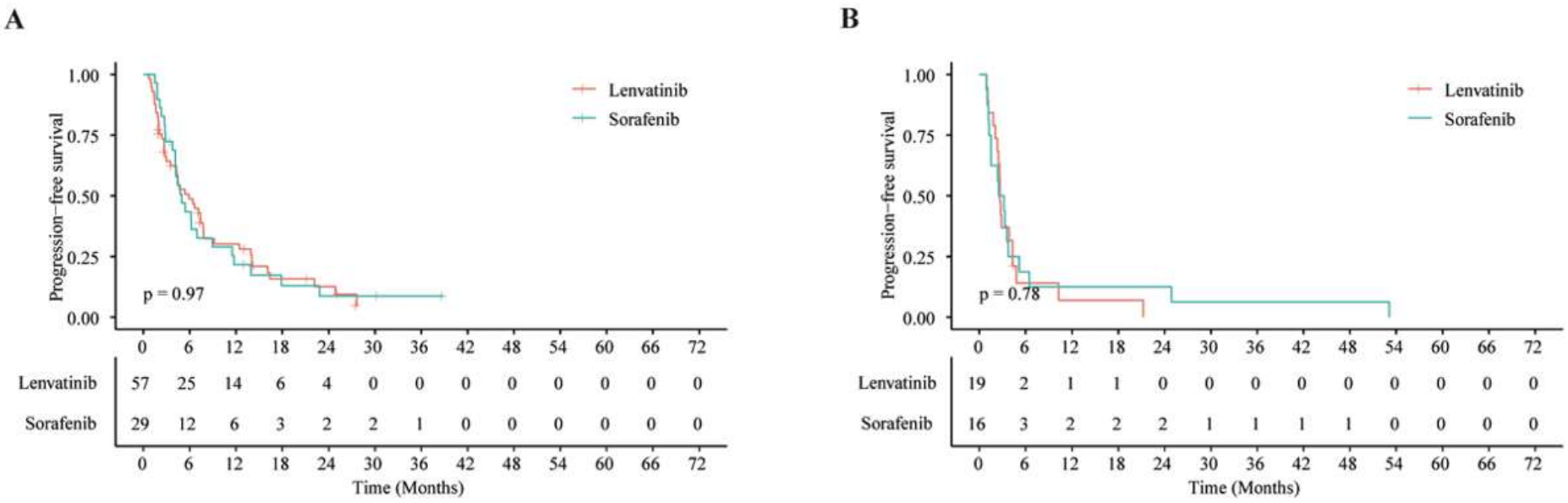
	CR	PR	SD	PD	ORR	DCR
Overall Response	0 (0.00)	4 (2.85)	81 (57.86)	55 (39.29)	4 (2.85)	85 (60.71)
Intrahepatic Response	0 (0.00)	4 (2.85)	103 (73.57)	32 (22.86)	4 (2.85)	105 (76.43)
Extrahepatic Response	0 (0.00)	3 (2.14)	35 (25.00)	36 (25.71)	3 (2.14)	38 (27.14)

CR, complete response; PR, partial response; SD, stable disease; PD, progression disease; ORR, objective response rate; DCR, disease control rate; ORR=CR+PR; DCR=CR+PR+SD.

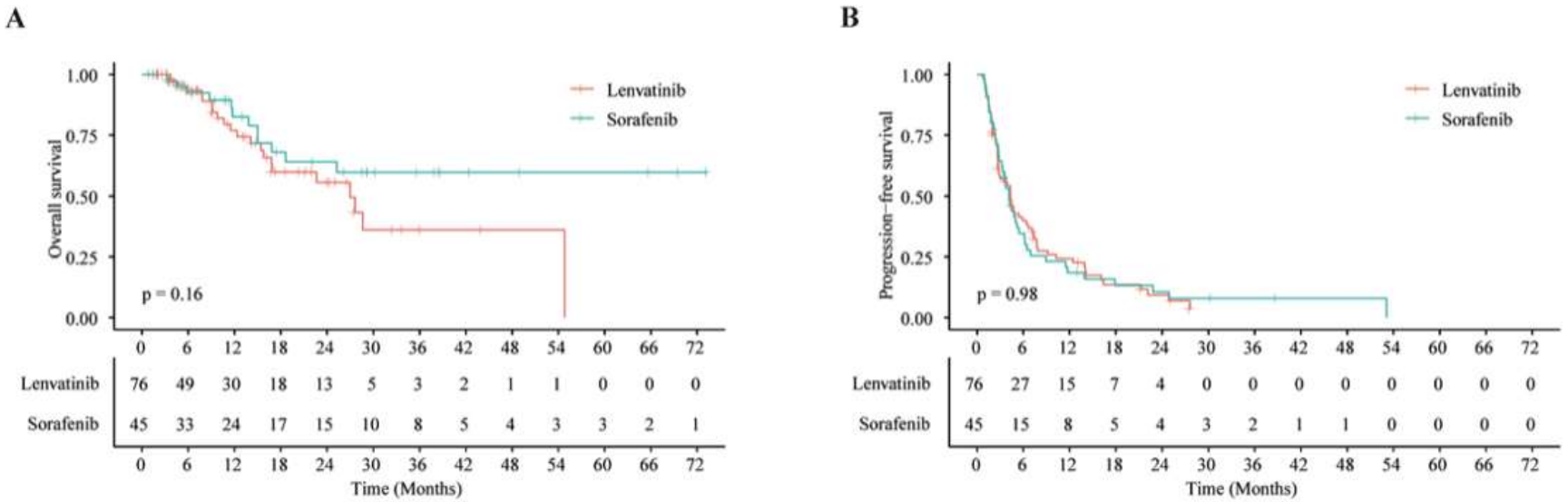
Supplementary Table 2 Recorded adverse events in the regorafenib combined with programmed cell death-1 inhibitor and regorafenib monotherapy groups.

Adverse event	Overall (*n* = 140)	R group (*n* = 39)	RP group (*n* = 101)
Hand-foot skin reaction	6	2	4
Fatigue	1	0	1
Ascites	1	0	1
Obstructive jaundice	1	0	1
Immune-mediated hepatitis	1	0	1
Gingival bleeding	1	0	1
Diarrhea	2	0	2

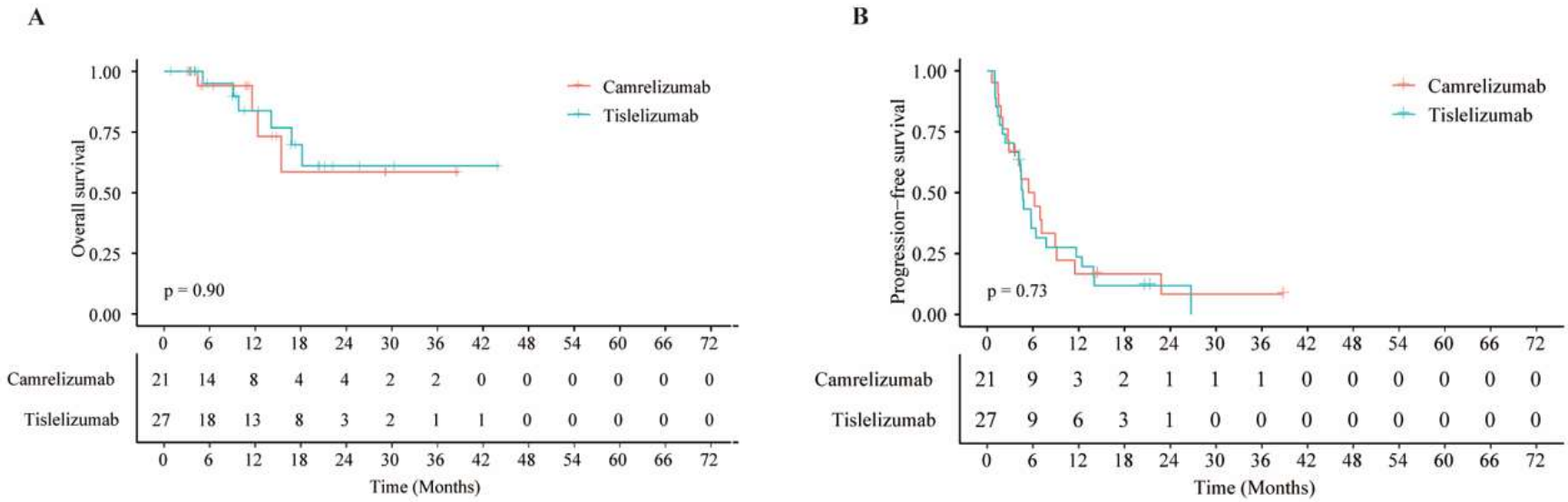
Abdominal pain	2	0	2
Rash	3	0	3



Supplementary Figure 1 Progression-free survival according to first-line tyrosine kinase inhibitor agent. A: Progression-free survival in RP group (regorafenib combined with programmed cell death-1 inhibitors); B: Progression-free survival in R group (regorafenib monotherapy), stratified by first-line lenvatinib *vs* sorafenib treatment.



Supplementary Figure 2 Overall and progression-free survival comparison of first-line tyrosine kinase inhibitor agent. A: Overall survival; B: Progression-free survival in all patients who received first-line lenvatinib *vs* sorafenib.



Supplementary Figure 3 Overall and progression-free survival comparison of second-line programmed cell death-1 inhibitor agents. A: Overall survival; B: Progression-free survival in all patients who received second-line tislelizumab *vs.* camrelizumab.