Table SI. Search terms used to retrieve studies from the PubMed, Cochrane Library and Embase databases.

Database	Search terms
PubMed	#1 "Carcinoma, Hepatocellular"[Mesh] OR "Liver Neoplasms"[Mesh] OR HCC[Title/Abstract] #2 (((((carcinoma*[Title/Abstract]) OR (cancer*[Title/Abstract])) OR (tumor*[Title/Abstract])) OR (tumour*[Title/Abstract])) OR (malign*[Title/Abstract])) OR (neoplasm*[Title/Abstract]) #3 ((liver*[Title/Abstract]) OR (hepatic*[Title/Abstract])) OR (hepato*[Title/Abstract]) #4 1 OR (2 AND 3) #5 **Camrelizumab[Title/Abstract]** #6 **((((TACE[Title/Abstract]) OR (transcatheter arterial chemoembolization[Title/Abstract])) OR (transcatheter[Title/Abstract])) OR (arterial[Title/Abstract])) OR (chemoembolization[Title/Abstract])** #7 **((TKI[Title/Abstract]) OR (Tepotinib[Title/Abstract])) OR (Capmatinib[Title/Abstract])) OR (Axitinib[Title/Abstract])) OR (Apatinib[Title/Abstract])) OR (Pemiatinlb[Title/Abstract])) OR (Cabozantinib[Title/Abstract])) OR (Alectemie[Title/Abstract])) OR (Neratinib[Title/Abstract])) OR (Erdsfitinib[Title/Abstract])) OR (Rpredinib[Title/Abstract])) OR (Regorafenib[Title/Abstract])) OR (Avapritinib[Title/Abstract])) OR (imatinlb[Title/Abstract])) OR (Erlotinib[Title/Abstract])) OR (Sunitinib[Title/Abstract])) OR (Pazopanib[Title/Abstract])) OR (antinibe[Title/Abstract])) OR (Brtanitinto[Title/Abstract])) OR (Entrectinib[Title/Abstract])) OR (patinib[Title/Abstract])) OR (Taametinib[Title/Abstract])) OR (Pyrotinibo[Title/Abstract])) OR (Gefitinib[Title/Abstract])) OR (Sorafenib[Title/Abstract])) OR (lcotinib[Title/Abstract])) OR (Cobimetinib[Title/Abstract])) OR (Tucatinib[Title/Abstract])) OR (Binimetinib[Title/Abstract])) OR (Afntinib[Title/Abstract])) OR (Lenvatinib[Title/Abstract])) OR (Selumetinib[Title/Abstract])) OR (Vandetanib[Title/Abstract])) OR (Osimertinib[Title/Abstract])) OR (Anlatinib[Title/Abstract])) OR (Pralsetinib[Title/Abstract])) OR (Fruquintinib[Title/Abstract])) OR (Selpercatinit[Title/Abstract])) OR (Aimonertinib[Title/Abstract])) OR (rotrectinib[Title/Abstract])) OR (Dacomitinib[Title/Abstract])) OR (Anlotinib[Title/Abstract])) OR (Glivec[Title/Abstract])) OR (Afatinib[Title/Abstract])) OR (Tyrosine kinase inhibitors)** #8 #4 AND #5 AND #6 AND #7
Cochrane	#1 MeSH descriptor: [Liver Neoplasms] explode all trees #2 MeSH descriptor: [Carcinoma, Hepatocellular] explode all trees #3 (carcinoma*):ti,ab,kw OR (cancer*):ti,ab,kw OR (tumor*):ti,ab,kw OR (malign*):ti,ab,kw OR (neoplasm*):ti,ab,kw OR (tumour*):ti,ab,kw #4 (liver*):ti,ab,kw OR (hepatic*):ti,ab,kw OR (hepato*):ti,ab,kw #5 #3 AND #4 #6 #1 OR #2 OR #5

	#7(TACE):ti,ab,kw OR (transcatheter arterial chemoembolization):ti,ab,kw OR (transcatheter):ti,ab,kw OR (chemoembolization):ti,ab,kw #8(TKI):ti,ab,kw OR (Tyrosine kinase inhibitors):ti,ab,kw OR (Tepotinib):ti,ab,kw OR (Capmatinib):ti,ab,kw OR (Avapritinib):ti,ab,kw OR (Gefitinib):ti,ab,kw OR (Anlatinib):ti,ab,kw OR (imatinlb):ti,ab,kw OR (Sorafenib):ti,ab,kw OR (Erlotinib):ti,ab,kw OR (Apatinib):ti,ab,kw OR (Pralsetinib):ti,ab,kw OR (lcotinib):ti,ab,kw OR (Sunitinib):ti,ab,kw OR (Axitinib):ti,ab,kw OR (Fruquintinib):ti,ab,kw OR (Cobimetinib):ti,ab,kw OR (Selpercatinit):ti,ab,kw OR (Pemiatinlb):ti,ab,kw OR (Pazopanib):ti,ab,kw OR (Tucatinib):ti,ab,kw OR (antinibe):ti,ab,kw OR (Brtanitinto):ti,ab,kw OR (Aimonertinib):ti,ab,kw OR (Binimetinib):ti,ab,kw OR (Alectemie):ti,ab,kw OR (Cabozantinib):ti,ab,kw OR (rotrectinib):ti,ab,kw OR (Afntinib):ti,ab,kw OR (Dacomitinib):ti,ab,kw OR (Entrectinib):ti,ab,kw OR (Anlotinib):ti,ab,kw OR (Neratinib):ti,ab,kw OR (Lenvatinib):ti,ab,kw OR (Erdsfitinib):ti,ab,kw OR (patinib):ti,ab,kw OR (Selumetinib):ti,ab,kw OR (Glivec):ti,ab,kw OR (Rpredinib):ti,ab,kw OR (Taametinib):ti,ab,kw OR (Vandetanib):ti,ab,kw OR (Afatinib):ti,ab,kw OR (Regorafenib):ti,ab,kw OR (Pyrotinibo):ti,ab,kw OR (Osimertinib):ti,ab,kw #9 (Camrelizumab):ti,ab,kw #10 #6 AND #7 AND #8 AND #9
Embase	#1 ‘liver cancer’/exp OR ‘liver cancer’ OR ‘liver cell carcinoma’/exp OR ‘liver cell carcinoma’ #2’carcinoma*’:ab,kw,ti OR ‘cancer*’:ab,kw,ti OR ‘tumor*’:ab,kw,ti OR ‘tumour*’:ab,kw,ti OR ‘malign*’:ab,kw,ti OR ‘neoplasm*’:ab,kw,ti #3 ‘liver*’:ab,kw,ti OR ‘hepatic*’:ab,kw,ti OR ‘hepato*’:ab,kw,ti #4 #1 OR (#2 AND #3) #5 ‘camrelizumab’:ab,kw,ti #6 ‘TACE’:ab,kw,ti OR ‘transcatheter arterial chemoembolization’:ab,kw,ti OR ‘transcatheter’:ab,kw,ti OR ‘chemoembolization’:ab,kw,ti #7’TKI’:ab,kw,ti OR ‘Tyrosine kinase inhibitors’:ab,kw,ti OR ‘Tepotinib’:ab,kw,ti OR ‘Capmatinib’:ab,kw,ti OR ‘Avapritinib’:ab,kw,ti OR ‘Gefitinib’:ab,kw,ti OR ‘Anlatinib’:ab,kw,ti OR ‘imatinlb’:ab,kw,ti OR ‘Sorafenib’:ab,kw,ti OR ‘Erlotinib’:ab,kw,ti OR ‘Apatinib’:ab,kw,ti OR ‘Pralsetinib’:ab,kw,ti OR ‘lcotinib’:ab,kw,ti OR ‘Sunitinib’:ab,kw,ti OR ‘Axitinib’:ab,kw,ti OR ‘Fruquintinib’:ab,kw,ti OR ‘Cobimetinib’:ab,kw,ti OR ‘Selpercatinit’:ab,kw,ti OR ‘Pemiatinlb’:ab,kw,ti OR ‘Pazopanib’:ab,kw,ti OR ‘Tucatinib’:ab,kw,ti OR ‘antinibe’:ab,kw,ti OR ‘Brtanitinto’:ab,kw,ti OR ‘Aimonertinib’:ab,kw,ti OR ‘Binimetinib’:ab,kw,ti OR ‘Alectemie’:ab,kw,ti OR ‘Cabozantinib’:ab,kw,ti OR ‘rotrectinib’:ab,kw,ti OR ‘Afntinib’:ab,kw,ti OR ‘Dacomitinib’:ab,kw,ti OR ‘Entrectinib’:ab,kw,ti OR ‘Anlotinib’:ab,kw,ti OR ‘Neratinib’:ab,kw,ti OR ‘Lenvatinib’:ab,kw,ti OR ‘Erdsfitinib’:ab,kw,ti OR ‘patinib’:ab,kw,ti OR ‘Selumetinib’:ab,kw,ti OR ‘Glivec’:ab,kw,ti OR ‘Rpredinib’:ab,kw,ti OR ‘Taametinib’:ab,kw,ti OR ‘Vandetanib’:ab,kw,ti OR ‘Afatinib’:ab,kw,ti OR ‘Regorafenib’:ab,kw,ti OR ‘Pyrotinibo’:ab,kw,ti OR ‘Osimertinib’:ab,kw,ti #8 #4 AND #5 AND #6 AND #7

Table SII. Quality assessment using Grading of Recommendations Assessment, Development, and Evaluation.

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	T-T-C	T-T	Relative (95% CI)	Absolute (95% CI)		
overall survival												
7	non-randomised studies	serious	not serious	not serious	not serious	all plausible residual confounding would suggest spurious effect, while no effect was observed	-/0	-/0	**OR 0.42** (0.36 to 0.48)	**0 fewer per 1,000** (from 0 fewer to 0 fewer)	⊕⊕◯◯ Low	CRITICAL
progression free survival												
7	non-randomised studies	not serious	not serious	not serious	not serious	all plausible residual confounding would suggest spurious effect, while no effect was observed	-/0	-/0	**OR 0.37** (0.33 to 0.42)	**0 fewer per 1,000** (from 0 fewer to 0 fewer)	⊕⊕⊕◯ Moderate	CRITICAL
objective response rate												

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	T-T-C	T-T	Relative (95% CI)	Absolute (95% CI)		
7	non-randomised studies	serious	not serious	not serious	not serious	all plausible residual confounding would suggest spurious effect, while no effect was observed	354/960 (36.9%)	431/838 (51.4%)	**OR 0.64** (0.52 to 0.78)	**110 fewer per 1,000** (from 159 fewer to 62 fewer)	⊕⊕◯◯ Low	CRITICAL

disease control rate

7	non-randomised studies	serious	not serious	not serious	not serious	all plausible residual confounding would suggest spurious effect, while no effect was observed	742/960 (77.3%)	720/838 (85.9%)	**OR 0.63** (0.49 to 0.82)	**66 fewer per 1,000** (from 110 fewer to 26 fewer)	⊕⊕◯◯ Low	CRITICAL

Grade≥3 Hypertension

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	T-T-C	T-T	Relative (95% CI)	Absolute (95% CI)		
6	non-randomised studies	serious	not serious	not serious	not serious	all plausible residual confounding would suggest spurious effect, while no effect was observed	92/875 (10.5%)	64/688 (9.3%)	**OR 1.21** (0.86 to 1.72)	**17 more per 1,000** (from 12 fewer to 57 more)	⨁⨁◯◯ Low	IMPORTANT

Grade ≥3 Fatigue

4	non-randomised studies	serious	not serious	not serious	not serious	all plausible residual confounding would suggest spurious effect, while no effect was observed	14/208 (6.7%)	7/135 (5.2%)	**OR 1.19** (0.48 to 2.93)	**9 more per 1,000** (from 26 fewer to 86 more)	⨁⨁◯◯ Low	IMPORTANT

Grade ≥3 Pain

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	T-T-C	T-T	Relative (95% CI)	Absolute (95% CI)		
5	non-randomised studies	serious	not serious	not serious	not serious	all plausible residual confounding would suggest spurious effect, while no effect was observed	31/836 (3.7%)	30/621 (4.8%)	**OR 0.69** (0.41 to 1.18)	**14 fewer per 1,000** (from 28 fewer to 8 more)	⨁⨁◯◯ Low	IMPORTANT

Grade ≥3 Diarrhea

4	non-randomised studies	serious	not serious	not serious	not serious	all plausible residual confounding would suggest spurious effect, while no effect was observed	12/633 (1.9%)	4/587 (0.7%)	**OR 2.07** (0.72 to 5.95)	**7 more per 1,000** (from 2 fewer to 32 more)	⨁⨁◯◯ Low	IMPORTANT

Grade ≥3 Hand-foot skin reaction

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	T-T-C	T-T	Relative (95% CI)	Absolute (95% CI)		
5	non-randomised studies	serious	not serious	not serious	not serious	all plausible residual confounding would suggest spurious effect, while no effect was observed	61/721 (8.5%)	48/735 (6.5%)	**OR 1.26** (0.85 to 1.87)	**16 more per 1,000** (from 9 fewer to 50 more)	⨁⨁◯◯ Low	IMPORTANT

Grade ≥3 Nausea and vomiting

4	non-randomised studies	serious	not serious	not serious	not serious	all plausible residual confounding would suggest spurious effect, while no effect was observed	19/784 (2.4%)	13/620 (2.1%)	**OR 0.86** (0.40 to 1.82)	**3 fewer per 1,000** (from 12 fewer to 17 more)	⨁⨁◯◯ Low	IMPORTANT

GRADEpro version GDT software (www.gradepro.org) was used to summarize the assessment results. CI, confidence interval; OR, odds ratio; T-T-C, transcatheter arterial chemoembolization combined with tyrosine kinase inhibitors and camrelizumab; T-T, transcatheter arterial chemoembolization combined with tyrosine kinase inhibitors.