

Supplementary Table 1 Search strategy

Pubmed:

(((((sorafenib) OR ("Sorafenib"[Mesh])) AND ((lenvatinib) OR ("lenvatinib" [Supplementary Concept]))) AND ((advanced) OR (unresectable))) AND ((hepatocellular carcinoma) OR ("Carcinoma, Hepatocellular"[Mesh])) AND (((("Chemoembolization, Therapeutic"[Mesh]) OR (Transarterial chemoembolization)) OR (TACE))

("Sorafenib"[MeSH Terms] OR "Sorafenib"[All Fields] OR "sorafenib s"[All Fields] OR "Sorafenib"[MeSH Terms]) AND ("lenvatinib"[Supplementary Concept] OR "lenvatinib"[All Fields] OR "lenvatinib"[Supplementary Concept]) AND ("advance"[All Fields] OR "advanced"[All Fields] OR "advancement"[All Fields] OR "advancements"[All Fields] OR "advances"[All Fields] OR "advancing"[All Fields] OR ("unresectability"[All Fields] OR "unresectable"[All Fields] OR "unresected"[All Fields])) AND ("carcinoma, hepatocellular"[MeSH Terms] OR ("carcinoma"[All Fields] AND "hepatocellular"[All Fields]) OR "hepatocellular carcinoma"[All Fields] OR ("hepatocellular"[All Fields] AND "carcinoma"[All Fields]) OR "carcinoma, hepatocellular"[MeSH Terms]) AND ("chemoembolization, therapeutic"[MeSH Terms] OR ((("transarterial"[All Fields] OR "transarterially"[All Fields]) AND ("chemoembolic"[All Fields] OR "chemoembolisation"[All Fields] OR "chemoembolisations"[All Fields] OR "chemoembolism"[All Fields] OR "chemoembolization"[All Fields] OR "chemoembolizations"[All Fields] OR "chemoembolized"[All Fields])) OR "TACE"[All Fields])

Embase:

Embase session results (20 Apr 2024)

No. Query Results

#6 #1 AND #2 AND #3 AND #4 AND [embase]/lim 239

#5 #1 AND #2 AND #3 AND #4 240

#4 'advanced hepatocellular carcinoma'/exp OR 'advanced hepatocellular carcinoma' OR 'unresectable hepatocellular carcinoma' 9881

#3 'sorafenib'/exp OR sorafenib 41268

#2 'lenvatinib'/exp OR lenvatinib 8167

#1 'transarterial chemoembolization' OR (transarterial AND ('chemoembolization'/exp OR chemoembolization)) OR chemoembolization OR 'transarterial chemoembolization'/exp 26093

Cochrane Library databases:

ID Search Hits

#1 (hepatocellular carcinoma):ti,ab,kw (Word variations have been searched) 6325

#2 MeSH descriptor: [Carcinoma, Hepatocellular] explode all trees 2715

#3 (hepatocellular carcinoma or Carcinomas, Hepatocellular or Hepatocellular Carcinomas or Liver Cell Carcinoma, Adult or Liver Cancer, Adult or Adult Liver Cancer or Adult Liver Cancers or Cancer, Adult Liver or Cancers, Adult Liver or Liver Cancers, Adult or Liver Cell Carcinoma or Carcinoma, Liver Cell or Carcinomas, Liver

Cell or Cell Carcinoma, Liver or Cell Carcinomas, Liver or Liver Cell Carcinomas or Hepatocellular Carcinoma or Hepatoma or Hepatomas):ti,ab,kw (Word variations have been searched) 12320

#4 #1 or #2 or #3 12320

#5 (lenvatinib):ti,ab,kw (Word variations have been searched) 669

#6 (sorafenib):ti,ab,kw (Word variations have been searched) 2206

#7 (Transarterial chemoembolization):ti,ab,kw (Word variations have been searched) 722

#8 (Chemoembolization, Therapeutic or Therapeutic Chemoembolization or Chemoembolizations, Therapeutic or Therapeutic Chemoembolizations):ti,ab,kw (Word variations have been searched) 673

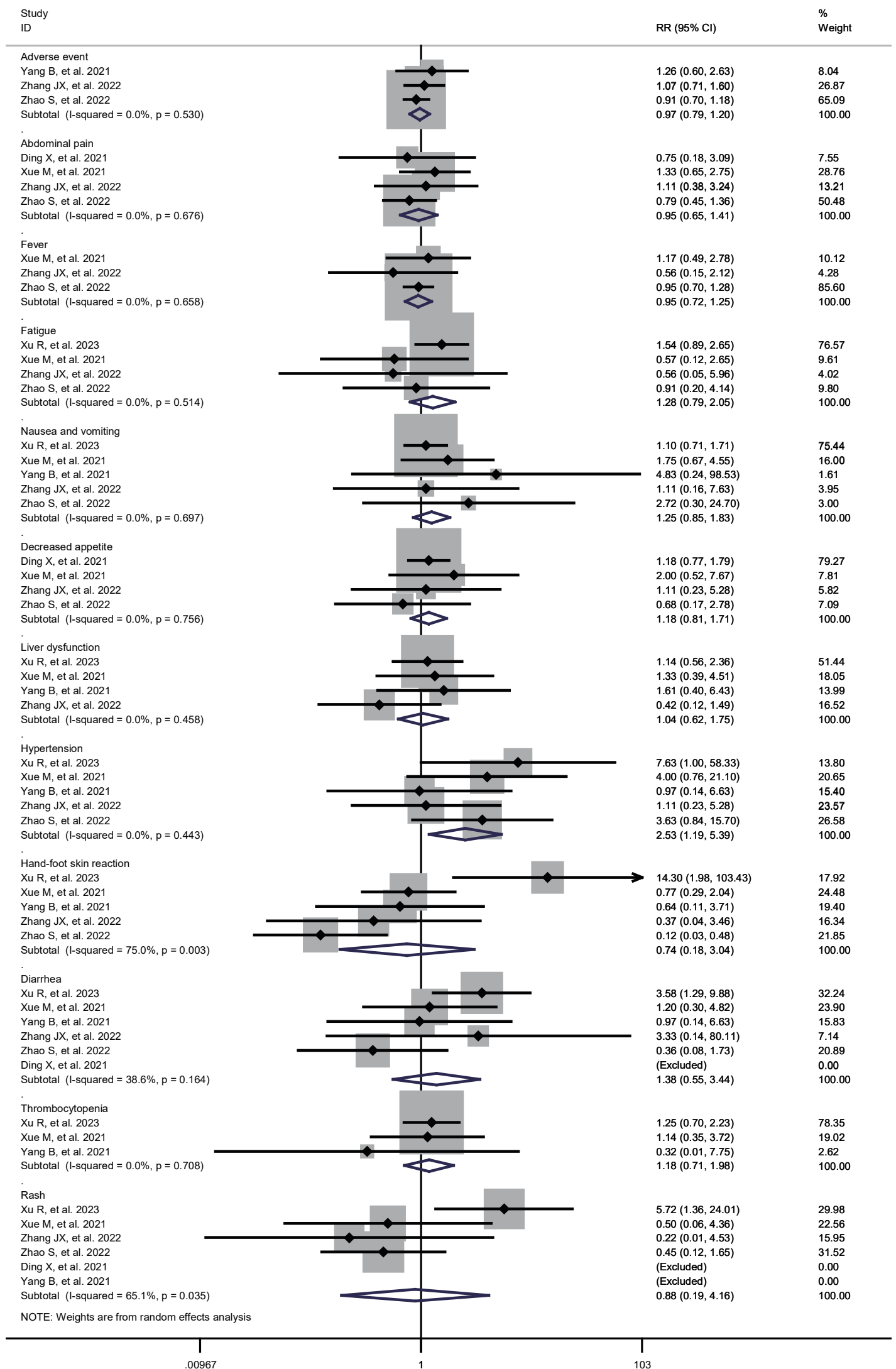
#9 #7 or #8 1104

#10 #4 and #5 and #6 and #9 10

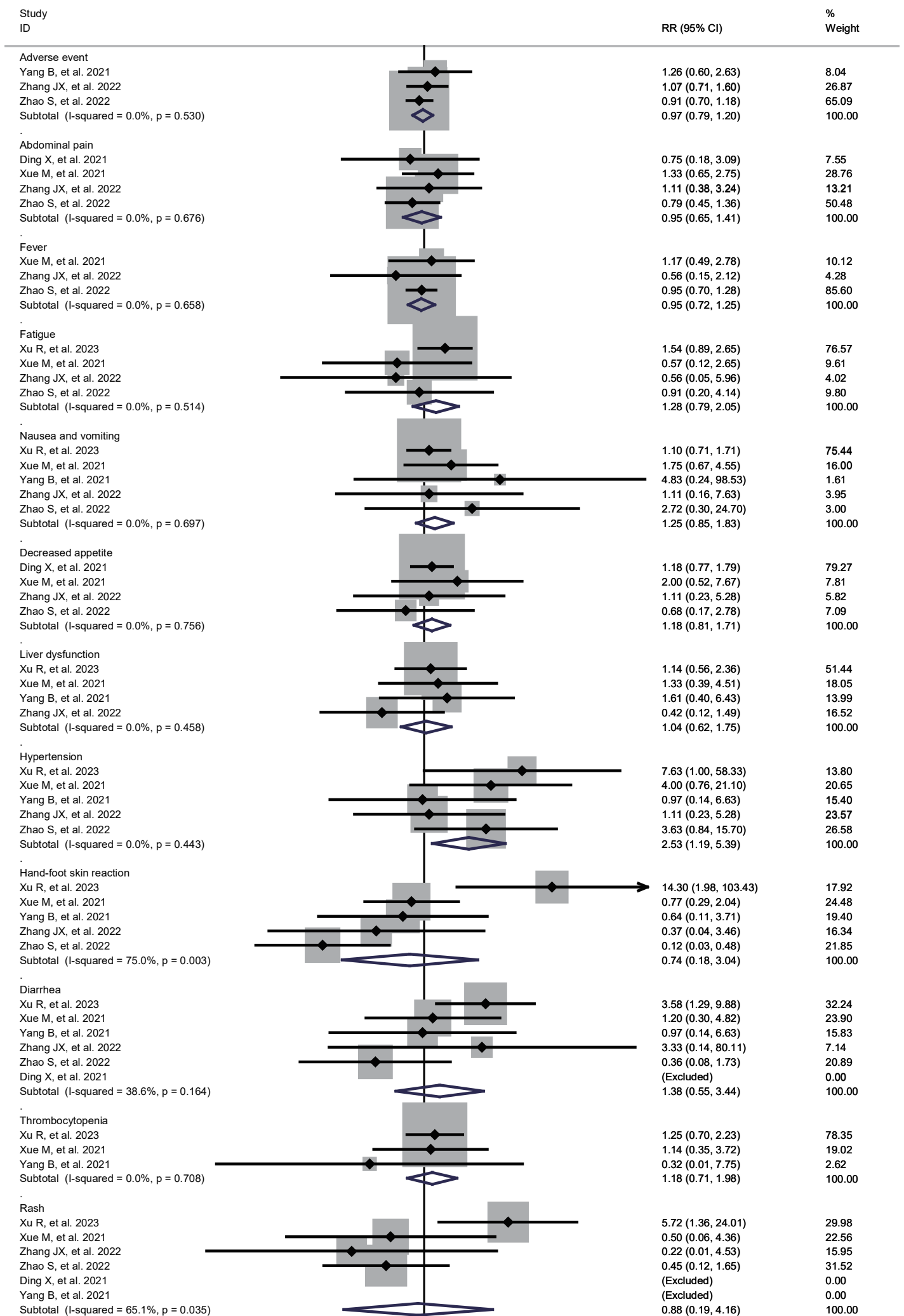
Supplementary Table 2 Quality evaluation of included studies

Study	Type of Study	Selection				Comparability			Outcome		Score
		1	2	3	4	5	6	7	8	9	
Ding X, et al. 2021	R	*	*	*	*			*			5
Xue M, et al. 2021	R	*	*	*	*			*	*		6
Xu R, et al. 2023	R	*	*	*	*			*	*		6
Yang B, et al. 2021	RCT	-	-	-	-	-	-	-	-	-	-
Zhang JX, et al. 2022	R	*	*	*	*	*		*	*		7
Zhao S, et al. 2022	R	*	*	*	*	*		*	*		7

Note: R- Retrospective comparative study; RCT- Randomized Controlled Trial; - - Not Applicable; 1. Representativeness of exposed cohort; 2. Selection of non-exposed cohort; 3. Ascertainment of exposure; 4. Outcome of interest was not present at start of study; 5. Study controls for age, sex, and marital status; 6. Study controls for any additional factors; 7. Assessment of outcomes; 8. Follow-up long enough for outcomes to occur; 9. Adequacy of follow-up.



Supplementary Table 3 Forest map of adverse events



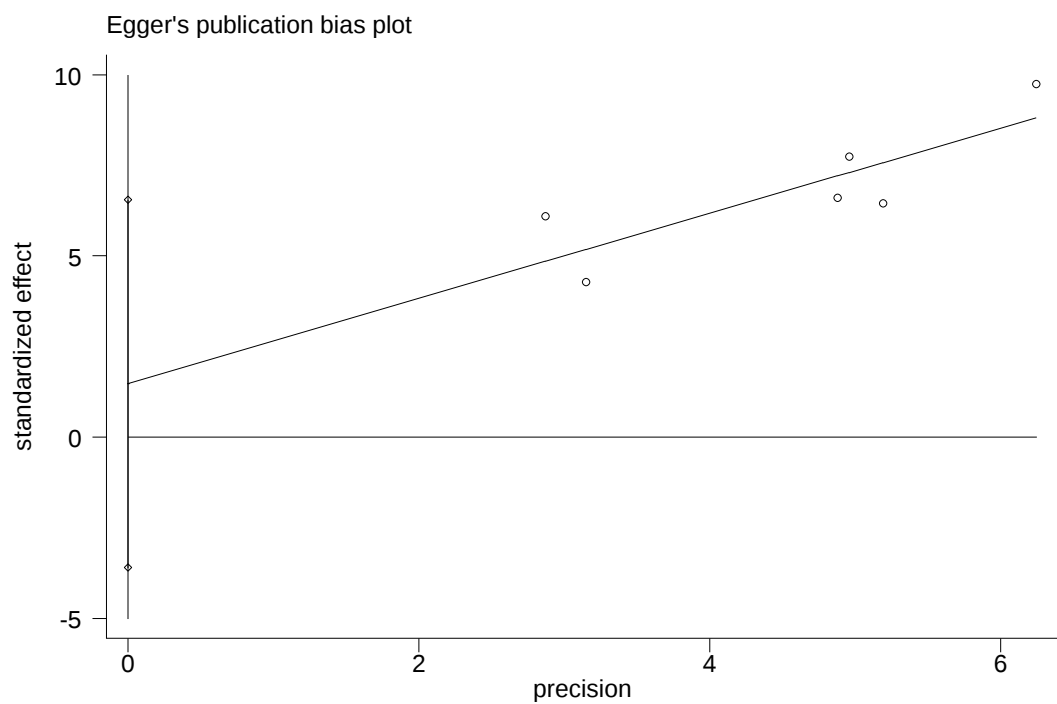
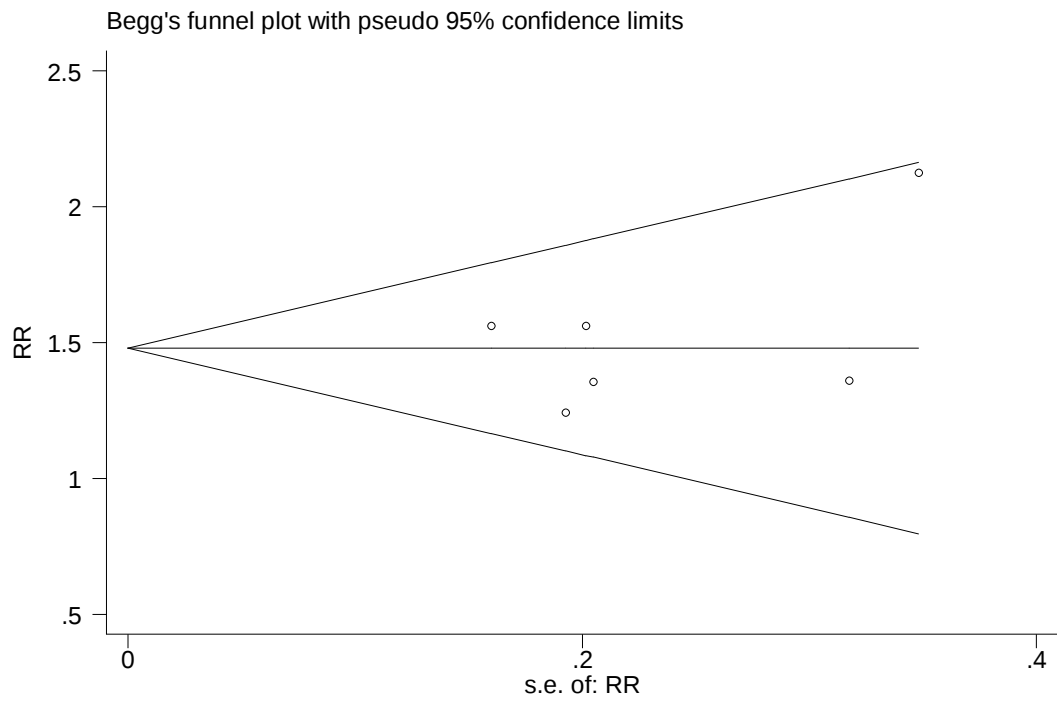
Supplementary Table 4 Begg's and Egger's test for all included studies

Measured Outcomes	No. Studies	Begg's Test		Egger's test
		Pr> z *	Pr > z **	P> t *
Response				
Complete response	6	0.142	0.221	0.316
Partial response	6	0.573	0.707	0.153
Stable disease	6	0.188	0.26	0.163
Progressive disease	6	0.851	1	0.812
Objective response rate	6	0.573	0.707	0.465
Disease control rate	6	0.015	0.024	0.002
Adverse events				
All adverse events	3	0.117	0.296	0.146
Abdominal pain	4	1	1	0.821
Fever	3	0.602	1	0.879
Fatigue	4	0.174	0.308	0.053
Nausea and vomiting	5	0.05	0.086	0.09
Decreased appetite	4	1	1	0.861
Liver dysfunction	4	0.34	0.734	0.995
Hypertension	5	0.327	0.462	0.538
Hand-foot skin reaction	5	0.05	0.086	0.458
Diarrhea	6	1	1	0.509
Thrombocytopenia	3	0.117	0.296	0.165
Rash	6	0.497	0.734	0.735
Long-term outcome				
Overall survival	4	0.497	0.734	0.283
Disease free survival	4	0.052	0.089	0.081

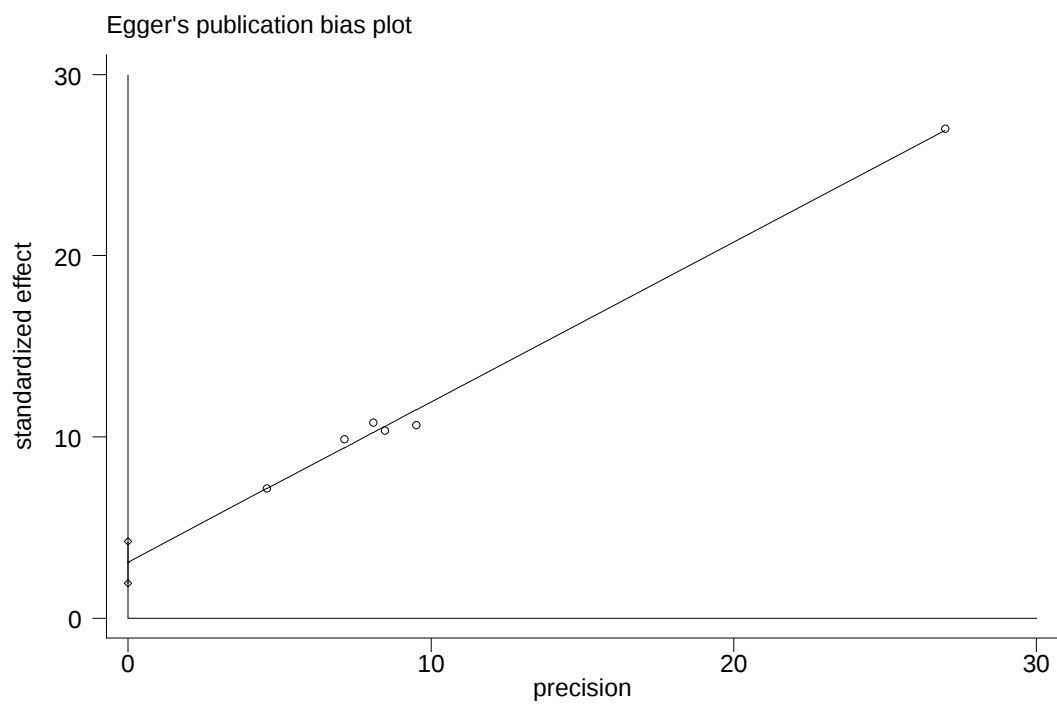
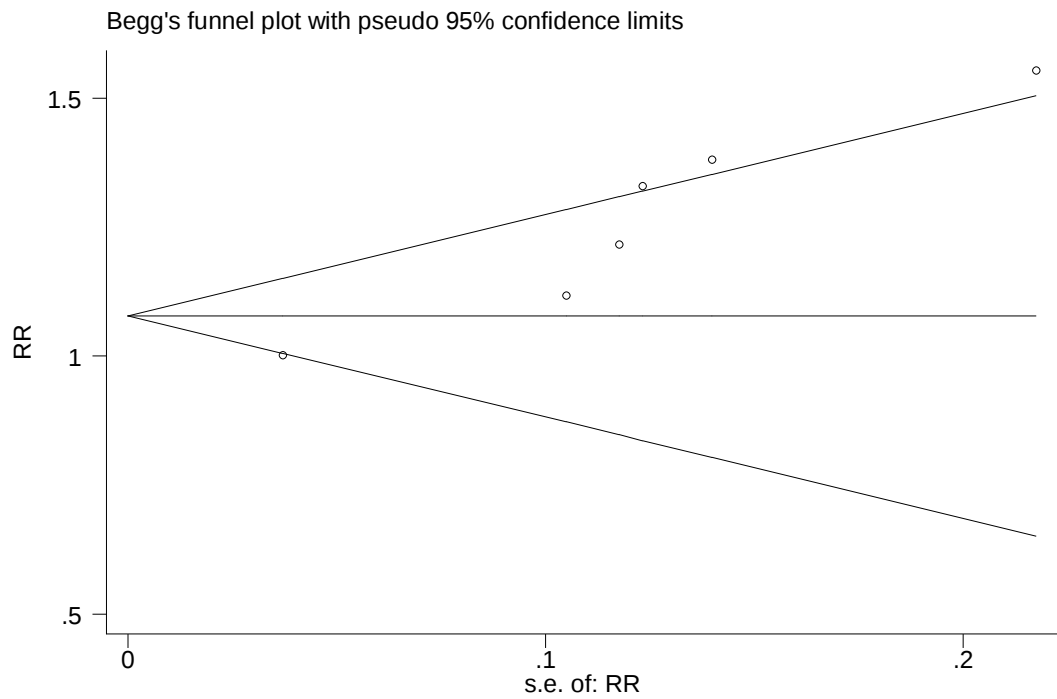
Note: * Values < 0.05 are considered statistically significant, which are in bold; ** Continuity corrected; NA- Not available.

Supplementary Figure 1

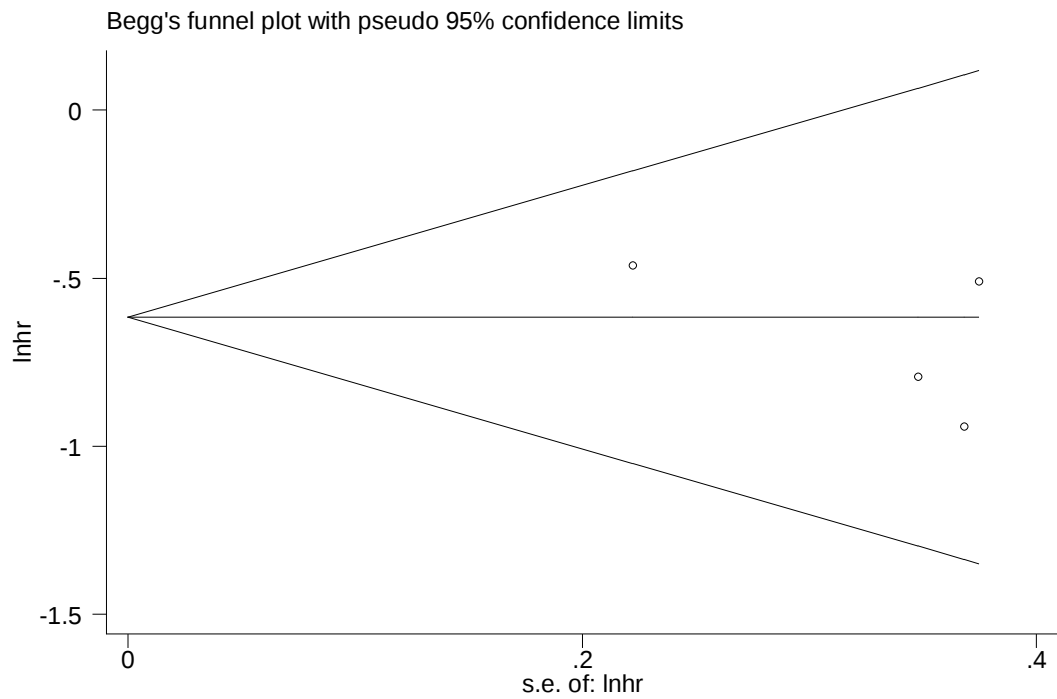
Objective response rate



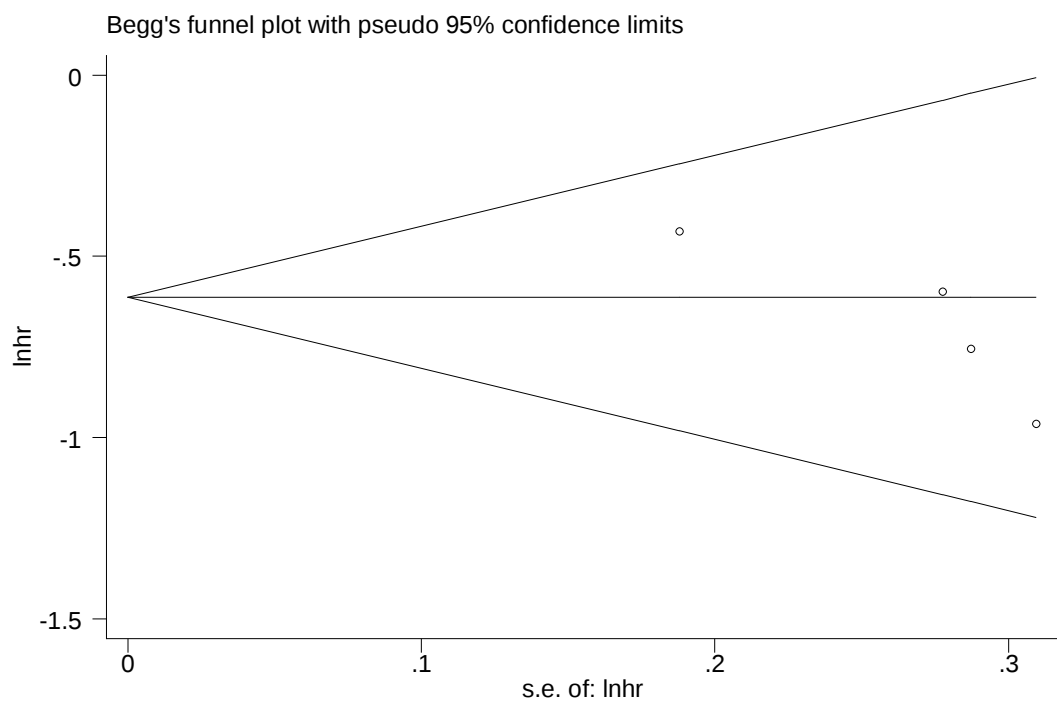
Disease control rate



Overall survival



Disease free survival



Egger's publication bias plot

