Supplemental Material

Table S1 Search Terms

PubMed 182
(((intracranial) OR (cerebral)) AND (aneurysm)) AND ((platelet function test) OR (light transmittance aggregometry) OR (LTA) OR (vasodilator stimulated phosphoprotein) OR (VASP) OR (VerifyNow) OR (Thromboelastography))
Embase 192
#1 'intracranial aneurysm'/exp
#2 'platelet function test' OR (('platelet'/exp OR platelet) AND function AND test)
#3 light AND transmittance AND aggregometry
#4 LTA
#5 vasodilator AND stimulated AND phosphoprotein
#6 VASP
#7 VerifyNow
#8 Thromboelastography
#9 TEG
#10 #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR#9
#11 #1 AND #10
Cochrane library of clinical trials 4
#1 Mesh descriptor: [Intracranial Aneurysm] explode all trees
#2 Mesh descriptor: [Platelet Function Tests] explode all trees
#9 #1 AND #2

Table S2 Outcome definitions of symptomatic thromboembolic events in the individual studies

Study	Definition
Li/2021 B	Ischemic stroke, TIA, stent thrombosis, urgent revascularization, or cerebrovascular death.
Higashiguchi/2021	A DWI-positive image with neurological findings of a transient ischemic attack or cerebral infarction.
Moon/2022	TIA or major stroke.
Oran/2015	Not available.
Cheung/2020	Not available.
Kim/2022	Any symptomatic events with DWI-positive image.
Aoun/2017	Stroke.
Neyens/2020	A combination of clinical symptoms and radiographic findings including computed tomography,computed tomography angiography, magnetic resonance imaging, or digital subtraction angiography.
Li/2021 A	TIA or symptomatic ischemic infarctions.
Koh/2023	Thromboembolism detected during stent assisted coiling (intraprocedural) or a TIA or ischemic stroke with evidence of infarction on DWI that occurred in the vascular territory, consistent with the location of the treated aneurysm within 30 days of the procedure (postprocedural).

TIA, transient ischemic attack; DWI, diffusion-weighted imaging

Table S3 Summary of risk assessment using Newcastle-Ottawa Scale for cohort studies

Study/year	Selection				Comparability	Exposure/Outcome			Total Score
	Represent-ativeness of Cohort*	Selection of Control Cohort*	Ascertain-ment of Exposure*	Outcome Not Present at Start*	Comparability of Cohorts**	Assessment of Outcome*	Length of Follow Up*	Adequacy of Follow Up*	
Oran/2013	*	*	*	*	**	*	*	*	9
Brinjikji/2015	*	*	*	*	**	*	*		8
Aoun/2017	*	*	*	*	*	*	*	*	8
Cheung/2020	*	*	*	*	**	*	*	*	9
Neyens/2020	*	*	*	*	**	*	*	*	9
Higashiguchi/2021	*	*	*	*	**	*	*		8
Li A/2021	*	*	*	*	**	*	*		8
Kim/2022	*	*	*	*	*	*	*	*	8
Moon/2022	*	*		*	*				4
Koh/2023	*	*	*	*	**	*	*	*	9

Table S4 Characteristics of all included studies

Author/year	Country	Study design	Type of aneurysms	Endovascular procedure	Type of platelet testing	Initiate strategy	Antiplatelet adjustment strategy	Follow-up duration (month)	Sample size	
									Guided group/No. Adjustment (%)	Standard group
Oran /2013	Turkey	Retrospective, cohort	Unruptured	Pipeline flow-diverting stents	Multiplate	ASA initial dose 300mg followed by 100-300mg daily and clopidogrel initial dose 600mg followed by 75mg daily	Test at the day of procedure; if clopidogrel platelet aggregation＞468 AUC(47U), add ticlopidine 1g and postpone the procedure 4h, or not postpone the procedure and give tirofiban 0.25-1mg	1	68/12 (17.6)	32
Brinjikji /2015	Six countries	Retrospective, multicenter, cohort	Unruptured	Pipeline flow-diverting stents	NA	NA	Test 1 day before procedure	22.5	511/NA	187
Aoun /2017	US	Retrospective, cohort	Unruptured	Stent-assisted coiling	Whole blood aggregometry testing	ASA 325mg and clopidogrel 75mg daily for 5 days	Test 24h before procedure: if inadequate response (> 10Ω), give ASA 325mg and clopidogrel 600mg again before the procedure followed by clopidogrel 75-150mg the next day before the procedure	1	152/24 (15.8)	114
Cheung /2020	Australia	Retrospective, cohort	Unruptured	Stent-assisted coiling, flow-diverting stents	PFA-100	ASA 100mg and clopidogrel 75mg daily for 8 days	Test 1 day before procedure: if clopidogrel time ≤150s (50% above the maximum normal CT), change ASA to 75mg daily, clopidogrel to ticagrelor (initial dose 180mg followed by 90mg twice a day)	13	65/23 (35.4)	52

Neyens /2020	US	Retrospective, cohort	Unruptured and ruptured	Pipeline flow-diverting stents	VerifyNow	Unruptured: ASA 325-600mg and clopidogrel 600mg daily for 1-2 days Ruptured: ASA and clopidogrel at the end of the procedure	Test at the day of procedure (elective) or after washout of any glycoprotein IIb/IIIa (nonelective emergent): ARU ≥550 represent ASA hyporesponsive; if PRU≥194, change clopidogrel to ticagrelor or continued clopidogrel	6	159/48 (30.2)	110
Li /2021 A	China	Retrospective, single-center, cohort	Ruptured	Stent-assisted coiling	TEG	ASA 300mg and clopidogrel 300mg 2h before the procedure followed by ASA 100mg and clopidogrel 75mg daily	Test 3 days after surgery and 6 weeks after discharge: When MA-ADP <31, if AAi ≥95% and ADPi ≥90%, change treatment plan to ASA 25–100mg daily or clopidogrel, 37.5–75mg daily, otherwise ASA 50–100mg and clopidogrel 25–50mg daily; When 31 ≤MA-ADP ≤47, if AAi ≥95%, and/or ADPi ≥90%, change treatment plan to ASA 50–100mg and clopidogrel 25–50mg daily, otherwise ASA 100mg and clopidogrel 75mg daily	11 (7,19)	93/65 (69.9)	52
Li /2021 B	China	Prospective, single-center, open-label, RCT	Unruptured	Standard coiling, stent-assisted coiling, flow-diverting stents	LTA	ASA 100mg and clopidogrel 75mg daily for 5 days	Test 1 day before procedure: if >50% MPA response to ADP, change clopidogrel to ticagrelor (initial dose 180mg followed by 90mg twice a day); if HPR on ASA, change ASA to 200mg daily	1	157/55 (35.0)	157

							Test 14 days after procedure: if low platelet reactivity following previous adjustment, change ticagrelor to 45mg twice a day, change ASA to 100mg daily			
Higashiguchi /2021	Japan	Prospective, single center, cohort	Unruptured	Standard coiling, balloon-assisted coiling, stent-assisted coiling, flow-diverting stents	VerifyNow	ASA 100mg and clopidogrel 75mg daily for 14 days	Test 1 day before procedure: if PRU≥240, change clopidogrel to prasugrel (initial dose 20mg daily followed by 3.75mg daily); if PRU ＜100,change clopidogrel to prasugrel (1.875mg daily)	1	167/27 (16.2)	50
Moon /2022	Korea	Retrospective, cohort	Unruptured	Standard coiling, stent-assisted coiling, flow-diverting stents	VerifyNow	ASA and clopidogrel	Change to low dose prasugrel according to PRU	NA	949/NA	1011
Kim /2022	Korea	Retrospective, cohort	Unruptured	Stent-assisted coiling	VerifyNow	ASA 100mg and clopidogrel 75mg daily for 5 days	If PRU≥240, add cilostazol (initial dose 200mg followed by 50mg twice a day)	NA	274/146 (53.3)	153
Koh /2023	Korea	Retrospective, cohort	Unruptured	Stent-assisted coiling	VerifyNow or Multiplate	ASA 100mg and clopidogrel 75mg daily for 5 days	Test 1 day before procedure: PRU≥220 (VerifyNow) or antiplatelet aggregation units ≥46 (Multiplate), 1) add cilostazol (initial dose 200 mg followed by 100 mg twice a day), 2) change	1	762/286 (37.5)	924

							clopidogrel to ticlopidine (initial dose 500 mg followed by 250 mg twice a day), prasugrel (initial dose 20 or 30 mg followed by 5 or 10 mg), or ticagrelor (initial dose 180 mg followed by 90 mg twice a day)

ASA, aspirin; CLO, clopidogrel, MA-ADP, adenosine diphosphate-induced platelet-fibrin clot strength; AAi, arachidonic acid inhibition; ADPi, adenosine diphosphate inhibition; PRU, P2Y12 reaction units; AUC, aggregation curve; CT, closure time; ARU, aspirin reaction unit; NA, not applicable; RCT, randomized controlled trial; Thromboelastography-platelet mapping; LTA, Light transmittance aggregometry

Table S5 Subgroup analysis of symptomatic thromboembolism events and hemorrhage events in cohort studies comparing antiplatelet testing guided and standard group in patients with intracranial aneurysms underwent endovascular treatment

Outcomes/subgroups		Symptomatic thromboembolism events				Hemorrhage events			
		Study /sample size	OR (95%CI)	I_2(%)	$P_{between}$	Study /sample size	OR (95%CI)	I_2(%)	$P_{between}$
Endovascular procedure	Stent-assisted coiling	3/2097	0.43 (0.18-1.02)	43	0.75	3/2097	0.52 (0.17-1.66)	67	0.82
	Pipeline flow diverting stenting	2/369	0.35 (0.03-4.64)	66		2/369	0.82 (0.26-2.64)	0	
	Combined treatment	4/2721	0.61 (0.36-1.02)	0		1/217	-	-	
Adjustment strategy	Adjust DAPT dose	2/411	0.33 (0.05-2.12)	36	0.88	2/411	0.27 (0.05, 1.60)	57	0.29
	Change clopidogrel other thienopyridines	4/2563	0.64 (0.40-1.02)	18		2/486	0.58 (0.25, 1.36)	0	
	Add other drugs	2/527	0.35 (0.03, 4.78)	64		1/100	-	-	
	Change to clopidogrel other thienopyridines or add cilostazol	1/1686	-	-		1/1686	-	-	
Race	Asian	5/4435	**0.62 (0.45-0.86)**	**0**	0.24	3/2048	0.51 (0.15-1.66)	68	0.72
	Caucasian	4/752	**0.32 (0.11-0.92)**	**55**		3/635	0.66 (0.30-1.46)	0	

OR, odds ratio; CI, Confidence interval; $P_{between}$, P-value between subgroups; PFT, platelet function testing; WBA, whole blood aggregometry; LTA, light transmission aggregometry; TEG, thrombelastography; **bold** indicates significant difference

Figure S1 PRISMA Flow Diagram

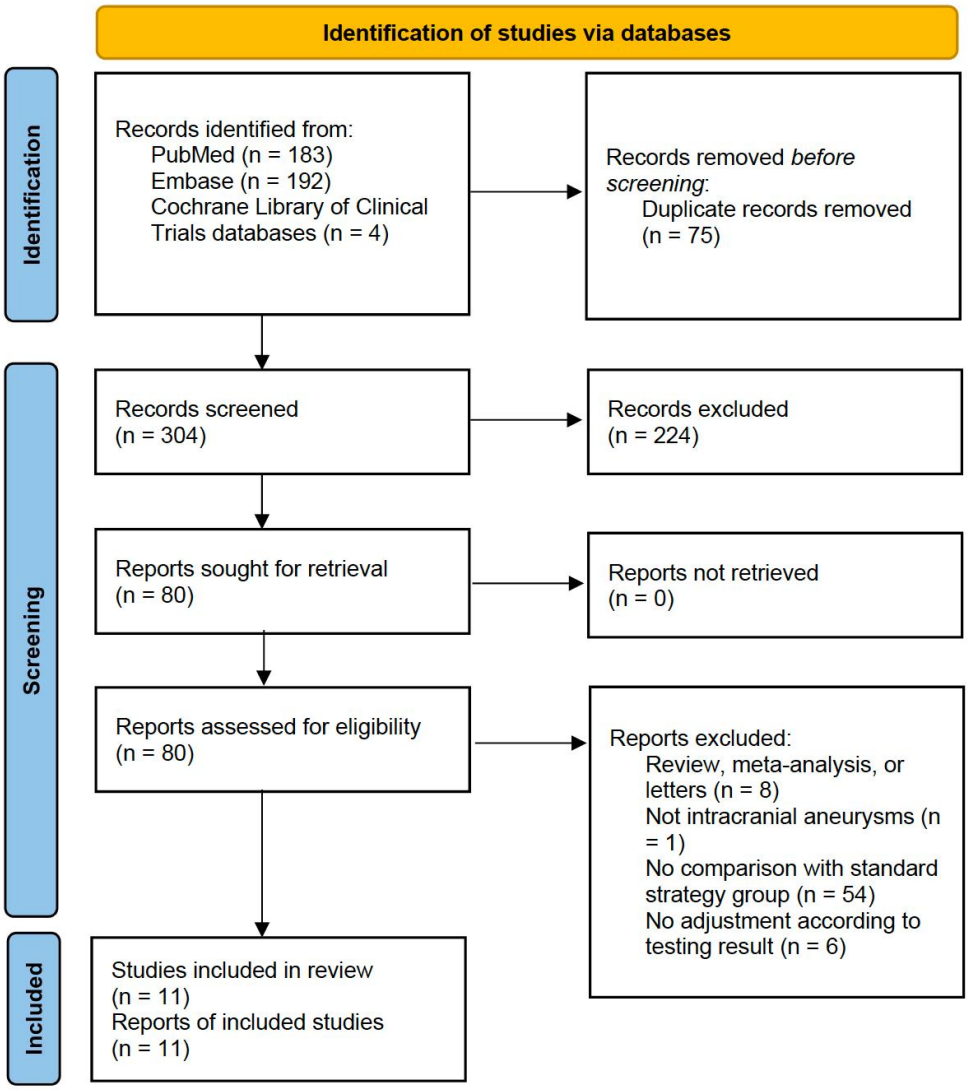
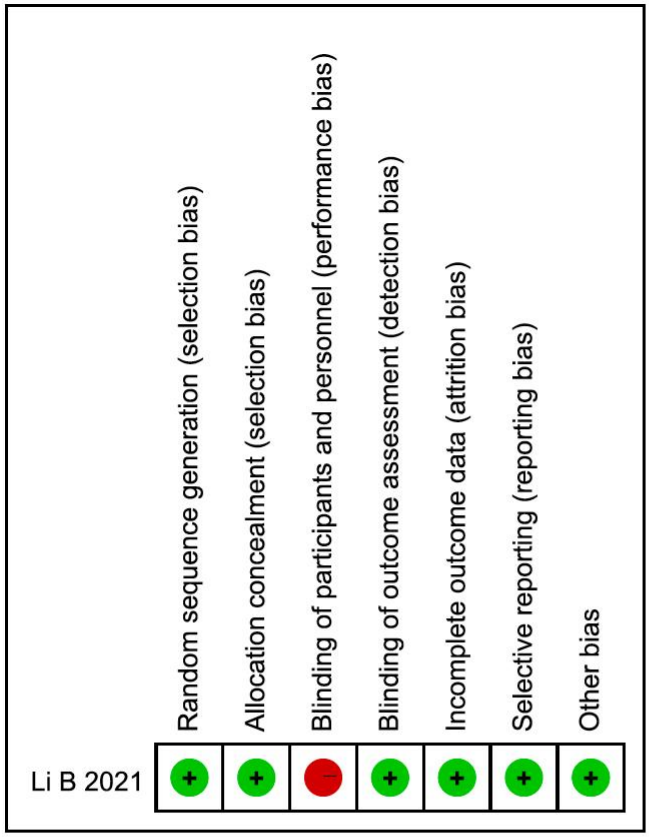


Figure S2 Summary of risk assessment using the Cochrane Collaboration's tool for assessing the risk of bias



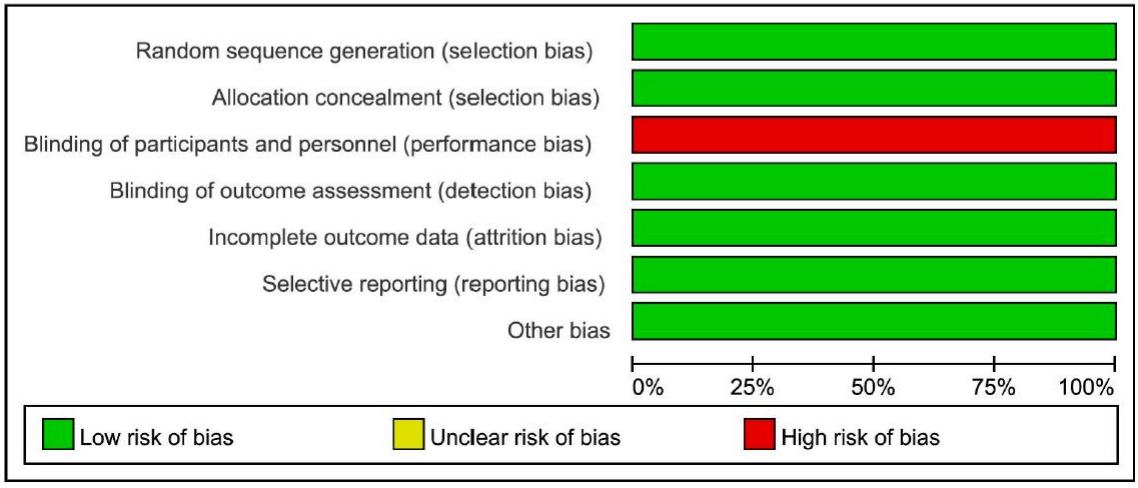
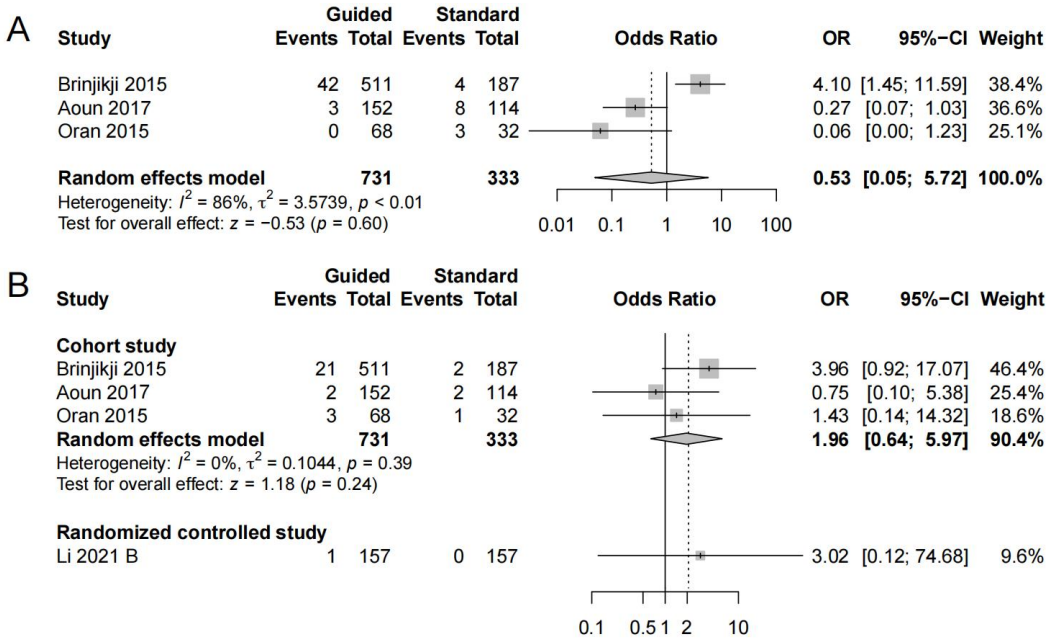
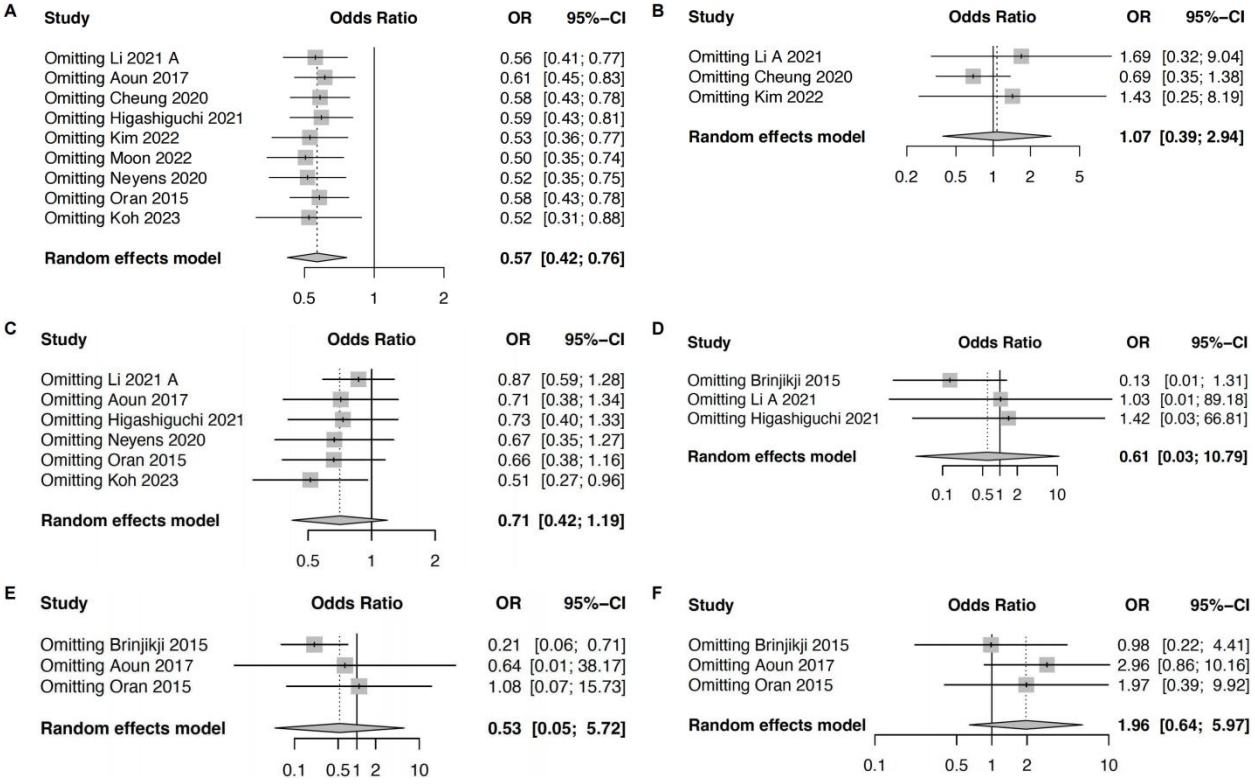


Figure S3 Forest plot of morbidity and mortality comparing platelet function testing guided group and standard group



A, morbidity; B, mortality; OR, odds ratio; CI, confidence interval

Figure S4 Sensitivity analysis of all outcomes including all cohort studies



A, symptomatic thromboembolism events; B, asymptomatic thromboembolism events; C, hemorrhage events; D, intracranial hemorrhage events; E, morbidity; F, mortality; OR, odds ratio; CI, confidence interval