



Clinical, digital health

November 2025



Impact of Postprocedural Anticoagulation on Clinical Outcomes After PCI in Acute Myocardial Infarction: Meta-Analysis

Waqas Ahmed¹, Sameen Sohail², Adeel Ahmad³, Daniel James Lewis⁴, Raheel Ahmed⁵

¹Lancashire Teaching Hospitals NHS Foundation Trust²North Tees and Hartlepool NHS Foundation Trust³East Lancashire Hospitals NHS Foundation Trust⁴Northumbria Healthcare NHS Foundation Trust⁵Newcastle University

BACKGROUND

Acute myocardial infarction (AMI) treated with PCI continues to cause substantial morbidity and mortality due to thrombotic complications such as stent thrombosis and recurrent ischemia. Postprocedural anticoagulation (PPAC) has been proposed to mitigate these risks, but guideline support remains limited because of inconsistent evidence.

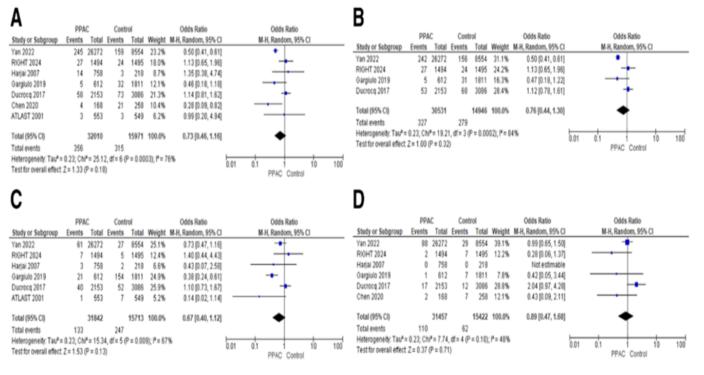
METHODS

A comprehensive literature search identified randomized and observational studies comparing PPAC versus no anticoagulation after PCI in AMI patients. Eligible studies reported 30-day outcomes, including mortality, recurrent MI, stroke, stent thrombosis, revascularization, and bleeding.

RESULTS

Seven studies, encompassing a total of 47,981 patients were included in the analysis. The pooled results demonstrated no significant difference between PPAC and no AC in reducing 30-day all-cause mortality [RR: 0.73; 95% CI, 0.47–1.16], cardiovascular mortality [RR: 0.76; 95% CI, 0.45–1.30], recurrent myocardial infarction [RR: 0.68; 95% CI, 0.41–1.12], stroke [RR: 0.89; 95% CI, 0.47–1.67], target vessel revascularization [RR: 0.74; 95% CI, 0.37–1.47], or stent thrombosis [RR: 1.08; 95% CI, 0.75–1.57]. Similarly, no significant difference was observed in bleeding risk [RR: 1.25; 95% CI, 0.83–1.88].

Figure 1. Individual and pooled analyses comparing postprocedural anticoagulation to no anticoagulation after percutaneous coronary intervention for acute myocardial infarction. A, 30-day all-cause mortality. B, 30-day cardiovascular mortality. C, 30- day myocardial infarction. D, 30-day stroke



CONCLUSIONS

This meta-analysis of seven studies involving nearly 48,000 patients found that routine PPAC after PCI in AMI does not significantly reduce mortality or ischemic complications and does not markedly increase bleeding risk. The findings do not support routine PPAC use, emphasizing individualized decision-making based on patient risk profiles. Further large-scale randomized trials are needed to identify potential subgroups that may benefit.

Colchicine for cardiovascular risk reduction in coronary artery disease: An updated meta-analysis

Sameen Sohail¹, Waqas Ahmed², Adeel Ahmad³, Raheel Ahmed⁴

¹North Tees and Hartlepool NHS Foundation Trust, ² East Lancashire Hospitals NHS Foundation Trust, ³ Lancashire Teaching Hospitals NHS Foundation Trust, ⁴ Newcastle University

BACKGROUND

Inflammation contributes to a higher risk of adverse cardiovascular events in individuals with coronary artery disease (CAD). Colchicine, an anti-inflammatory agent, may help enhance clinical outcomes in these patients.

METHODS

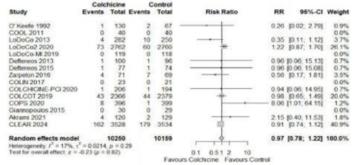
A systematic literature search was conducted across main databases to identify randomized controlled trials (RCTs) that reported clinical outcomes with the use of colchicine in CAD. Data for outcomes were extracted and summary estimates were generated using a random effects model.

RESULTS

A total of 16 RCTs involving 20,601 patients were included. The pooled analysis showed no significant difference between colchicine and control groups in reducing all-cause mortality (RR 0.97; 95% CI, 0.78–1.22), cardiovascular mortality (RR 0.98; 95% CI, 0.79–1.21), or stroke (RR 0.67; 95% CI, 0.39–1.15). However, colchicine was associated with a significantly lower risk of myocardial infarction (RR 0.74; 95% CI, 0.59–0.93) and ischemia-driven revascularization (RR 0.72; 95% CI, 0.53–0.99), albeit with a higher incidence of gastrointestinal adverse events (RR 1.83; 95% CI, 1.38–2.43) compared with control.

Figure 1. Forest plots for all-cause and cardiovascular death

A) All-cause death

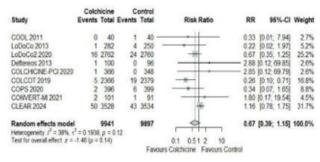


B) Cardiovascular death

	Colch	hicine	C	ontrol				
Study	Events	Total	Events 1	Total	Risk Ratio	RR	95%-CI	Weight
COOL 2011	0	40	0	40	- 1			0.0%
LoDoCo 2013	0	282	5	250		0.08	[0.00; 1.45]	0.5%
LoDoCo2 2020	20	2762	25	2760	+	0.80	[0.45; 1.44]	13.1%
LoDoCo-MI 2019	0	119	0	118				0.0%
Deftereos 2013	1	100	1	96		0.96	(0.06; 15.13)	0.6%
Deftereos 2015	1	77	1	74			10.06: 15.081	0.6%
COUN 2017	0	23	0	21			Section 1	0.0%
COLCOT 2019	20	2366	24	2379	-	0.54	10.46: 1.511	12.9%
COPS 2020	3	396	1	399	-	3.02	[0.32, 28.94]	0.9%
CONVERT-MI 2021	0	101	0	91				0.0%
Akrami 2021	4	120	2	129	-	2.15	(0.40: 11.53)	1.6%
CLEAR 2024	117	3528	113	3534	802		[0.80; 1.34]	69.7%
Random effects model		9914		9891		0.98	[0.79; 1.21]	100.0%
Heterogeneity: $I^2 = 0\%$, τ^2								
Test for overall effect, z = -	0.17 (p =	0.86)			0.01 0.1 1 10 100			
				Fav	ours Colchicine Favours Contro	N .		

Figure 2. Forest plots for stroke and ischemia driven revascularization





B) Ischemia driven revascularization

	Colchicine		Control						
Study	Events	Total	Events	Total	Risk R	tatio	RR	95%-CI	Weight
LoDoCo2 2020	135	2762	177	2760	-		0.76	[0.61; 0.95]	34.2%
Deflereos 2013 COLCHICINE-PCI 2020	4	112	5	110	-		0.79	[0.22, 2.85]	5.1%
COLCOT 2019		2366	50	2379			0.50	[0.31; 0.81]	20.9%
COPS 2020 CLEAR 2024	3	396	12	399				[0.07, 0.89]	5.3%
CLEAR 2024	104	JOEB	100	3034	Ī		0.99	[0.00, 1.22]	34.076
Random effects model Heterogeneity: I ² = 63%, τ ³ Test for overall effect: z = -			03	9376	0.1 0.5 1	2 10	0.72	[0.53; 0.99]	100.0%
				Fa	vours Colchicine	Favours Control			

CONCLUSIONS

Colchicine does not reduce the relative risk of all-cause and cardiovascular death in patients with CAD. However, it can reduce the risk of myocardial infarction and ischemia drive revascularization. Additional trial data are required to confirm these findings.