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Original Research Article

Real-world practice perspectives of Indian clinicians on dual antiplatelet therapy optimization post percutaneous coronary intervention and utilization of aspirin clopidogrel fixed dose combination in secondary prevention: INDI PROLONG STUDY

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ABSTRACT

Background: Background: Dual antiplatelet therapy (DAPT) is post-percutaneous coronary intervention (PCI) to prevent thrombotic events. However, optimal duration and agent choice remain debated, particularly in Indian practice. This study explored real-world clinician perspectives on DAPT optimization and the use of aspirin–clopidogrel fixed-dose combinations (FDCs).
Methods: The INDI-PROLONG study was an anonymous, cross-sectional PAN India survey conducted between June 15 and August 15, 2024. A total of 301 clinicians, including cardiologists, consulting physicians, diabetologists, and other specialists, participated. The survey assessed DAPT prescription patterns, preferred regimens, determinants of duration, and perceptions of aspirin–clopidogrel FDCs.
Results: Of 301 clinicians, 259 (86.1%) routinely prescribed DAPT post-PCI. For high thrombotic risk patients, 165 (54.8%) favored >12 months of therapy, while 136 (45.2%) recommended 12 months. Clopidogrel + aspirin was most preferred (57.8%), followed by ticagrelor + aspirin (23.9%) and prasugrel + aspirin (15.6%). Clopidogrel was prescribed to 25–50% of eligible patients by 137 (45.5%) clinicians. Key factors influencing duration included bleeding risk (48.8%), guideline recommendations (39.5%), adherence (36.5%), and thrombotic risk (32.2%). Switching from ticagrelor to clopidogrel was mainly due to bleeding (56.5%) and adverse reactions (30.6%). Cardiologists favored prolonged therapy, while consulting physicians preferred standard 12-month durations. Regional variation was noted, with northern India showing a higher preference for extended DAPT.
Conclusion: Indian clinicians demonstrate varied DAPT strategies, balancing efficacy, safety, and accessibility. Clopidogrel + aspirin remains the dominant choice. Findings highlight the need for India-specific guidelines to optimize DAPT duration and agent selection based on real-world evidence.

Keywords: Dual antiplatelet therapy, Percutaneous coronary intervention, Clopidogrel, Aspirin, Fixed-dose combination

INTRODUCTION

Cardiovascular disease (CVD) is the leading cause of death worldwide, accounting for approximately 31% of global deaths, with three-quarters occurring in low- and middle-income countries.[1,2] In India, CVD causes approximately 27% of all deaths, with an age-standardized death rate of 272 per 100,000 people, compared with the global average of 235 deaths per 100,000.[1-3] Acute coronary syndrome (ACS) is a significant public health problem in India. The Million Death Study (MDS) and Global Burden of Disease (GBD) study reported that ACS and ischemic heart disease (IHD) are the leading causes of mortality and morbidity in the country. In-hospital mortality from ACS ranges from 5% to 15%, with a high event rate at follow-up in the last 3–6 months.[4] Thrombolysis and percutaneous coronary intervention (PCI) are key treatments for ACS. A decade ago, India had at least 10,000 nursing homes and small hospitals capable of administering thrombolysis, and approximately 625 catheterization laboratories could perform PCI. (This data point is excellent and hopefully current.) The number of cath labs is anticipated to double, exceeding 1,000, increasing their availability in mid-sized cities and providing primary percutaneous coronary intervention (PPCI) to a larger patient population. However, this number was nearly doubled. The Kovai Erode STEMI initiative in Tamil Nadu aims to improve STEMI care through collaboration between hospitals and government agencies.[5,6]

Adjunctive pharmacotherapy, particularly antithrombotic therapy, is pivotal in optimizing outcomes for patients undergoing PCI.[7-9] Patients undergoing PCI may develop acute and long-term ischaemic events.[10] Thus, antithrombotic drugs, particularly antiplatelet agents, are crucial in the treatment and prevention of thrombotic complications.[7-9] Over the past four decades, antiplatelet treatment regimens for patients undergoing PCI have evolved. This is due to factors including refinements in stent technologies, leading to safer stent platforms; the development of new antiplatelet drugs; and a better understanding of the prognostic implications of bleeding, the main trade-off associated with antiplatelet therapies.[7-11] Although the advent of drug-eluting stents (DES) has been crucial for the overall success of PCI, stent thrombosis (ST) and myocardial infarction may occur unless patients adhere to a strict regimen of dual antiplatelet therapy (DAPT), which consists of the concurrent use of aspirin and a P2Y12 platelet receptor blocker. However, the use of DAPT confers an increased risk of major bleeding, which in some instances is fatal.[12] DAPT with aspirin plus a P2Y12 inhibitor is the cornerstone of treatment for patients undergoing PCI. DAPT plus a P2Y12 inhibitor combination is based on studies showing that adjunctive P2Y12 inhibitor use with aspirin produces synergistic platelet inhibition, improving the antithrombotic efficacy in patients with ACS and PCI. Owing to its favorable safety profile, ticlopidine, a first-generation thienopyridine, was replaced by clopidogrel, a second-generation thienopyridine. Clopidogrel remains the most widely studied P2Y12 inhibitor.[7] For patients with moderate or high bleeding risk, clopidogrel should be preferred over more potent P2Y12 inhibitors, and DAPT can be shortened to 1 month, followed by clopidogrel monotherapy, or to 3 months for non-ST-elevation ACS (NSTE-ACS), and 6 months for ST-elevation ACS (STE-ACS), when followed by aspirin monotherapy.[13,14] The European Society of Cardiology (ESC) guidelines recommend at least 1 month of DAPT for stable ischemic heart disease (SIHD) treated with a bare-metal stent (BMS), 6 months for DES, and 12 months for ACS patients. They suggested shorter SIHD courses or longer ACS history courses.[15,16] A 2016 update from the American College of Cardiology/American Heart Association recommended a minimum of 6 months of DAPT after new-generation DES implantation in SIHD patients, replacing the 2011 recommendation of 12 months.[17,18] This abbreviated course for SIHD patients seemed reasonable because newer-generation DES have lower ST risk than first-generation DES.[19]

However, the optimal duration of DAPT after stent implantation has been controversial for several years. Indeed, parallel with the evolution of DAPT regimens, stent technology has evolved from BMS to first-generation DES, which has implications for DAPT regimens. No single recommended DAPT regimen or duration was applicable to all patients. In low-risk patients receiving newer-generation DES, three to six months of DAPT may be sufficient to prevent early stent-related thrombotic events. Patients undergoing stenting for ACS may benefit from DAPT for at least 12 months. Extending DAPT beyond 12 months involves a trade-off between increased bleeding and reduced ischemic events; thus, clinicians must individually define the DAPT duration for each patient.

These guideline variations and evidence from meta-analyses and randomized controlled trials (RCTs) challenge clinicians when tailoring DAPT duration to individual patient needs. Indian healthcare settings face distinct obstacles, including an elevated risk of bleeding in patients with comorbidities, complex angioplasty procedures, and DES use. These factors influence decision-making regarding the duration of DAPT. The optimal duration in the Indian context remains controversial, with no clear India-specific guidelines for balancing thrombotic protection and bleeding risk. Understanding the real-world practice perspectives of Indian clinicians on post-PCI DAPT optimization and aspirin-clopidogrel fixed-dose combination (FDC) utilization for secondary prevention (INDI-PROLONG STUDY) addresses this need by gathering insights from Indian cardiologists.

The objective was to improve outcomes for patients with ACS, considering factors such as stent type, angioplasty complexity, and patient-specific characteristics.

METHODS

The INDI-PROLONG study was an anonymous, cross-sectional, non-interventional PAN India survey conducted between June 15, 2024, and August 15, 2024. This study aimed to gather real-world practice perspectives of Indian clinicians on post-PCI DAPT optimization and the role of aspirin-clopidogrel FDC in secondary prevention. Clinicians across various regions of India with significant expertise in managing post-PCI patients were included. A total of 301 clinicians, including cardiologists, consultant physicians, diabetologists/endocrinologists, and other specialty medical practitioners actively involved in cardiovascular care, were recruited using convenience sampling.

Participation was not restricted by years of professional experience, thus ensuring diverse representation from a clinical perspective. This study adhered to the principles outlined in the Declaration of Helsinki, including the revisions and data confidentiality regulations. Ethical approval was not sought because the survey was anonymous and non-interventional, with no patient involvement. The participation of clinicians was entirely voluntary, and the initial page of the web-based questionnaire detailed the study objectives and emphasized its anonymous nature. Survey responses were considered implied consent to participate.

A structured questionnaire was developed to collect data on clinicians' understanding and perception of DAPT optimization and using aspirin/clopidogrel FDCs for secondary prevention. The questionnaire was developed through a comprehensive process that included a thorough literature review of DAPT post-PCI and input from experts in cardiovascular medicine to ensure its validity and relevance. The questionnaire included open- and closed-ended questions and clinical scenarios to explore clinicians' therapeutic preferences for DAPT in different patient profiles and approaches to secondary prevention. The questionnaire was developed to assess clinicians' real-world practices, including patient volume, understanding of the current guidelines for DAPT optimization, factors influencing post-PCI therapy duration, clinicians' perceptions of using FDCs for aspirin-clopidogrel, patient-centric care, and strategies to reduce therapy-related complications. A pilot study was conducted with ten clinicians to test the questionnaire's clarity, relevance, and comprehensiveness. Based on their feedback, revisions were made to enhance the survey's scientific appropriateness and validity. The final questionnaire comprised 20 closed-ended questions disseminated via email, with a unique URL directing participants to the online version of the questionnaire hosted on Google Forms.

Data were extracted from the completed questionnaires and analyzed using SPSS (IBM version 29.0; SPSS Inc., Chicago, IL, USA). Descriptive statistics presented categorical variables as frequencies and proportions, whereas continuous variables were summarized as means and standard deviations. Statistical significance was set at $P < 0.05$, and results were reported with 95% confidence intervals (CIs). Responses to the questionnaire were categorized and analyzed based on predefined answer options. Questions were assessed by calculating the frequency and percentage of each response option. Responses were categorized to evaluate practice patterns and preferences in managing DAPT post-PCI and using aspirin-clopidogrel FDCs for secondary prevention.

RESULTS

Survey responses from all 301 clinicians were included in the final analysis.

Demographic characteristics

The study population primarily consisted of 209 (69.44%) cardiologists and 64 (21.26%) consulting physicians (CPs), while diabetologists/endocrinologists comprised seven (2.33%) and other specialists 21 (6.98%). Geographically, participants were evenly distributed across most regions, with 78 (25.91%) from the East, West, and South, and 67 (22.26%) from the North.

Preferred DAPT duration as per patient profile

Most of the 259 (86.05%) clinicians frequently prescribed DAPT after PCI, whereas 42 (13.95%) mentioned prescribing it only occasionally. For ACS patients with DES, 135 (44.85%) clinicians responded for 6-12 months, followed by 75 (24.92%) clinicians who chose 12 months. For chronic stable angina with DES, 132 (43.85%) clinicians preferred a 6–12-month duration, 66 (21.93%) recommended >12 months, 62 (20.60%) prescribed for 12 months, and 41 (13.62%) prescribed for <6 months. Among the high-risk thrombotic patients post-PCI, 165 (54.82%) clinicians prescribed DAPT for >12 months, whereas 136 (45.18%) recommended a 12-month duration. In advanced CAD with complex revascularization, 139 (46.18%) clinicians preferred a 6 - to 12-month duration, 76 (25.25%) chose >12 months, 61 (20.27%) chose 12 months, and 25 (8.31%) recommended <6 months. For patients requiring more than three stents, 163 (54.15%) clinicians reported treating 10-20% of such cases, followed by 74 (24.58%) managing 0-10%, 56 (18.60%) treating 20-40%, and only 8 (2.66%) handling >40% of such cases. When managing DAPT for non-cardiac surgeries post-PCI, 106 (35.22%) clinicians preferred continuing therapy, 76 (25.25%) suggested discontinuation, 70 (23.26%) opted to switch therapy, and 49 (16.28%) advised delaying surgery (Table 1)

Table 1: Factors influencing DAPT duration.

Questions	Options	Findings (%)	P value	95% CI
How frequently do you prescribe DAPT after PCI?	Frequently	259 (86.05)	<0.001	1.10 to 1.18
	Sometimes	42 (13.95)		
a) What duration of DAPT do you typically recommend for patients after PCI (ACS) with a DES (drug-eluting stent)?	<6 months	32 (10.63)	<0.001	2.92 to 3.16
	>12 months	59 (19.60)		
	12 months	75 (24.92)		
	6-12 months	135 (44.85)		
b) What duration of DAPT do you typically recommend for patients after PCI (chronic stable angina) with a DES (drug-eluting stent)?	<6 months	41 (13.62)	<0.001	1.40 to 1.51
	>12 months	66 (21.93)		
	12 months	62 (20.60)		
	6-12 months	132 (43.85)		
For patients with a high risk of thrombotic events, how long do you recommend continuing DAPT after PCI?	>12 months	165 (54.82)	<0.001	1.40 to 1.51
	12 months	136 (45.18)		
In the patients with advanced CAD undergoing complex revascularization procedure, how long do you continue DAPT?	<6 months	25 (8.31)	<0.001	2.93 to 3.16
	>12 months	76 (25.25)		
	12 months	61 (20.27)		
	6-12 months	139 (46.18)		
In your practice, what is the percentage of patients who are put on more than 3 stents?	0-10%	74 (24.58)	<0.001	2.80 to 2.97
	10-20	163 (54.15)		
	20-40%	56 (18.60)		
	>40%	8 (2.66)		
How do you typically manage DAPT in patients who require elective non-cardiac surgery soon after PCI?	Continue	106 (35.22)	<0.001	2.23 to 2.50
	Delay surgery	49 (16.28)		
	Discontinue	76 (25.25)		
	Switch	70 (23.26)		

*Abbreviations: DAPT-Dual antiplatelet therapy, PCI-Percutaneous coronary intervention, CI-Confidence interval, CAD-Coronary artery disease, DES-Drug-eluting stents, n-Number of populations.

Factors influencing DAPT duration

The most preferred factors influencing the decision on the duration of DAPT after PCI were patient bleeding risk by 147 (48.8) clinicians, patient thrombotic risk by 97 (32.20), type of stent used by 86 (28.6), patient adherence to medication by 110 (36.5), guidelines and evidence-based practices by 119 (39.5), and clinical presentation by 115 (38.2) clinicians (Figure 1).

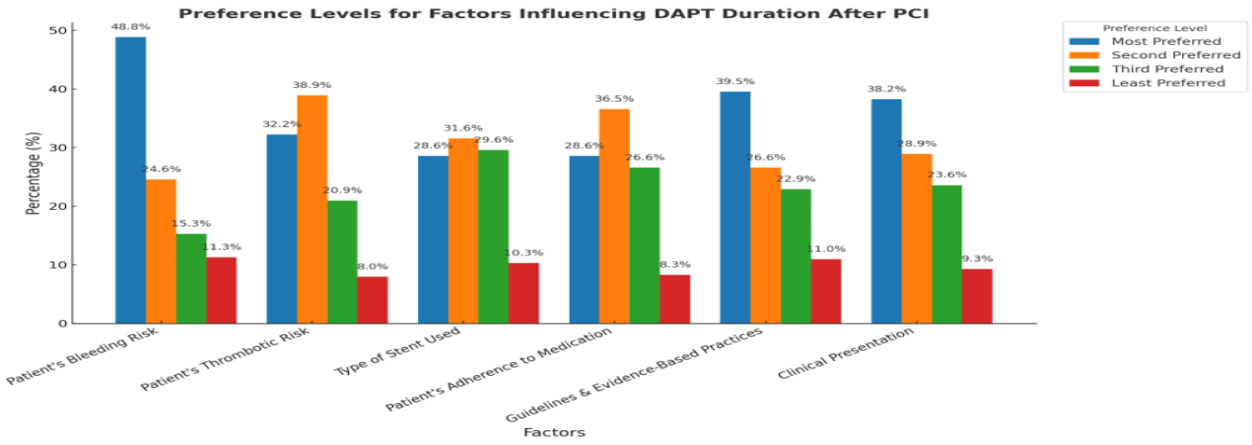

Figure 1: Factors most influencing decision on the duration of DAPT after PCI (1 - most preferred; 4 - least preferred

Bleeding risk assessment

Out of the 301, 127 (42.19) clinicians frequently considered bleeding risk during secondary prevention, 147 (48.84) considered it sometimes, and 27 (8.97) rarely assessed it. Most clinicians, 157 (52.16), reassessed the bleeding risk every three months, followed by 82 (27.24) who reassessed it at every visit, 53 (17.61) every six months, and only nine (2.99) who reassessed it each year (Table 2).

Table 2: Bleeding risk assessment.

Questions	Options	Findings (%)	P value	95% CI
How frequently do you consider bleeding risk as a concern while prescribing DAPT for secondary prevention (coronary events with risk factors?	Frequently	127 (42.19)	<0.001	1.96 to 2.17
	Rarely	27 (8.97)		
	Sometimes	147 (48.84)		
How frequently do you reassess the risk of bleeding in patients of DAPT during follow-up visits post-PCI?	Annually	9 (2.99)	<0.001	2.59 to 2.79
	Every 3 months	157 (52.16)		
	Every 6 months	53 (17.61)		
	At every visit	82 (27.24)		

*Abbreviations: DAPT-Dual antiplatelet therapy, PCI-Percutaneous coronary intervention, CI-Confidence interval, n-Number of populations.

Table 3: Prescribing practices and clinical decision-making.

Questions	Options	Findings (%)	P value	95% CI
How do you find the current guidelines on DAPT duration after PCI?	Clear	90 (29.90)	<0.001	2.86 to 3.17
	Confusing	1 (0.33)		
	Somewhat clear	24 (7.97)		
	Very clear and easy to follow	186 (61.79)		
a) What is your preferred strategy for patients requiring long-term anticoagulation (e.g., for atrial fibrillation) in addition to DAPT post-PCI?	Dual therapy	120 (39.87)	<0.001	2.05 to 2.27
	Others	13 (4.32)		
	Triple therapy	168 (55.81)		
b) What is your preferred strategy for patients requiring long-term anticoagulation (e.g., for atrial fibrillation) in addition to DAPT post-PCI? (If others, please specify)	DAPT	5 (38.5)	<0.001	2.96 to 5.19
	Triple Drug	2 (15.4)		
	Aspirin	2 (15.4)		
	NOAC	1 (7.70)		
	Atrial Fibrillation	1 (7.70)		
	Clinical Experience	1 (7.70)		
	P2Y12 Inhibitor	1 (7.70)		
In what percentage of your DAPT-eligible patients do you prefer to prescribe Clopidogrel?	<25%	57 (18.94)	<0.001	2.67 to 2.91
	25-50%	137 (45.51)		
	50-75%	77 (25.58)		
	>75%	30 (9.97)		
In what percentage of your DAPT-eligible patients do you prefer to prescribe Ticagrelor?	<25%	108 (35.88)	<0.001	2.24 to 2.49
	25-50%	137 (45.51)		
	50-75%	40 (13.29)		
	>75%	16 (5.32)		
Does the length/number of stents influence the choice of antiplatelet therapy in your patients?	Frequently	123 (40.86)	<0.001	1.99 to 2.20
	Rarely	26 (8.64)		
	Sometimes	152 (50.50)		
Does the type of angioplasty (Left main stenting, long stent, bifurcation, two-stent strategies) determine the choice of DAPT?	Frequently	113 (37.54)	<0.001	2.07 to 2.28
	Rarely	23 (7.64)		
	Sometimes	165 (54.82)		
In your practice, how often do you switch patients from one antiplatelet agent to another due to side effects or adverse events?	Rarely	62 (20.60)	<0.001	2.21 to 2.40
	Frequently	74 (24.58)		
	Sometimes	165 (54.82)		
How frequently do you observe stent thrombosis after a multiple-stent setup?	Frequently	77 (25.58)	<0.001	2.14 to 2.33
	Rarely	77 (25.58)		
	Sometimes	147 (48.84)		

*Abbreviations: DAPT-Dual antiplatelet therapy, PCI-Percutaneous coronary intervention, CI-Confidence interval, n-Number of populations.

Prescribing practices and clinical decision-making

Out of the 301 clinicians, 186 (61.79) found the current DAPT guidelines clear and easy to follow, whereas 90 (29.90) found them clear. Triple therapy was the preferred strategy for anticoagulation in patients with atrial fibrillation post-PCI, as reported by 168 (55.81) clinicians. A total of 120 (39.87) clinicians preferred dual therapy. 165 (54.82) Clinicians sometimes switched antiplatelet agents due to side effects or adverse events, while 74 (24.58) clinicians switched frequently. The number of stents sometimes influenced the therapy choice for 152 (50.50) clinicians and frequently influenced 123 (40.86). The type of angioplasty (e.g., left main stenting) sometimes determined the DAPT choice for 165 (54.82) clinicians and frequently for 113 (37.54). Of the 301 clinicians, 137 (45.51) prescribed clopidogrel to 25-50% of eligible patients, 77 (25.58) prescribed it to 50-75%, 57 (18.94) prescribed clopidogrel to <25%, and 30 (9.97) prescribed clopidogrel to >75%. Similarly, 137 clinicians (45.51) prescribed ticagrelor to 25-50% of the patients, 108 (35.88) to <25%, 40 (13.29) to 50-75%, and 16 (5.32) to >75% of the patients (Table 3).

The most preferred reasons for switching from ticagrelor to clopidogrel were major bleeding events by 170 (56.5) clinicians, followed by 92 (30.60) of them reporting adverse reactions as the most preferred, 113 (37.50) clinicians reported the need for anticoagulation, and 94 (31.20) clinicians reported creatinine levels (Figure 2).

Clopidogrel + aspirin was the most preferred combination of DAPT by 174 (57.8) clinicians, ticagrelor + aspirin by 72 (23.90) clinicians, prasugrel + aspirin by 47 (15.60) and other combinations of DAPT by 78 (25.90) clinicians (Figure 3).

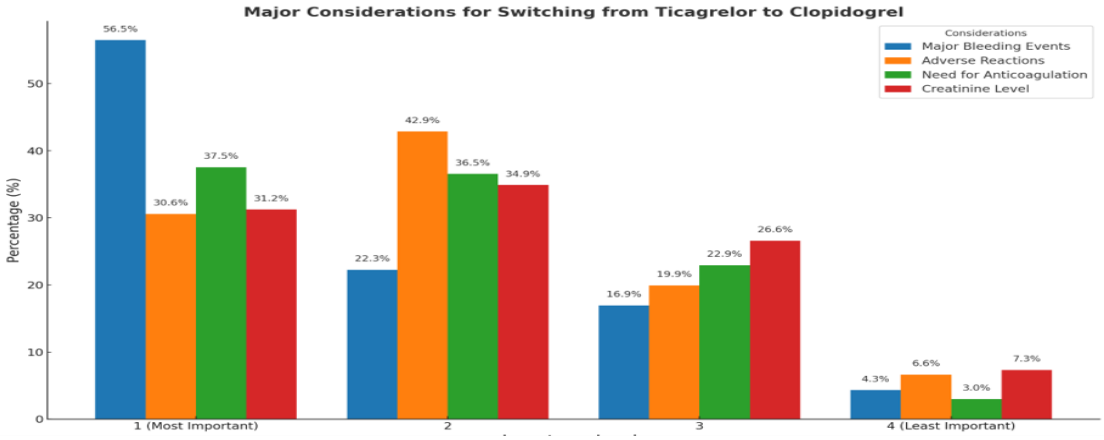

Figure 2: Major considerations for switching from ticagrelor to clopidogrel.

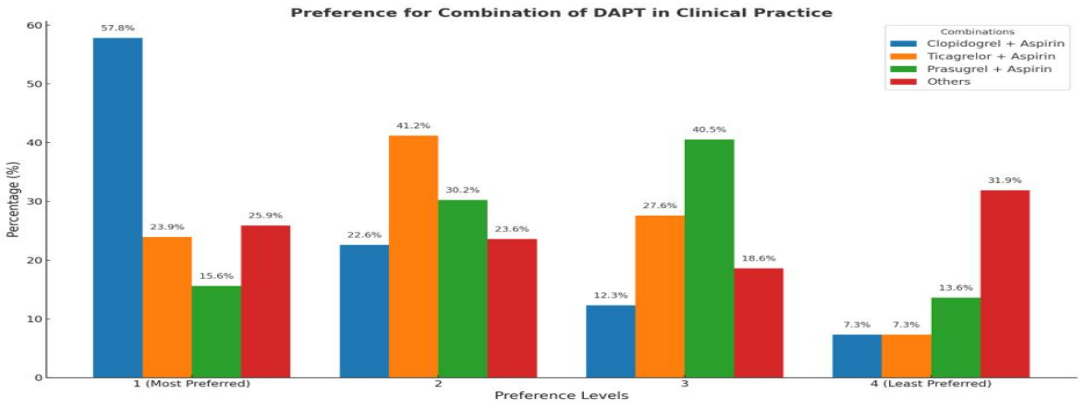

Figure 3: Preference for the combination of DAPT (1-most preferred, 4-least preferred).

Clinicians' specialty and region-wise trends analysis

Specialty-wise trends

Out of the 209 cardiologists and 64 consulting physicians, 195 (93.30) cardiologists and 42 (65.63) consulting physicians frequently prescribed DAPT post-PCI. Diabetologists/endocrinologists and other specialties followed standard DAPT practices. 124 (59.33) cardiologists preferred DAPT for >12 months in patients with high thrombotic risk, while 33 (51.56) CPs preferred a 12-month duration. Switching antiplatelet agents owing to side effects was more common among the 19 CPs (29.69).

Table 4: Distribution of different specialty-wise trends in DAPT prescription and utilization in post-PCI patients.

Questions	Options	Cardiologists (n=209)	Consulting physicians (n=64)	Diabetologists/ endocrinologists (n=7)	Other specialties (n=21)	P value
How frequently do you prescribe DAPT after PCI?	Frequently	93.30% (n=195)	65.63% (n=42)	71.43% (n=5)	80.95% (n=17)	<0.001
	Sometimes	6.70% (n=14)	34.38% (n=22)	28.57% (n=2)	19.05% (n=4)	
What duration of DAPT do you typically recommend for patients after PCI (ACS) with a DES?	<6 months	8.13% (n=17)	18.75% (n=12)	57.14% (n=4)	14.29% (n=3)	<0.001
	>12 months	43.54% (n=91)	48.44% (n=31)	14.29% (n=1)	42.86% (n=9)	
	12 months	25.84% (n=54)	21.88% (n=14)	—	28.57% (n=6)	
	6–12 months	22.49% (n=47)	10.94% (n=7)	28.57% (n=2)	14.29% (n=3)	
What duration of DAPT do you typically recommend for patients after PCI (chronic stable angina) with a DES?	<6 months	11.00% (n=23)	21.88% (n=14)	42.86% (n=3)	19.05% (n=4)	<0.001
	>12 months	45.93% (n=96)	39.06% (n=25)	14.29% (n=1)	38.10% (n=8)	
	12 months	22.01% (n=46)	17.19% (n=11)	—	19.05% (n=4)	
	6–12 months	21.05% (n=44)	21.88% (n=14)	42.86% (n=3)	23.81% (n=5)	
For patients with a high risk of thrombotic events, how long do you recommend continuing DAPT after PCI?	>12 months	59.33% (n=124)	48.44% (n=31)	28.57% (n=2)	38.10% (n=8)	<0.001
	12 months	40.67% (n=85)	51.56% (n=33)	71.43% (n=5)	61.90% (n=13)	
In patients with advanced CAD undergoing complex revascularization, how long do you continue DAPT?	<6 months	8.61% (n=18)	9.38% (n=6)	42.86% (n=3)	4.76% (n=1)	<0.001
	>12 months	43.54% (n=91)	50.00% (n=32)	57.14% (n=4)	61.90% (n=13)	
	12 months	20.57% (n=43)	20.31% (n=13)	—	23.81% (n=5)	
	6–12 months	27.27% (n=57)	20.31% (n=13)	—	9.52% (n=2)	
What percentage of patients are put on more than 3 stents?	0–10%	24.88% (n=52)	25.00% (n=16)	28.57% (n=2)	19.05% (n=4)	
	10–20%	53.11% (n=111)	57.81% (n=37)	57.14% (n=4)	52.38% (n=11)	
	20–40%	19.62% (n=41)	14.06% (n=9)	14.29% (n=1)	23.81% (n=5)	
	>40%	2.39% (n=5)	3.13% (n=2)	—	4.76% (n=1)	
How do you typically manage DAPT in patients requiring elective non-cardiac surgery soon after PCI?	Continue	32.06% (n=67)	46.88% (n=30)	14.29% (n=1)	38.10% (n=8)	<0.001
	Delay surgery	16.75% (n=35)	9.38% (n=6)	42.86% (n=3)	23.81% (n=5)	
	Discontinue	25.84% (n=54)	26.56% (n=17)	—	23.81% (n=5)	
	Switch	25.36% (n=53)	17.19% (n=11)	42.86% (n=3)	14.29% (n=3)	
How frequently do you consider bleeding	Frequently	42.11% (n=88)	46.88% (n=30)	14.29% (n=1)	38.10% (n=8)	<0.001

Continued.

Questions	Options	Cardiologists (n=209)	Consulting physicians (n=64)	Diabetologists/ endocrinologists (n=7)	Other specialties (n=21)	P value
risk while prescribing DAPT for secondary prevention?	Rarely	9.57% (n=20)	6.25% (n=4)	—	14.29% (n=3)	
	Sometimes	48.33% (n=101)	46.88% (n=30)	85.71% (n=6)	47.62% (n=10)	
How frequently do you reassess bleeding risk during follow-up after PCI?	Annually	3.83% (n=8)	1.56% (n=1)	—	—	<0.001
	Every 3 months	51.67% (n=108)	56.25% (n=36)	42.86% (n=3)	47.62% (n=10)	
	Every 6 months	16.27% (n=34)	18.75% (n=12)	28.57% (n=2)	23.81% (n=5)	
	At every visit	28.23% (n=59)	23.44% (n=15)	28.57% (n=2)	28.57% (n=6)	
How do you find the current guidelines on DAPT duration after PCI?	Clear	26.79% (n=56)	35.94% (n=23)	57.14% (n=4)	33.33% (n=7)	<0.001
	Confusing	0.48% (n=1)	10.94% (n=7)	—	4.76% (n=1)	
	Somewhat clear	7.66% (n=16)	53.13% (n=34)	—	61.90% (n=13)	
	Very clear and easy to follow	65.07% (n=136)	—	42.86% (n=3)	—	
Preferred strategy for patients requiring long-term anticoagulation in addition to DAPT post-PCI?	Dual therapy	34.45% (n=72)	51.56% (n=33)	42.86% (n=3)	57.14% (n=12)	<0.001
	Others	61.72% (n=129)	40.63% (n=26)	57.14% (n=4)	42.86% (n=9)	
	Triple therapy	3.83% (n=8)	7.81% (n=5)	—	—	
In what percentage of DAPT-eligible patients do you prefer to prescribe clopidogrel?	<25%	20.57% (n=43)	17.19% (n=11)	14.29% (n=1)	9.52% (n=2)	<0.001
	25–50%	46.41% (n=97)	43.75% (n=28)	42.86% (n=3)	42.86% (n=9)	
	50–75%	24.88% (n=52)	25.00% (n=16)	28.57% (n=2)	33.33% (n=7)	
	>75%	8.13% (n=17)	14.06% (n=9)	14.29% (n=1)	14.29% (n=3)	
In what percentage of DAPT-eligible patients do you prefer to prescribe ticagrelor?	<25%	34.93% (n=73)	45.31% (n=29)	14.29% (n=1)	23.81% (n=5)	
	25–50%	44.02% (n=92)	46.88% (n=30)	71.43% (n=5)	47.62% (n=10)	
	50–75%	13.88% (n=29)	7.81% (n=5)	14.29% (n=1)	23.81% (n=5)	
	>75%	7.18% (n=15)	—	—	4.76% (n=1)	
Does stent length/number influence the choice of antiplatelet therapy?	Frequently	44.50% (n=93)	35.94% (n=23)	14.29% (n=1)	28.57% (n=6)	<0.001
	Rarely	9.09% (n=19)	6.25% (n=4)	14.29% (n=1)	9.52% (n=2)	
	Sometimes	46.41% (n=97)	57.81% (n=37)	71.43% (n=5)	61.90% (n=13)	
Does the type of angioplasty determine the choice of DAPT?	Frequently	39.71% (n=83)	31.25% (n=20)	28.57% (n=2)	38.10% (n=8)	<0.001
	Rarely	51.67% (n=108)	62.50% (n=40)	57.14% (n=4)	—	
	Sometimes	8.61% (n=18)	6.25% (n=4)	14.29% (n=1)	61.90% (n=13)	

Continued.

Questions	Options	Cardiologists (n=209)	Consulting physicians (n=64)	Diabetologists/ endocrinologists (n=7)	Other specialties (n=21)	P value
How often do you switch patients from one antiplatelet agent to another due to side effects/AEs?	Rarely	22.49% (n=47)	29.69% (n=19)	14.29% (n=1)	33.33% (n=7)	<0.001
	Frequently	23.92% (n=50)	10.94% (n=7)	14.29% (n=1)	19.05% (n=4)	
	Sometimes	53.59% (n=112)	59.38% (n=38)	71.43% (n=5)	47.62% (n=10)	
How frequently do you observe stent thrombosis after multiple-stent setup?	Frequently	25.84% (n=54)	23.44% (n=15)	14.29% (n=1)	33.33% (n=7)	<0.001
	Rarely	27.27% (n=57)	18.75% (n=12)	57.14% (n=4)	19.05% (n=4)	
	Sometimes	46.89% (n=98)	57.81% (n=37)	28.57% (n=2)	47.62% (n=10)	

Table 5: Speciality-wise clinician Preference for the combination of DAPT (1-most preferred, 4-least preferred).

DAPT Combination	Preference Levels	Cardiologists n=209	P value and 95% CI	Consulting Physicians n=64		Diabetologists / Endocrinologists n=7		Other n=21	
Clopidogrel + Aspirin	Most Preferred (1)	57.89% (n=121)	P<0.001, 95% CI 1.54 to 1.80	59.38% (n=38)	P<0.001, 95% CI 1.477 to 1.99	28.57% (n=2)	P<0.001, 95% CI 1.24 to 2.75	61.9% (n=1)	P<0.001, 95% CI 1.20 to 2.03
	Preferred (2)	23.92% (n=50)		17.19% (n=11)		42.86% (n=3)		19.0% (n=4)	
	Less Preferred (3)	11% (n=23)		14.06% (n=9)		28.56% (n=2)		14.2% (n=3)	
	Least Preferred (4)	7.18% (n=15)		9.38% (n=6)		NIL		4.76% (n=1)	
Ticagrelor + Aspirin	Most Preferred (1)	25.84% (n=54)	P<0.001, 95% CI 2.04 to 2.29	18.75% (n=12)	P<0.001, 95% CI 2.07 to 2.48	42.86% (n=3)	P<0.001, 95% CI 1.01 to 2.41	14.2% (n=3)	P<0.001, 95% CI 1.78 to 2.50
	Preferred (2)	39.23% (n=82)		39.06% (n=25)		42.86% (n=3)		66.6% (n=1)	
	Less Preferred (3)	26.79% (n=56)		37.50% (n=24)		14.29% (n=1)		9.52% (n=2)	
	Least Preferred (4)	8.13% (n=17)		4.69% (n=3)		NIL		9.52% (n=2)	
Prasugrel + Aspirin	Most Preferred (1)	15.79% (n=33)	P<0.001, 95% CI 2.40 to 2.66	14.06% (n=9)	P<0.001, 95% CI 2.27 to 2.72	NIL	P<0.001, 95% CI 1.70 to 3.15	23.81 % (n=5)	P<0.001, 95% CI 2.02 to 2.92
	Preferred (2)	29.19% (n=61)		34.38% (n=22)		71.43% (n=5)		14.2% (n=3)	
	Less Preferred (3)	40.67% (n=85)		39.06% (n=25)		14.29% (n=1)		52.3% (n=1)	

Continued.

DAPT Combination	Preference Levels	Cardiologists n=209	P value and 95% CI	Consulting Physicians n=64		Diabetologists / Endocrinologists n=7		Other n=21	
	Least Preferred (4)	14.35% (n=30)		12.50% (n=8)		14.29% (n=1)		9.52% (n=2)	
Other	Most Preferred (1)	24.88% (n=52)	P<0.001, 95% CI 2.43 to 2.75	21.88% (n=14)	P<0.001, 95% CI 2.29 to 2.83	57.14% (n=4)	P=0.005, 95% CI 0.69 to 3.30	38.1% (n=8)	P<0.001, 95% CI 1.85 to 3.09
	Preferred (2)	24.88% (n=52)		23.44% (n=15)		14.29% (n=1)		14.2% (n=3)	
	Less Preferred (3)	16.27% (n=34)		31.25% (n=20)		NIL		9.52% (n=2)	
	Least Preferred (4)	33.97% (n=71)		23.44% (n=15)		28.57% (n=2)		38.1% (n=1)	

Zone-wise trends

Clinicians from the north had the highest adherence to prolonged DAPT use, with 51 (76.12) recommending DAPT for >12 months in patients with a high thrombotic risk. Clinicians from the south had a balanced approach, with 49 (62.82) preferring >12 months of DAPT and 29 (37.18) opting for 12 months. East India leaned towards a conservative approach, with 52 (66.67) recommending 12 months of DAPT. Of the 78 clinicians from West India, mixed trends were observed, with 14 (17.95) recommending 12 months and 14 (17.95) recommending >12 months of DAPT for patients after PCI with a DES. Bleeding risk considerations were most prominent among clinicians in the North and West, where ~45% considered bleeding risk a concern when prescribing DAPT for secondary prevention (Table 6 and 7).

Table 6: Distribution of different zone/region-wise trends in DAPT prescription and utilization in post-PCI patients.

Questions	Options	East (n=78)	North (n=67)	South (n=78)	West (n=78)	P value
How frequently do you prescribe DAPT after PCI?	Frequently	75.6% (n=59)	94.03% (n=63)	85.9% (n=67)	89.74% (n=70)	<0.001
	Sometimes	24.4% (n=19)	5.97% (n=4)	14.1% (n=11)	10.26% (n=8)	
What duration of DAPT do you typically recommend for patients after PCI (ACS) with a DES?	<6 months	9.0% (n=7)	4.48% (n=3)	12.82% (n=10)	15.38% (n=12)	<0.001
	6–12 months	65.4% (n=51)	37.31% (n=25)	26.92% (n=21)	48.72% (n=38)	
	12 months	20.5% (n=16)	28.36% (n=19)	33.33% (n=26)	17.95% (n=14)	
	>12 months	5.1% (n=4)	29.85% (n=20)	26.92% (n=21)	17.95% (n=14)	
What duration of DAPT do you typically recommend for patients after PCI (chronic stable angina) with a DES?	<6 months	17.95% (n=14)	2.99% (n=2)	5.13% (n=4)	26.92% (n=21)	<0.001
	6–12 months	61.54% (n=48)	38.81% (n=26)	41.03% (n=32)	33.33% (n=26)	
	12 months	15.38% (n=12)	19.40% (n=13)	26.92% (n=21)	20.51% (n=16)	
	>12 months	5.13% (n=4)	38.81% (n=26)	26.92% (n=21)	19.23% (n=15)	
For patients with a high risk of thrombotic events, how long do you	>12 months	66.67% (n=52)	23.88% (n=16)	37.18% (n=29)	50.00% (n=39)	<0.001

Continued.

Questions	Options	East (n=78)	North (n=67)	South (n=78)	West (n=78)	P value
recommend continuing DAPT after PCI?	12 months	33.33% (n=26)	76.12% (n=51)	62.82% (n=49)	50.00% (n=39)	
In patients with advanced CAD undergoing complex revascularization, how long do you continue DAPT?	<6 months	8.97% (n=7)	2.99% (n=2)	5.13% (n=4)	15.38% (n=12)	<0.001
	6–12 months	64.10% (n=50)	37.31% (n=25)	29.49% (n=23)	52.56% (n=41)	
	12 months	14.10% (n=11)	16.42% (n=11)	34.62% (n=27)	15.38% (n=12)	
	>12 months	12.82% (n=10)	43.28% (n=29)	30.77% (n=24)	16.67% (n=13)	
What is the percentage of patients who are put on more than 3 stents?	0–10%	30.77% (n=24)	26.87% (n=18)	15.38% (n=12)	25.64% (n=20)	<0.001
	10–20%	53.85% (n=42)	53.73% (n=36)	53.85% (n=42)	55.13% (n=43)	
	20–40%	14.10% (n=11)	19.40% (n=13)	24.36% (n=19)	16.67% (n=13)	
	>40%	1.28% (n=1)	—	6.41% (n=5)	2.56% (n=2)	
How do you typically manage DAPT in patients requiring elective non-cardiac surgery soon after PCI?	Continue	20.51% (n=16)	28.36% (n=19)	37.18% (n=29)	53.85% (n=42)	<0.001
	Delay surgery	16.67% (n=13)	11.94% (n=8)	28.21% (n=22)	7.69% (n=6)	
	Discontinue	38.46% (n=30)	34.33% (n=23)	20.51% (n=16)	15.38% (n=12)	
	Switch	24.36% (n=19)	25.37% (n=17)	14.10% (n=11)	23.08% (n=18)	
How frequently do you consider bleeding risk as a concern while prescribing DAPT for secondary prevention?	Frequently	37.18% (n=29)	44.78% (n=30)	42.31% (n=33)	44.87% (n=35)	<0.001
	Rarely	10.26% (n=8)	10.45% (n=7)	10.26% (n=8)	5.13% (n=4)	
	Sometimes	52.56% (n=41)	44.78% (n=30)	47.44% (n=37)	50.00% (n=39)	
How frequently do you reassess bleeding risk during follow-up visits post-PCI?	Annually	1.28% (n=1)	4.48% (n=3)	6.41% (n=5)	—	<0.001
	Every 3 months	53.85% (n=42)	52.24% (n=35)	47.44% (n=37)	55.13% (n=43)	
	Every 6 months	10.26% (n=8)	14.93% (n=10)	24.36% (n=19)	20.51% (n=16)	
	At every visit	34.62% (n=27)	28.36% (n=19)	21.79% (n=17)	24.36% (n=19)	
How do you find the current guidelines on DAPT duration after PCI?	Clear	30.77% (n=24)	26.87% (n=18)	38.46% (n=30)	23.08% (n=18)	<0.001
	Confusing	1.28% (n=1)	4.48% (n=3)	8.97% (n=7)	3.85% (n=3)	
	Somewhat clear	14.10% (n=11)	68.66% (n=46)	52.56% (n=41)	73.08% (n=57)	
	Very clear and easy to follow	53.85% (n=42)	—	—	—	
Preferred strategy for patients requiring long-term anticoagulation in addition to DAPT post-PCI?	Dual therapy	44.87% (n=35)	28.36% (n=19)	48.72% (n=38)	35.90% (n=28)	<0.001
	Others	50.00% (n=39)	67.16% (n=45)	2.56% (n=2)	58.97% (n=46)	
	Triple therapy	5.13% (n=4)	4.48% (n=3)	48.72% (n=38)	5.13% (n=4)	

Continued.

Questions	Options	East (n=78)	North (n=67)	South (n=78)	West (n=78)	P value
In what percentage of DAPT-eligible patients do you prefer to prescribe clopidogrel?	<25%	12.82% (n=10)	29.85% (n=20)	17.95% (n=14)	16.67% (n=13)	<0.001
	25–50%	52.56% (n=41)	38.81% (n=26)	34.62% (n=27)	55.13% (n=43)	
	50–75%	23.08% (n=18)	19.40% (n=13)	34.62% (n=27)	24.36% (n=19)	
	>75%	11.54% (n=9)	11.94% (n=8)	12.82% (n=10)	3.85% (n=3)	
In what percentage of DAPT-eligible patients do you prefer to prescribe ticagrelor?	<25%	46.15% (n=36)	35.82% (n=24)	12.82% (n=10)	48.72% (n=38)	<0.001
	25–50%	39.74% (n=31)	46.27% (n=31)	51.28% (n=40)	44.87% (n=35)	
	50–75%	12.82% (n=10)	7.46% (n=5)	26.92% (n=21)	5.13% (n=4)	
	>75%	1.28% (n=1)	10.45% (n=7)	8.97% (n=7)	1.28% (n=1)	
Does the length/number of stents influence the choice of antiplatelet therapy?	Frequently	34.62% (n=27)	46.27% (n=31)	41.03% (n=32)	42.31% (n=33)	<0.001
	Rarely	8.97% (n=7)	7.46% (n=5)	50.00% (n=39)	8.97% (n=7)	
	Sometimes	56.41% (n=44)	46.27% (n=31)	8.97% (n=7)	48.72% (n=38)	
Does the type of angioplasty determine the choice of DAPT?	Frequently	29.49% (n=23)	41.79% (n=28)	46.15% (n=36)	33.33% (n=26)	<0.001
	Rarely	7.69% (n=6)	8.96% (n=6)	51.28% (n=40)	11.54% (n=9)	
	Sometimes	62.82% (n=49)	49.25% (n=33)	2.56% (n=2)	55.13% (n=43)	
How often do you switch patients from one antiplatelet agent to another due to side effects or adverse events?	Frequently	10.26% (n=8)	26.87% (n=18)	28.21% (n=22)	33.33% (n=26)	<0.001
	Rarely	24.36% (n=19)	16.42% (n=11)	15.38% (n=12)	25.64% (n=20)	
	Sometimes	65.38% (n=51)	56.72% (n=38)	56.41% (n=44)	41.03% (n=32)	
How frequently do you observe stent thrombosis after a multiple-stent setup?	Frequently	19.23% (n=15)	25.37% (n=17)	32.05% (n=25)	25.64% (n=20)	<0.001
	Rarely	29.49% (n=23)	28.36% (n=19)	52.56% (n=41)	29.49% (n=23)	
	Sometimes	51.28% (n=40)	46.27% (n=31)	15.38% (n=12)	44.87% (n=35)	

Table 7: Region-wise clinician Preference for the combination of DAPT (1-most preferred, 4-least preferred).

DAPT Combination	Preference Level	East n=78	P value and 95% CI	North n=67	P value and 95% CI	South n=78	P value and 95% CI	West n=78	P value and 95% CI
Clopidogrel + Aspirin	Most Preferred (1)	64.1% (n=50)	P<0.001, 95% CI 1.34 to 1.75	59.7% (n=40)	P<0.001, 95% CI 1.42 to 1.88	55.1% (n=43)	P<0.001, 95% CI 1.51 to 1.94	52.6% (n=41)	P<0.001, 95% CI 1.59 to 2.04
	Preferred (2)	25.6% (n=20)		20.9% (n=14)		21.8% (n=17)		21.8% (n=17)	
	Less Preferred (3)	1.3% (n=1)		13.4% (n=9)		17.9% (n=14)		16.7% (n=13)	

Continued.

DAPT Combination	Preference Level	East n=78	P value and 95% CI	North n=67	P value and 95% CI	South n=78	P value and 95% CI	West n=78	P value and 95% CI
	Least Preferred (4)	9% (n=7)		6% (n=4)		5.1% (n=4)		9% (n=7)	
Ticagrelor + Aspirin	Most Preferred (1)	19.2% (n=15)	P<0.001, 95% CI 1.91 to 2.26	26.9% (n=18)	P<0.001, 95% CI 1.93 to 2.36	37.2% (n=29)	P<0.001, 95% CI 1.82 to 2.27	12.8% (n=10)	P<0.001, 95% CI 2.24 to 2.62
	Preferred (2)	57.7% (n=45)		37.3% (n=25)		29.5% (n=23)		39.7% (n=31)	
	Less Preferred (3)	17.9% (n=14)		29.9% (n=20)		24.4% (n=19)		38.5% (n=30)	
	Least Preferred (4)	5.1% (n=4)		6% (n=4)		9% (n=7)		9% (n=7)	
Prasugrel + Aspirin	Most Preferred (1)	12.8% (n=10)	P<0.001, 95% CI 2.45 to 2.85	16.4% (n=11)	P<0.001, 95% CI 2.15 to 2.58	25.5% (n=20)	P<0.001, 95% CI 2.01 to 2.42	7.7% (n=6)	P<0.001, 95% CI 2.62 to 3.01
	Preferred (2)	24.4% (n=19)		40.3% (n=27)		33.3% (n=36)		24.4% (n-19)	
	Less Preferred (3)	47.4% (n=37)		32.8% (n=22)		34.6% (n=27)		46.2% (n=36)	
	Least Preferred (4)	15.4% (n=12)		10.4% (n=7)		6.4% (n=5)		21.8% (n=17)	
Other	Most Preferred (1)	24.4% (n=19)	P<0.001, 95% CI 2.43 to 2.75	29.9% (n=20)	P<0.001, 95% CI 2.37 to 3.00	34.6% (n=27)	P<0.001, 95% CI 1.93 to 2.44	15.4% (n=12)	P<0.001, 95% CI 2.64 to 3.14
	Preferred (2)	28.2% (n=22)		13.4% (n=9)		32.1% (n=25)		19.2% (n=15)	
	Less Preferred (3)	20.5% (n=16)		14.9% (n=10)		12.8% (n=10)		25.6% (n=20)	
	Least Preferred (4)	26.9% (n=21)		41.8% (n=28		20.5% (n=16)		39.7% (n=31)	

The PAN India survey highlights the diverse perspectives of clinicians on optimizing DAPT after post-PCI. Most clinicians emphasize the importance of regular bleeding risk assessments during follow-up. They acknowledged the influence of procedural factors, such as stent type, number, and angioplasty complexity, on DAPT choices. Despite adherence to the guidelines, real-world practices occasionally diverge, with many clinicians adapting strategies based on side effects, patient-specific risks, or procedural complications. The preference for aspirin and clopidogrel combinations over newer agents such as ticagrelor and prasugrel reflects a pragmatic approach that balances efficacy, safety, and accessibility. While clinicians recognize the clarity of existing guidelines, variations in DAPT prescription practices reflect individualized patient care. Challenges such as bleeding risks, adverse drug reactions, and the interplay of anticoagulants underscore the need for nuanced decision-making in secondary prevention strategies.

To the best of our knowledge, no previous surveys conducted in the Indian healthcare setting have specifically explored clinicians' real-world perspectives on optimizing post-PCI DAPT. Consequently, the findings of this study fill a significant gap in understanding practice patterns and decision-making in this context. Given the absence of similar Indian surveys, comparisons in this discussion rely on insights from the existing global literature, including recommendations from the ESC of Cardiology and ACC guidelines. However, these guidelines often differ in their approach to DAPT duration, and their applicability to Indian patients may be limited owing to unique procedural challenges, such as the type of stents used, the complexity of angioplasty, and variations in revascularization strategies.

In the current survey, 86.05% of clinicians frequently prescribed DAPT after PCI, with most reporting a duration of 6-12 months in ACS, chronic stable angina, and

advanced CAD patients, and ≥12 months in high-risk thrombotic patients post-PCI. However, the optimal duration of DAPT after PCI remains unclear.[20] In patients with chronic coronary syndrome, the 2016 American College of Cardiology/American Heart Association update recommended DAPT (aspirin and a P2Y12 inhibitor) for 6 months after PCI with DES, with potential extension to those free of bleeding complications and without a high bleeding risk.[17] Patients with a high bleeding risk may discontinue DAPT at 3 months. The 2017 European Society of Cardiology update recommends a 6-month DAPT for chronic coronary syndrome, with prolongation for patients with low bleeding but high thrombotic risk and 1–3 months for those with high bleeding risk.[21] For ACS, both guidelines recommend at least 12 months of DAPT, with a potential extension beyond 12 months for lower bleeding risk and 6 months for high bleeding risk. Both recommend indefinite aspirin monotherapy after DAPT discontinuation.[17,21]

These recommendations were based on evidence from 15 randomized controlled trials of patients with predominantly chronic coronary syndrome.[22] Recent trials include ACS studies and those examining ≤ 3 months of DAPT followed by aspirin discontinuation rather than a P2Y12 inhibitor.[23-26] An updated trial-level network meta-analysis comparing DAPT duration and antiplatelet monotherapy strategies after DAPT discontinuation in patients undergoing PCI with DES in acute or chronic settings concluded that extended-term (>12-month) DAPT was associated with less myocardial infarction than 12-month DAPT or short-term to midterm (≤6-month) DAPT followed by aspirin or P2Y12 inhibitor monotherapy after PCI with drug-eluting stents or ACS. Extended-term DAPT was associated with a higher risk of major bleeding than the other DAPT groups, except for ACS patients. Compared with 12-month DAPT, short-term DAPT followed by P2Y12 inhibitor monotherapy showed a favorable net clinical benefit in selected patients. At the same time, long-term DAPT plays a role in patients with a low bleeding risk but a higher ischemic risk, such as ACS. A personalized approach that considers each patient's ischemia and bleeding risk should guide the intensity and duration of DAPT after PCI.[27]

In the current survey, responses regarding the management of DAPT for non-cardiac surgeries (NCS) post-PCI were mixed: 35.22% of clinicians preferred continuing therapy, 25.25% suggested discontinuation, 23.26% opted to switch therapy, and 16.28% advised delaying surgery. A review by Banerjee et al.[28] presented clinical scenarios discussing strategies for managing perioperative antiplatelet therapy in post-PCI patients. The case presentations highlight the need to consider ischemic complications, consequences of delayed surgery, and perioperative bleeding in post-PCI patients on DAPT undergoing NCS, and to individualize treatment decisions based on clinical risks and benefits. Evidence for improved DES safety, particularly with newer-generation stent platforms, from studies on DAPT duration, along with a patient-level analysis of trials involving newer-generation DES with 3- or 6-month DAPT, has led to guideline modifications.[29,20] The prior Class I recommendation that elective NCS in DES recipients be delayed for 1 year has been modified to at least 6 months; the prior Class IIb recommendation to consider NCS after 180 days has been reduced to 3 months.17 Clinical decisions regarding DAPT management in post-PCI patients scheduled for NCS are complex and require an astute clinician, a highly individualized and collaborative approach to patient care, and team-based decision-making. The lack of high-quality evidence in this area underscores the need for well-designed and adequately powered clinical studies to guide clinical practice.

In the current survey, the most preferred reason for switching from ticagrelor to clopidogrel was major bleeding events (56.5) by clinicians, followed by 30.60% reporting adverse reactions. Recent studies have shown that switching between ticagrelor and clopidogrel, especially from ticagrelor to clopidogrel, is common in ACS patients, mainly due to OAT needs, bleeding, and doctors' advice.[30-32,34-36] The initial DAPT selection in clinical practice is affected by patient characteristics, estimated safety, access, affordability, side effects, and preference, which might not describe the reasons for switching.[30,33] Although some studies have reported de-escalation safety, the follow-up duration was short.[30,31,33,35] A single-center, randomized, prospective cohort study found that de-escalation did not increase the risk of bleeding compared with clopidogrel after 12 months of follow-up, suggesting it may be safe. Ticagrelor increases the incidence of minor bleeding events, potentially leading patients to switch to clopidogrel. De-escalation due to minor bleeding may reduce antiplatelet benefits.30 In a large, contemporary, population-based cohort study of patients who underwent PCI for ACS, outpatient use of ticagrelor was not associated with a lower risk of MACE compared with clopidogrel; however, it was associated with a higher risk of major bleeding and dyspnea. Conversely, adherence to any P2Y12 inhibitor therapy was associated with a 21% lower relative risk of MACE compared with P2Y12 inhibitor nonadherence.[37]

In the current survey, 45.51% of patients were prescribed clopidogrel and ticagrelor to 25-50% of eligible patients. Antiplatelet management is key to preventing vascular complications post-ACS. Clopidogrel was previously preferred, but its hepatic metabolism caused delayed onset, prolonged action, and potential resistance.[38,39] This led to the development of ticagrelor, which acts reversibly via adenosine-mediated vasoactivity. A meta-analysis of eight studies by Maqbool et al suggested that ticagrelor was superior to clopidogrel in reducing all-cause mortality, M.I., and stroke occurrence; however, stent thrombosis events were comparable. The number of bleeding events was higher in the ticagrelor group.[38] A high on-treatment platelet reactivity (HTPR) increases the risk of adverse outcomes. Winter et al. found that, in STEMI patients, a ticagrelor loading dose (180 mg) did not significantly

improve angiographic and electrocardiographic myocardial reperfusion parameters compared with clopidogrel (600 mg).[40]

In the current survey, clopidogrel + aspirin was the most preferred DAPT combination, chosen by 57.8% of clinicians, and ticagrelor + aspirin by 23.90%. A network meta-analysis found that DAPT was superior to aspirin in preventing recurrent stroke and death. However, there were no significant differences between clopidogrel and aspirin, and between ticagrelor and aspirin. Clopidogrel and aspirin use was associated with a decreased risk of functional disability compared to ticagrelor and aspirin.[41] This aligns with the European Stroke Organization's rapid review, which indicates more substantial evidence for the acute, short-term use of clopidogrel and aspirin compared with ticagrelor and aspirin in minor ischemic stroke and TIA populations.[42] This is due to more trials evaluating clopidogrel and aspirin in our study cohort.[43,44] Conversely, the THALES trial was the only RCT evaluating ticagrelor and aspirin versus aspirin and found that the risk of severe hemorrhage was higher among patients who received ticagrelor–aspirin than among those who received aspirin alone during a 30-day treatment period.[45] Our results support this finding, suggesting clopidogrel and aspirin as the preferred treatment options for preventing recurrent strokes and death at 30 and 90 days. A trend favored clopidogrel and aspirin over ticagrelor and aspirin to prevent functional disability and bleeding complications. This aligns with a meta-analysis and real-world cohort studies reporting higher rates of bleeding events with ticagrelor DAPT than with clopidogrel DAPT following MI and PCI.[46,47]

Thus, this study highlights an opportunity for clinicians to integrate real-world practice insights into clinical judgment to optimize DAPT duration post-PCI. Decision-making necessitates careful consideration of multiple factors, including stent type, angioplasty complexity, and patient-specific variables, which may not always align with generalized guideline recommendations. While guidelines provide a broad framework, applying them to individual patients can be challenging because they often present generalized strategies that may not address the nuanced risk-benefit assessment required for individualized treatment decisions. This study underscores the complexity of balancing diverse clinical variables when developing a cohesive and practical approach to DAPT optimization.

Strengths

The survey included clinicians from diverse regions across India, ensuring broad geographical and demographic representation of real-world practices. A wide range of healthcare professionals, including cardiologists, interventional cardiologists, and diabetologists, contributed their insights, enriching the findings. By focusing on real world clinical practices, the study provides practical perspectives on DAPT optimization and the use of aspirin-clopidogrel fixed dose combinations for secondary prevention.

Limitations

Despite these strengths, the survey had certain limitations. Convenience sampling may have introduced selection bias, potentially limiting the generalizability of the findings. Reliance on self-reported responses raises the possibility of recall or social desirability biases. The study captured clinicians' perspectives and practices but did not correlate these with patient outcomes. Finally, the cross-sectional design provides only a temporal snapshot of practices and does not capture longitudinal changes or evolving trends.

CONCLUSION

This survey revealed nuanced clinical practices among Indian cardiology practitioners for optimizing DAPT post-PCI. Regular assessments of bleeding risk remain critical in determining therapy duration and agent selection. Procedural considerations frequently influence therapeutic decisions, including the type of angioplasty, stent characteristics, and patient-specific risk factors such as adverse effects or concurrent anticoagulation requirements. Clinicians routinely adapt their approach, including modifying antiplatelet agents to address adverse events and demonstrating a patient-centered approach to care. When clinically indicated, the preference for aspirin and clopidogrel combinations over newer agents underscores their established efficacy, safety profile, and ease of administration for secondary prevention of cardiovascular events. While challenges such as managing adherence and mitigating bleeding risks persist, clinicians find existing guidelines clear and actionable, facilitating evidence-based decision-making for DAPT optimization across diverse patient scenarios.

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REFERENCES

1. Sidhu NS, Rangaiah SKK, Ramesh D, Veerappa K, Manjunath CN. Clinical characteristics, management strategies, and in-hospital outcomes of acute coronary syndrome in a low socioeconomic status cohort: an

observational study from urban India. Clin Med Insights Cardiol. 2020;14: 1179546820918897.
2. World Health Organization. Noncommunicable diseases country profiles 2018. Geneva: WHO; 2018.
3. Prabhakaran D, Jeemon P, Roy A. Cardiovascular diseases in India: current epidemiology and future directions. Circulation. 2016;133(16):1605-20.
4. Gupta R, Gaur K. Epidemiology of acute coronary syndromes in India. In: Cardiovascular disease in India. Boca Raton: CRC Press; 2020.
5. Mardikar HM, Deshpande NV, Admane P. Changing management of acute MI - perspectives from India. EuroIntervention. 2012;8(Suppl P):P55-61.
6. Alexander T, Mehta S, Mullasari A, Nallamothu BK. Systems of care for ST-elevation myocardial infarction in India. Heart. 2012;98(1):15-17.
7. Angiolillo DJ, Galli M, Collet JP, Kastrati A, O'Donoghue ML. Antiplatelet therapy after percutaneous coronary intervention. EuroIntervention. 2022;17(17):e1371-96.
8. Cao D, Chandiramani R, Chiarito M, Claessen BE, Mehran R. Evolution of antithrombotic therapy in patients undergoing percutaneous coronary intervention: a 40-year journey. Eur Heart J. 2020;42(4):339-51.
9. Capodanno D, Alfonso F, Levine GN, Valgimigli M, Angiolillo DJ. ACC/AHA versus ESC guidelines on dual antiplatelet therapy: JACC guideline comparison. J Am Coll Cardiol. 2018;72(23 Pt A):2915-31.
10. Prasad A, Herrmann J. Myocardial infarction due to percutaneous coronary intervention. N Engl J Med. 2011;364(5):453-64.
11. Moon JY, Franchi F, Rollini F, Angiolillo DJ. Evolution of coronary stent technology and implications for duration of dual antiplatelet therapy. Prog Cardiovasc Dis. 2018;60(4-5):478-90.
12. Gargiulo G, Valgimigli M, Capodanno D, Bittl JA. State of the art: duration of dual antiplatelet therapy after percutaneous coronary intervention and coronary stent implantation - past, present and future perspectives. EuroIntervention. 2017;13(6):717-33.
13. Collet JP, Thiele H, Barbato E, Barthélémy O, Bauersachs J, Bhatt DL, et al. 2020 ESC guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation. Eur Heart J. 2021;42(14):1289-1367.
14. Ibanez B, James S, Agewall S, Antunes MJ, Bucciarelli-Ducci C, Bueno H, et al. 2017 ESC guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation. Eur Heart J. 2018;39(2):119-77.
15. Windecker S, Kolh P, Alfonso F, Collet JP, Cremer J, Falk V, et al. 2014 ESC/EACTS guidelines on myocardial revascularization. EuroIntervention. 2015;10(9):1024-94.
16. Roffi M, Patrono C, Collet JP, Mueller C, Valgimigli M, Andreotti F, et al. 2015 ESC guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation. Eur Heart J. 2016;37(3):267-315.
17. Levine GN, Bates ER, Bittl JA, Brindis RG, Fihn SD, Fleisher LA, et al. 2016 ACC/AHA guideline focused update on duration of dual antiplatelet therapy in patients with coronary artery disease. J Am Coll Cardiol. 2016;68(10):1082-1115.
18. Levine GN, Bates ER, Blankenship JC, Bailey SR, Bittl JA, Cercek B, et al. 2011 ACCF/AHA/SCAI guideline for percutaneous coronary intervention. Circulation. 2011;124(23):e574-e651.
19. Palmerini T, Biondi-Zoccai G, Della Riva D, Mariani A, Sabaté M, Smits PC, et al. Clinical outcomes with bioabsorbable polymer- versus durable polymer-based drug-eluting and bare-metal stents: evidence from a comprehensive network meta-analysis. J Am Coll Cardiol. 2014;63(4):299-307.
20. Navarese EP, Andreotti F, Schulze V, Kołodziejczak M, Buffon A, Brouwer M, et al. Optimal duration of dual antiplatelet therapy after percutaneous coronary intervention with drug eluting stents: meta-analysis of randomised controlled trials. BMJ. 2015;350:h1618.
21. Valgimigli M, Bueno H, Byrne RA, Collet JP, Costa F, Jeppsson A, et al. 2017 ESC focused update on dual antiplatelet therapy in coronary artery disease developed in collaboration with EACTS. Eur Heart J. 2018;39(3):213-60.
22. Udell JA, Bonaca MP, Collet JP, Lincoff AM, Kereiakes DJ, Costa F, et al. Long-term dual antiplatelet therapy for secondary prevention of cardiovascular events in the subgroup of patients with previous myocardial infarction: a collaborative meta-analysis of randomized trials. Eur Heart J. 2016;37(4):390-9.
23. Hahn JY, Song YB, Oh JH, Chun WJ, Park YH, Jang WJ, et al. Effect of P2Y12 inhibitor monotherapy vs dual antiplatelet therapy on cardiovascular events in patients undergoing percutaneous coronary intervention: the SMART-CHOICE randomized clinical trial. JAMA. 2019;321(24):2428-37.
24. Vranckx P, Valgimigli M, Jüni P, Hamm C, Steg PG, Heg D, et al. Ticagrelor plus aspirin for 1 month, followed by ticagrelor monotherapy for 23 months vs aspirin plus clopidogrel or ticagrelor for 12 months, followed by aspirin monotherapy for 12 months after implantation of a drug-eluting stent: a multicentre, open-label, randomised superiority trial. Lancet. 2018;392(10151):940-9.
25. Watanabe H, Domei T, Morimoto T, Natsuaki M, Shiomi H, Toyota T, et al. Effect of 1-month dual antiplatelet therapy followed by clopidogrel vs 12-month dual antiplatelet therapy on cardiovascular and bleeding events in patients receiving PCI: the STOPDAPT-2 randomized clinical trial. JAMA. 2019;321(24):2414-27.
26. Mehran R, Baber U, Sharma SK, Cohen DJ, Angiolillo DJ, Briguori C, et al. Ticagrelor with or without aspirin in high-risk patients after PCI. N Engl J Med. 2019;381(21):2032-42.

27. Khan SU, Singh M, Valavoor S, Khan MU, Lone AN, Khan MZ, et al. Dual antiplatelet therapy after percutaneous coronary intervention and drug-eluting stents: a systematic review and network meta-analysis. Circulation. 2020;142(15):1425-36.
28. Banerjee S, Angiolillo DJ, Boden WE, Murphy JG, Khalili H, Hasan AA, et al. Use of antiplatelet therapy/DAPT for post-PCI patients undergoing noncardiac surgery. J Am Coll Cardiol. 2017;69(14):1861-70.
29. Palmerini T, Sangiorgi D, Valgimigli M, Biondi-Zoccai G, Feres F, Abizaid A, et al. Short- versus long-term dual antiplatelet therapy after drug-eluting stent implantation: an individual patient data pairwise and network meta-analysis. J Am Coll Cardiol. 2015;65(11):1092-1102.
30. Li XY, Su GH, Wang GX, Hu HY, Fan CJ. Switching from ticagrelor to clopidogrel in patients with ST-segment elevation myocardial infarction undergoing successful percutaneous coronary intervention in real-world China: occurrences, reasons, and long-term clinical outcomes. Clin Cardiol. 2018;41(11):1446-54.
31. Wang X, Xi S, Liu J, Qin L, Jing J, Yin T, et al. Switching between ticagrelor and clopidogrel in patients who underwent percutaneous coronary intervention: insight into contemporary practice in Chinese patients. Eur Heart J Suppl. 2016;18(suppl F):F19-26.
32. Zettler ME, Peterson ED, McCoy LA, Effron MB, Anstrom KJ, Henry TD, et al. Switching of adenosine diphosphate receptor inhibitor after hospital discharge among myocardial infarction patients: insights from the TRANSLATE-ACS observational study. Am Heart J. 2017;183:62-8.
33. Bagai A, Peterson ED, Honeycutt E, Effron MB, Cohen DJ, Goodman SG, et al. In-hospital switching between adenosine diphosphate receptor inhibitors in patients with acute myocardial infarction treated with percutaneous coronary intervention: insights into contemporary practice from the TRANSLATE-ACS study. Eur Heart J Acute Cardiovasc Care. 2015;4(6):499-508.
34. Deharo P, Quilici J, Camoin-Jau L, Johnson TW, Bassez C, Bonnet G, et al. Benefit of switching dual antiplatelet therapy after acute coronary syndrome according to on-treatment platelet reactivity: the TOPIC-VASP pre-specified analysis of the TOPIC randomized study. JACC Cardiovasc Interv. 2017;10(24):2560-70.
35. Biscaglia S, Campo G, Pavasini R, Tebaldi M, Tumscitz C, Ferrari R. Occurrence, causes, and outcome after switching from ticagrelor to clopidogrel in a real-life scenario: data from a prospective registry. Platelets. 2016;27(5):484-7.
36. Franchi F, Rollini F. Switching from ticagrelor to clopidogrel: new answers and further questions. Thromb Haemost. 2017;117(2):207-8.
37. Turgeon RD, Koshman SL, Youngson E, Har B, Wilton SB, James MT, et al. Association of ticagrelor vs clopidogrel with major adverse coronary events in patients with acute coronary syndrome undergoing percutaneous coronary intervention. JAMA Intern Med. 2020;180(3):420-8.
38. Maqbool S, Ali MS, Rehman A, Ur Rehman ME, Iqbal J, Razzaq A, et al. Efficacy and safety profile of ticagrelor versus clopidogrel in percutaneous coronary intervention (PCI) for acute coronary syndrome (ACS): a systematic review and meta-analysis. Cureus. 2023;15(10):e46455.
39. Winter MP, Koziński M, Kubica J, Aradi D, Siller-Matula JM. Personalized antiplatelet therapy with P2Y12 receptor inhibitors: benefits and pitfalls. Postepy Kardiol Interwencyjnej. 2015;11(4):259-80.
40. Winter JL, Lindefjeld DS, Veas N, Guarda E, Valdebenito M, Méndez M, et al. Angiographic and electrocardiographic parameters of myocardial reperfusion in angioplasty of patients with ST elevation acute myocardial infarction loaded with ticagrelor or clopidogrel (MICAMI-TICLO trial). Cardiovasc Revasc Med. 2014;15(5):284-8.
41. Lun R, Dhaliwal S, Zitikyte G, Roy DC, Hutton B, Dowlatshahi D. Comparison of ticagrelor vs clopidogrel in addition to aspirin in patients with minor ischemic stroke and transient ischemic attack: a network meta-analysis. JAMA Neurol. 2022;79(2):141-8.
42. Dawson J, Merwick Á, Webb A, Dennis M, Ferrari J, Fonseca AC. European Stroke Organisation expedited recommendation for the use of short-term dual antiplatelet therapy early after minor stroke and high-risk TIA. Eur Stroke J. 2021;6(2):CLXXXVII-CXCI.
43. Wang Y, Wang Y, Zhao X, Liu L, Wang D, Wang C, et al. Clopidogrel with aspirin in acute minor stroke or transient ischemic attack. N Engl J Med. 2013;369(1):11-9.
44. Johnston SC, Easton JD, Farrant M, Barsan W, Conwit RA, Elm JJ, et al. Clopidogrel and aspirin in acute ischemic stroke and high-risk TIA. N Engl J Med. 2018;379(3):215-25.
45. Johnston SC, Amarenco P, Denison H, Evans SR, Himmelmann A, James S, et al. Ticagrelor and aspirin or aspirin alone in acute ischemic stroke or TIA. N Engl J Med. 2020;383(3):207-17.
46. Alfredsson J, Omar K, Csog J, Venetsanos D, Janzon M, Ekstedt M. Bleeding complications with clopidogrel or ticagrelor in ST-elevation myocardial infarction patients: a real life cohort study of two treatment strategies. Int J Cardiol Heart Vasc. 2020;27:100495.
47. Guan W, Lu H, Yang K. Choosing between ticagrelor and clopidogrel following percutaneous coronary intervention: a systematic review and meta-analysis (2007-2017). Medicine (Baltimore). 2018;97(43):e12978.

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