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Indian Perspective on Antiplatelet De-escalation from Dual Antiplatelet Therapy to Single Antiplatelet Therapy – INDEPTH INSIGHT Survey

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Abstract

Background: Dual antiplatelet therapy (DAPT) is used for secondary prevention after percutaneous coronary intervention (PCI), but prolonged use raises bleeding risk. De-escalation to single antiplatelet therapy balances ischemic protection and safety.

Objective: This study aimed to assess cardiologists' knowledge, decision-making, treatment preferences and prescribing behaviors related to antiplatelet de-escalation in the Indian context.

Methods: A cross-sectional survey involving 384 Indian cardiologists with 18 questions assessed awareness of genetic and platelet testing, de-escalation, clopidogrel resistance, and adverse events. Participation was voluntary, and responses were analyzed descriptively to reduce bias.

Results: The survey demonstrated that 46.9% considered genetic testing relevant. However, its routine use remains limited, with greater reliance on platelet function testing (64.3%) and clinical judgement. High bleeding-risk (HBR) patients without genetic testing often switch to clopidogrel after 1-3 months (62.0%), while non-HBR patients typically use ticagrelor/prasugrel for 12 months (52.3%). Management of clopidogrel resistance followed guidelines, with 76.3% switching to another P2Y12 inhibitor. Most reported occasional (35.4%) transitions to prasugrel/ticagrelor, while ticagrelor-to-clopidogrel switches were rare (38.5%). Adverse events (AEs) prompted therapy changes, with dyspnea (58.6%) being most common, leading to switching to clopidogrel. Major bleeding (70.4%), age ≥75 (39.2%), and low body weight (<60kg, 32.7%) caused prasugrel discontinuation. In patients on oral anticoagulation, clopidogrel was preferred initially (61.7%) and after DAPT (77.6%), emphasizing its safety. Triple therapy mainly preferred clopidogrel (86.5%).

Conclusion: Indian cardiologists prefer clopidogrel for OAC and triple therapy, following guidelines. De-escalation depends on bleeding risk and resistance. Still, gaps persist in routine adoption of precision-guided approaches.

Keywords: Clopidogrel Resistance; De-Escalation Strategies; Dual-Antiplatelet Therapy; Genetic Testing; Triple Therapy

Introduction

Coronary artery disease (CAD) remains a leading cause of morbidity and mortality worldwide, with India bearing a particularly high burden due to rising cardiovascular risk and increasing use of percutaneous coronary intervention (PCI). The prevalence of CAD in India varies widely across

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studies, but population-based research shows that CAD prevalence in urban Indian adult's ranges from 10.0% to 12.0%, and in rural adults from 4.0% to 6.0%, indicating a consistently higher burden in urban populations than in rural ones [1]. Secondary prevention strategies are critical to reducing recurrent ischemic events, and antiplatelet therapy plays a central role in this care [2]. The epidemiological landscape of CAD in India is influenced by demographic and socioeconomic factors that differ from those in Western populations. Rapid urbanization, lifestyle modifications, and an increase in risk factors such as diabetes, hypertension, and dyslipidemia contribute to an earlier onset of CAD within Indian settings [3]. These factors highlight the importance of antiplatelet therapy in real-world Indian practice, where resource constraints and diverse clinical settings require evidence-based approaches. Dual antiplatelet therapy (DAPT), typically combining aspirin with a P2Y12 inhibitor, has long been established as the standard of care following PCI and in acute coronary syndromes (ACS). Prolonged DAPT reduces the risk of stent thrombosis and recurrent myocardial infarction (MI), but it also significantly increases bleeding risk, especially in elderly patients, those with comorbidities, or those requiring concomitant oral anticoagulation (OAC) [4,5]. The 2025 ACC/AHA guideline emphasizes individualized therapy duration, careful bleeding risk stratification, and consideration of de-escalation to single antiplatelet therapy (SAPT) in selected patients to optimize safety without compromising efficacy. De-escalation may involve switching from a potent P2Y12 inhibitor (prasugrel or ticagrelor) to clopidogrel. However, de-escalation must be implemented with careful patient selection, as premature discontinuation of antiplatelet therapy or inappropriate de-escalation in high-risk patients may increase the risk of recurrent MI or stent thrombosis [6]. Despite clear evidence supporting risk-specific de-escalation strategies, real-world clinical practice shows considerable variability. In India, where diverse practice settings are prevalent, understanding cardiologists' approaches to de-escalation is essential to bridge the gap between guideline recommendations and routine clinical practice. Previous real-world evidence from Western populations has highlighted significant gaps between guideline recommendations and clinical practice. A large Australian registry found nearly 30% of ACS patients weren't discharged on DAPT, with 24.1% on single antiplatelet therapy and 5.5% on no antiplatelet therapy, despite guidelines. These findings reveal treatment discrepancies based on risk [7] However, data on de-escalation patterns in India are limited, and the factors that inform clinical decision-making remain poorly characterized. The INDEPTH INSIGHT survey was designed to evaluate practicing cardiologists' knowledge and clinical decision-making regarding the de-escalation of antiplatelet therapy. The survey focuses on the perceived role of genetic and platelet function testing, strategies for high-bleeding risk (HBR) and non-HBR patients, management of clopidogrel resistance, the impact of drug-related adverse events, and preferences for OAC and triple therapy.

Material and Method

Study Design

This study was designed as a quantitative, cross-sectional, questionnaire-based survey conducted over a defined study period. The objective of the survey was to assess real-world clinical practices, prescribing patterns, and perspectives related to antiplatelet therapy among healthcare professionals in India. The study employed a structured approach to capture responses across diverse clinical settings and specialties.

Ethical Considerations

The survey was conducted in accordance with the principles of the Helsinki Declaration, the International Conference on Harmonization-Good Clinical Practice (GCP), the Indian Council of Medical Research, and Indian GCP standards. As this survey did not involve any intervention, ethical clearance by an external ethics review board was deemed unnecessary to comply with local legislation and national requirements. As the current survey aimed to investigate Indian cardiologists' practices and treatment recommendations, no formal sample size estimate was conducted.

Participants and Recruitment

The survey included board-certified cardiologists with active clinical practice. Cardiologists exclusively in non-clinical or research-only roles were excluded. Recruitment was carried out through a secure online platform, ensuring voluntary participation and maintaining anonymity. The survey was carried out from December 2025 to January 2026. A total of 384 cardiologists completed the survey, representing a range of practice settings and geographic regions.

Questionnaire development

The questionnaire was reviewed by 6 cardiologists with expertise in interventional cardiology for content validity and clinical relevance prior to deployment. It was informed by contemporary guideline recommendations on antiplatelet therapy, adapted to the Indian clinical context. The questionnaire comprised 18 multiple-choice questions covering cardiologists' perspectives on genetic and platelet function testing, de-escalation strategies for patients at HBR and non-HBR, management of clopidogrel resistance, adverse-event-driven therapy modifications, and preferences for OAC and triple therapy (table 1).

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Data collection

The survey was administered electronically using a secure, web-based survey tool. Participants accessed the questionnaire through a shared link and submitted their responses online. No personally identifiable information, such as names, contact details, or institutional affiliations, was collected to ensure respondent anonymity. Data was automatically recorded and stored in a password-protected database accessible only to the study investigators.

Data analysis

Data obtained from the survey responses were compiled and analyzed using Microsoft Excel (Microsoft Corporation, Redmond, WA, USA). Descriptive statistical methods were employed to summarize the data. Categorical variables were expressed as frequencies and percentages.

Results

Precision-Guided Testing and Risk-Stratification in Antiplatelet Therapy

Most cardiologists (46.9%) considered genetic testing definitively relevant in the Indian context, whereas 35.7% believe it might be relevant depending on clinical evidence. Conversely, 17.4% of experts did not find it necessary for routine practice (figure 1A). Regarding the role of genetic testing in selecting P2Y12 inhibitors, 62.8% of physicians regarded it as useful but not widely accessible. While 16.9% considered it essential for all patients, 12.0% regarded it as unnecessary, and 8.3% reported no role in routine practice (figure 1B). For assessing platelet function prior to de-escalation, platelet aggregation testing was the most frequently employed method (31.8%), followed by clinical expertise (25.8%) and bleeding risk scores (25.8%). Only 16.7% of clinicians relied on genetic testing for this purpose (figure 1C). In guiding de-escalation therapy, the majority (62.2%) viewed genetic testing as situationally relevant, while 22.1% considered it moderately important. Only 12.2% considered it as minimally important, and 3.4% did not consider it relevant (figure 1D). Platelet function testing (PFT) played a more prominent role, 64.3% of cardiologists used it to guide de-escalation therapy, with 18.8% reporting consistent use and 16.9% indicating infrequent use in making de-escalation strategies (figure 1E).

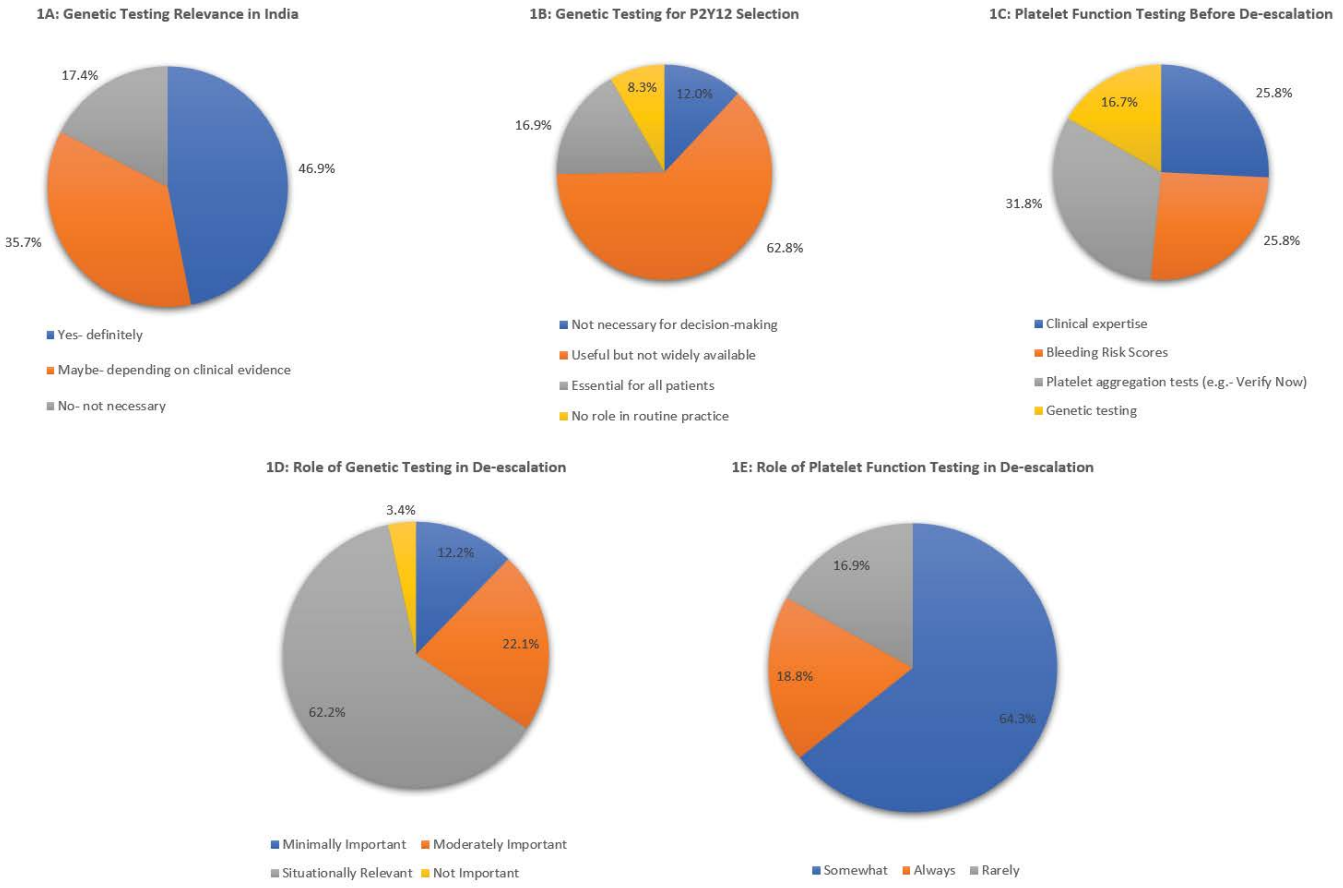

Figure 1: Precision-Guided Testing and Risk-Stratification in Antiplatelet Therapy

1A: Genetic testing relevance in India; **1B:** Genetic testing for P2Y12 selection; **1C:** Platelet function testing before de-escalation; **1D:** Role of genetic testing in de-escalation; **1E:** Role of platelet function testing in de-escalation.

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Table 1: Survey Questionnaire.

Type of Question	Question	Options
Single Choice	1. In the Indian context, how relevant is genetic testing?	a) Yes – definitely
		b) Maybe – depending on clinical evidence
		c) No – not necessary
Single Choice	2. What is the role of genetic testing in selecting P2Y12 inhibitors?	a) Not necessary for decision-making
		b) Useful but not widely available
		c) Essential for all patients d) No role in routine practice
Single Choice	3. Which method is commonly used to assess platelet function before deciding on de-escalation?	a) Clinical expertise
		b) Bleeding risk scores
		c) Platelet aggregation tests (e.g., VerifyNow)
		d) Genetic testing
Single Choice	4. How important is genetic testing in guiding de-escalation therapy?	a) Minimally important
		b) Moderately important
		c) Situationally relevant
		d) Not important
Single Choice	5. How significant is platelet function testing in guiding de-escalation therapy?	a) Rarely
		b) Somewhat
		c) Always
Single Choice	6. In HBR patients without genetic testing, which de-escalation approach is most practical?	a) Use of aspirin monotherapy after 3 months
		b) Empirical switch from ticagrelor/prasugrel to clopidogrel after 1–3 months in stable patients
		c) Continue ticagrelor/prasugrel for 12 months irrespective of risk factors
		d) Combine clopidogrel with ticagrelor for a short period before full transition
Single Choice	7. In non-HBR patients without genetic testing, which de-escalation approach is most practical?	a) Use of aspirin monotherapy after 3 months
		b) Continue ticagrelor/prasugrel for 12 months irrespective of risk factors
		c) Empirical switch from ticagrelor/prasugrel to clopidogrel after 1–3 months in stable patients
		d) Combine clopidogrel with ticagrelor for a short period before full transition
Single Choice	8. What strategies do you use when faced with suspected or confirmed clopidogrel resistance?	a) Switch to an alternative P2Y12 inhibitor
		b) Conduct genetic testing for CYP2C19 polymorphisms
		c) Increase the dose of clopidogrel (e.g., 150 mg daily)
		d) Perform platelet function testing to confirm resistance before modifying therapy e) Other
Single Choice	9. How often do you switch to prasugrel/ ticagrelor in clopidogrel resistance?	a) Rarely
		b) Occasionally
		c) Frequently
		d) Always
Single Choice	10. How often do you switch from ticagrelor to clopidogrel?	a) Rarely (≤25% of cases)
		b) Occasionally (25–50% of cases)
		c) Very frequently (>50% of cases)
		d) Never
MCQ	11. What ticagrelor side effects most commonly lead to switching therapy?	a) Minor bleeding concerns
		b) Dyspnea
		c) Major bleeding events
		d) Bradycardia or conduction abnormalities
Scale (1–5)	12. How do prasugrel side effects impact switching decisions?	1 = Lowest impact 5 = Highest impact

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MCQ	13. What prasugrel side effects most commonly lead to switching therapy?	a) Low body weight (<60 kg)
		b) Major bleeding events
		c) Age ≥75 years
		d) Minor bleeding concerns
MCQ	14. What is your preferred antiplatelet choice in OAC patients during the initial phase?	a) Ticagrelor
		b) Dual antiplatelet therapy (aspirin + P2Y12 inhibitor)
		c) Clopidogrel
		d) Prasugrel
Single Choice	15. What is your preferred antiplatelet choice in OAC patients after DAPT?	a) Ticagrelor
		b) Clopidogrel
		c) Dual antiplatelet therapy (aspirin + P2Y12 inhibitor)
		d) Prasugrel
Scale (1–5)	16. What are the biggest challenges in managing OAC + PCI patients?	1 = Least challenging 5 = Most challenging
Scale (1–5)	17. How do you approach shortening DAPT in OAC patients?	1 = Least aggressive 5 = Most aggressive
Single Choice	18. What is your preferred antiplatelet agent in triple therapy (OAC + DAPT)?	a) Ticagrelor
		b) Clopidogrel
		c) Prasugrel

De-escalation Approach in High Bleeding Risk and Non-High Bleeding Risk Patients Without Genetic Testing

1A: Among HBR patients without access to genetic testing, the majority (62.0%) of cardiologists favoured empirical de-escalation to clopidogrel after 1-3 months. Approximately 18.2% continued potent P2Y12 inhibitors (ticagrelor/prasugrel) for 12 months, whereas 17.7% switched to aspirin monotherapy after 3 months. A small proportion (2.1%) employed transitional dual therapy strategies (Fig 2A). Whereas, among non-HBR patients without genetic testing, most cardiologists (52.3%) preferred to continue ticagrelor or prasugrel for 12 months. 33.1% of cardiologists chose empirical de-escalation to clopidogrel after 1-3 months, and 13.5% selected aspirin monotherapy. A 1.0% reported utilizing transitional dual therapy approaches (figure 2B).

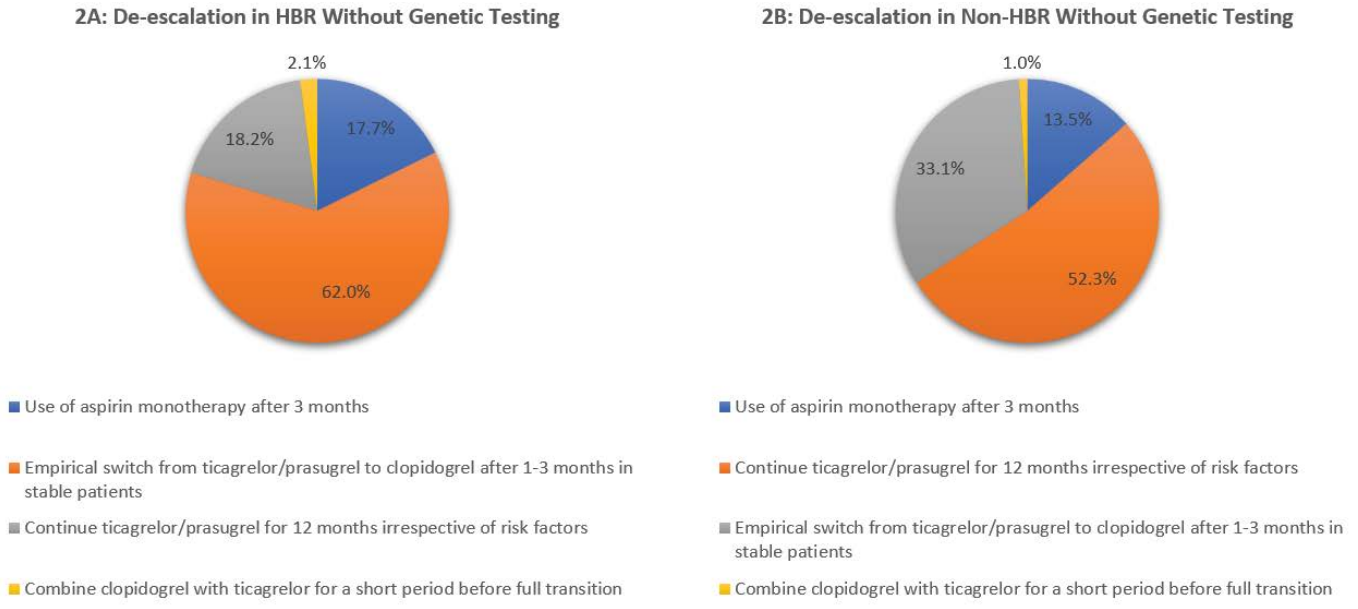

Figure 2: De-escalation Approach in High Bleeding Risk and Non-High Bleeding Risk Patients Without Genetic Testing

2A: De-escalation in HBR without genetic testing;
2B: De-escalation in non-HBR without genetic testing

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Management of Clopidogrel Resistance and Antiplatelet Switching Pattern

The majority (76.3%) of cardiologists preferred switching to an alternative P2Y12 inhibitor, such as prasugrel or ticagrelor, in cases of suspected or confirmed clopidogrel resistance. Approximately 9.1% performed PFT prior to modifying therapy, while 8.1% utilized genetic testing. A smaller proportion, 6.3%, chose to increase the clopidogrel dose (figure 3A). The transition to prasugrel or ticagrelor in cases of suspected resistance was reported as occasional by 35.4% of cardiologists and as frequent by 33.6%, whereas 16.9% reported rare switching and 14.1% report always switching under such scenarios (Fig 3B). Switching from ticagrelor to clopidogrel is reported as rare (≤25% of cases) by 38.5% of cardiologists, occasional (25–50%) by 29.9%, and very frequent (>50%) by 20.1%, with 11.5% indicating never to switch (figure 3C).

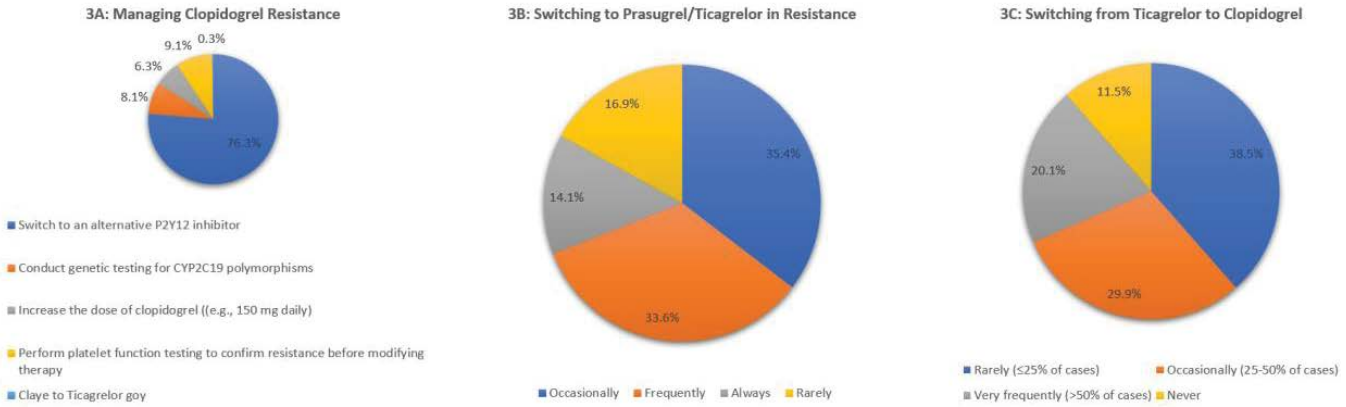

Figure 3: Management of Clopidogrel Resistance and Antiplatelet Switching Pattern

3A: Managing clopidogrel resistance; **3B:** Switching to prasugrel/ticagrelor in resistance; **3C:** Switching from ticagrelor to clopidogrel.

Adverse Event-Driven Modification of Antiplatelet Therapy

The majority (58.6%) of cardiologists identified dyspnea as the most common adverse event related to ticagrelor that prompted a switch to clopidogrel. Major bleeding was reported by 28.4% of clinicians, followed by minor bleeding (16.4%) and bradycardia or conduction abnormalities (14.8%) (figure 4A). Adverse events associated with prasugrel were found to have a moderate impact on switching decisions, with the majority (29.4%) rating their influence as 3 on a 5-point scale. Approximately 26.3% rated the impact as low (score 2), whereas 19.5% considered it highly significant (score 5). Smaller proportions reported minimal (12.8%, score 1) or moderately high (12.0%, score 4) impacts on a 5-point scale (figure 4B). Major bleeding remained the most prevalent reason for transitioning from prasugrel to clopidogrel, reported by 70.4% of cardiologists. Additional factors included advanced age (≥75 years; 39.2%) and low body weight (<60 kg; 32.7%). Furthermore, 21.0% reported minor bleeding as a contributing factor (figure 4C).

Antithrombotic Management in Patients Requiring Oral Anticoagulation Undergoing Percutaneous Intervention

The majority (61.7%) of cardiologists preferred clopidogrel as the initial antiplatelet agent for patients on OAC undergoing PCI. Approximately 24.7% favored DAPT with aspirin and a P2Y12 inhibitor, while 10.4% chose ticagrelor, and a small proportion (3.1%) chose prasugrel (figure 5A). Following the initial DAPT phase, a majority (77.6%) of cardiologists preferred clopidogrel as the antiplatelet agent alongside OAC. About 13.3% continued with DAPT, 8.1% chose ticagrelor, and 1.0% selected prasugrel (figure 5B). The management of antithrombotic therapy in OAC patients undergoing PCI was considered moderately challenging, with 36.7% of cardiologists rating the difficulty at level 3 on a scale of 1 to 5. Approximately 19.5% rated it at level 2, whereas 18.5% and 16.9% categorized it as levels 4 and 5, respectively. Only 8.3% considered it minimally challenging (figure 5C). A majority of cardiologists favored reducing DAPT duration in patients on OAC, with 31.0% rating their approach at level 5 and 26.0% at level 4. About 22.4% chose a moderate strategy (level 3), while fewer clinicians employed more conservative approaches (levels 2 and 1) (figure 5D). A majority (86.5%) of cardiologists preferred clopidogrel as the antiplatelet agent in triple therapy (OAC + aspirin + P2Y12 inhibitor). Approximately 12.0% preferred ticagrelor, while only 1.6% chose prasugrel (figure 5E).

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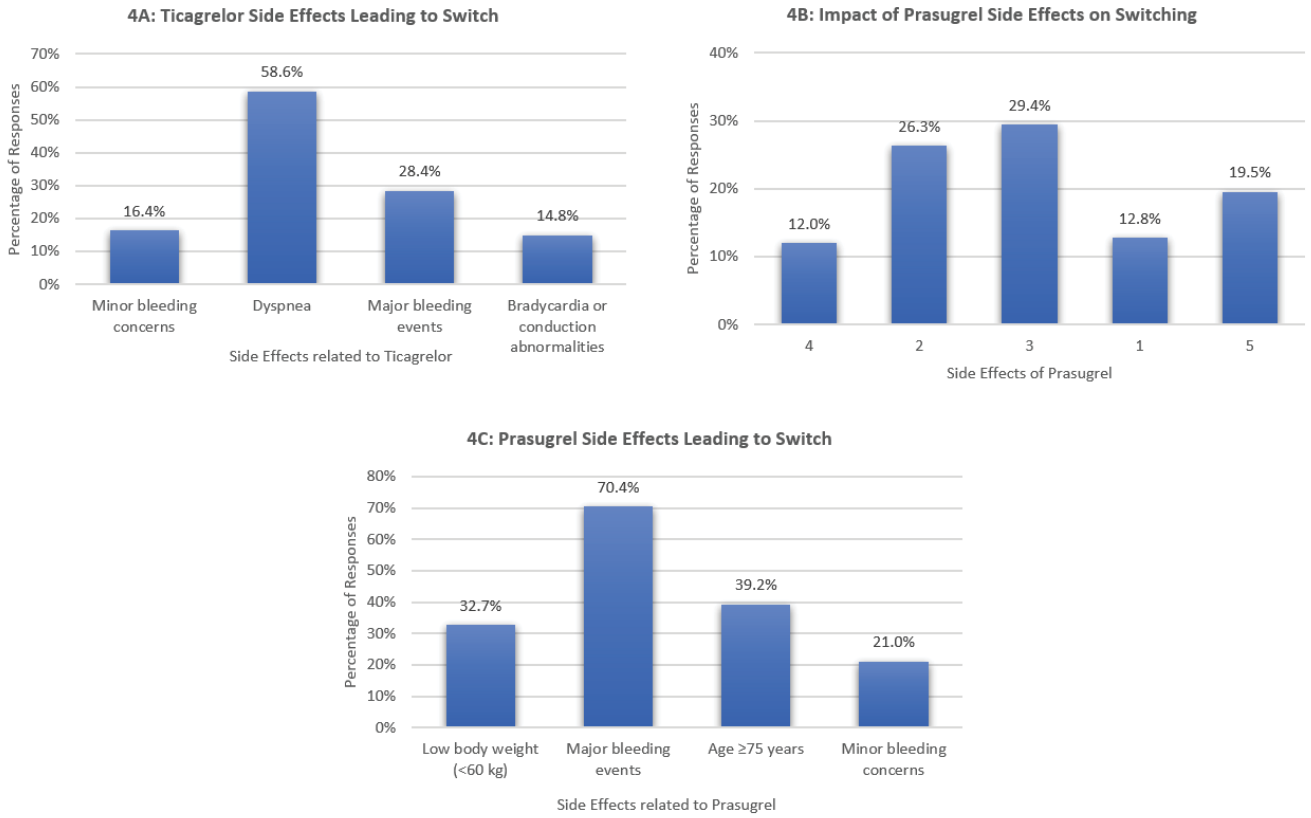

Figure 4: Adverse Event-Driven Modification of Antiplatelet Therapy

4A: Ticagrelor side effects leading to switch; **4B:** Impact of prasugrel side effects on switching; **4C:** Prasugrel side effects leading to switch.

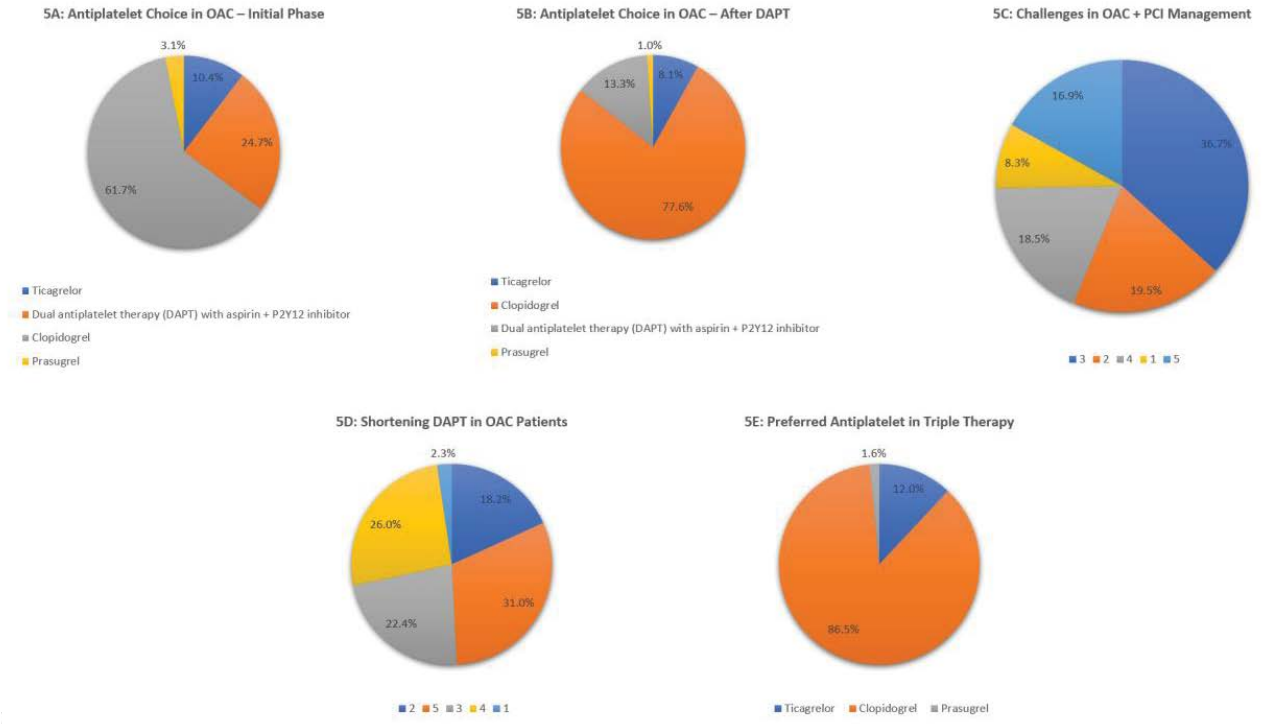

Figure 5: Antithrombotic Management in Patients Requiring Oral Anticoagulation Undergoing Percutaneous Intervention

5A: Antiplatelet choice in OAC – Initial phase; **5B:** Antiplatelet choice in OAC – After DAPT; **5C:** Challenges in OAC + PCI management; **5D:** Shortening DAPT in OAC patients; 5E: Preferred antiplatelet in triple therapy.

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Discussion

The INDEPTH INSIGHT survey provides a contemporary overview of cardiologists' perspectives in India regarding de-escalation strategies from DAPT to SAPT following PCI. When interpreted within the framework of current international guidelines and evidence from recent clinical trials, the findings highlight both encouraging alignment with evidence-based practices and important gaps in the implementation of precision-guided antiplatelet therapy. Current guideline recommendations from the 2023 ESC and the 2025 ACC/AHA emphasize individualized antiplatelet therapy that balances ischemic and bleeding risks. De-escalation strategies, including switching from more potent P2Y12 inhibitors such as ticagrelor or prasugrel to clopidogrel, have emerged as an important strategy to mitigate bleeding risk without compromising ischemic protection2,6. The survey findings suggest that many cardiologists in India have preferred empirical approaches aligned with the guideline recommendations. In this survey, 62.0% of cardiologists managing HBR patients without access to genetic testing preferred de-escalation to clopidogrel after 1-3 months. This reflects the real-world application of empirical, clinically guided de-escalation strategies in settings where genetic testing is unavailable. Conversely, among patients without HBR, 52.3% preferred continued potent P2Y12 inhibitors (ticagrelor or prasugrel) for up to 12 months. This indicates a prioritization of ischemic protection in lower-risk populations, while 33.1% opted for early empirical de-escalation.

These guidelines largely reflect the results of significant randomized trials evaluating de-escalation strategies. The present survey (INDEPTH INSIGHT) suggests that many clinicians are already employing clinically guided de-escalation strategies as recommended in these trials, especially when access to laboratory testing is limited. The evolving role of pharmacogenomics in selecting antiplatelet therapy is another significant observation. In this survey, 46.9% of cardiologists considered genetic testing definitively relevant, while 35.7% regarded it as conditionally relevant based on clinical evidence. Despite this, only 16.9% considered it essential for all patients, and its routine use is therefore limited. These findings reflect a gap between emerging evidence and practical implementation. The POPular Genetics trial demonstrated that a genotype-guided strategy, using clopidogrel in patients without CYP2C19 loss-of-function alleles and potent P2Y12 inhibitors in carriers, was noninferior for thrombotic outcomes and was associated with reduced bleeding compared with standard potent P2Y12 therapy [8]. However, the limited availability of pharmacogenomic testing in many healthcare systems, including India, means that clinicians often rely on clinical judgment, bleeding risk scores, and PFT when making de-escalation decisions. According to the INDEPTH INSIGHT survey, PFT is moderately integrated into routine practice but not universally adopted. In this survey, 64.3% of cardiologists reported using PFT to guide de-escalation, although only 18.8% reported its consistent use, and 16.9% reported infrequent use. Additionally, only 16.7% relied on genetic testing for PFT prior to de-escalation, while 31.8% used platelet aggregation testing and 25.8% relied on clinical expertise or bleeding risk scores. This observation aligns with international surveys, which have demonstrated the clinical utility of platelet function testing but have not been universally adopted due to factors such as cost and availability [9]. The TROPICAL-ACS trial demonstrated that PFT-guided de-escalation can be a feasible alternative in select patients, with no increased risk of cardiovascular death, myocardial infarction, or stroke (32 patients [3%]) compared to control (42 patients [3%]). Guided de-escalation was non-inferior to standard prasugrel at 1-year post-PCI, indicating early de-escalation as an alternative for patients with ACS undergoing PCI10. Management of clopidogrel resistance reported in the survey was largely aligned with current clinical evidence. In this survey, 76.3% of cardiologists preferred switching to an alternative P2Y12 inhibitor such as ticagrelor or prasugrel, whereas only 9.1% performed PFT and 8.1% utilized genetic testing prior to modification. A small proportion (6.3%) preferred clopidogrel dose escalation. This approach aligns with contemporary recommendations suggesting that switching to ticagrelor or prasugrel may be the most effective strategy when clopidogrel responsiveness is inadequate2,6. Adverse events remain a major factor in treatment modification in clinical practice. In this survey, 58.6% of cardiologists identified dyspnoea as the most frequently reported ticagrelor-related side effect prompting therapy modification, followed by major bleeding (28.4%), minor bleeding (16.4%), and bradycardia or conduction abnormalities (14.8%). In the landmark PLATO trial involving 18,624 patients with ACS, dyspnea was reported in 13.8% of patients treated with ticagrelor, compared with 7.8% with clopidogrel, making it the most common non-bleeding adverse event. Although generally mild to moderate in severity, dyspnea resulted in drug discontinuation in some patients11. Similarly, major bleeding (70.4%), advanced age ≥75 years (39.2%), and low body weight <60 kg (32.7%) was identified as key factors in the present survey, indicating a switch from prasugrel to clopidogrel, reflecting awareness of guideline-defined contraindications and safety considerations. The survey also provides significant insights into antithrombotic management in complex patient populations, particularly those receiving OAC who undergo PCI. In this survey, 61.7% cardiologists preferred clopidogrel as the initial antiplatelet therapy in patients with OAC undergoing PCI, and 77.6% continued clopidogrel following the initial DAPT phase. These findings align with contemporary ESC and

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ACC/AHA recommendations favouring clopidogrel as the P2Y12 inhibitor [2-6]. Clopidogrel is the preferred choice for patients needing combined antiplatelet and OAC therapy due to its relatively lower bleeding risk. Additionally, 86.5% of cardiologists preferred clopidogrel in triple therapy regimens, reflecting clinicians' prioritization of safety in HBR scenarios. Evidence from pivotal trials has firmly established the safety advantage of dual therapy (OAC + single antiplatelet agent) over traditional triple therapy. In WOEST, dual therapy with OAC and clopidogrel resulted in a 46% reduction in bleeding and lower mortality, without an increase in thrombotic events [12]. PIONEER AF PCI demonstrated that rivaroxaban based dual therapy significantly reduced major bleeding compared with warfarin based triple therapy [13]. The findings of the present (INDEPTH INSIGHT) survey indicate that cardiologists in India are increasingly adopting evidence-based, personalized approaches to antiplatelet therapy management. However, variability in the adoption of pharmacogenomic testing, PFT, and DAPT shortening strategies indicate that implementation gaps remain. Improving access to diagnostic testing, strengthening clinician education and developing practical decision-support tools may help reduce variability in clinical practice and enhance the safety and effectiveness of antithrombotic therapy.

Strengths of the Study

A key strength of the INDEPTH INSIGHT survey is its inclusion of a large, geographically diverse sample of practicing cardiologists, providing meaningful insight into real-world clinical decision-making regarding antiplatelet therapy de-escalation in the Indian context. The survey addressed multiple clinically relevant aspects of antiplatelet management, including genetic testing, platelet function assessment, clopidogrel resistance, adverse event-driven switching, and treatment strategies in complex scenarios such as OAC and triple therapy. Another strength lies in the study's focus on real-world clinical perspectives rather than theoretical recommendations. By capturing clinicians' experiences and preferences, the survey provides a practical understanding of how contemporary evidence and guideline recommendations are translated into routine practice. The findings also highlight areas where practice appears to be broadly aligned with current clinical evidence, particularly regarding the preference for clopidogrel in patients receiving OAC and in triple therapy regimens. Furthermore, the survey offers important insights into barriers affecting the implementation of precision medicine approaches in cardiovascular care, particularly the limited availability of testing and platelet function assessment. Identifying these barriers provides a basis for future initiatives to improve access to testing and facilitate more personalized antiplatelet therapy.

Limitations

Despite its strength, the INDEPTH INSIGHT survey has several limitations that should be acknowledged. The study relied on clinicians' self-reported responses, which may be subject to reporting bias. The tendency to provide responses aligned with guideline recommendations may influence the results. Additionally, the cross-sectional survey design captures clinician perspectives at a single time point and therefore does not allow evaluation of temporal changes in practice patterns. As new trials and guideline updates emerge, approaches to antiplatelet therapy de-escalation may continue to evolve. Factors such as patient comorbidities, institutional protocols, regional healthcare infrastructure, and economic considerations may also influence therapeutic choices but were not directly assessed in the survey. The survey did not stratify the responses by geographic or practice settings, which may limit the generalizability of the findings across India's diverse healthcare landscape. Furthermore, the study reflects clinician perspectives rather than direct evidence regarding the effectiveness or safety of specific treatment strategies. Future research incorporating prospective registries, real-world clinical data, and health-economic evaluations will be important for better understanding the impact of precision-guided antiplatelet therapy and for guiding the implementation of de-escalation strategies in routine practice.

Conclusion

The INDEPTH INSIGHT survey provides significant real-world insights into antiplatelet prescribing patterns and de-escalation strategies among cardiologists in India. The findings align with guideline-recommended practices, with a predominant focus on safety-driven decision-making. Clopidogrel remains the preferred agent across multiple clinical scenarios, particularly in high bleeding risk patients and those requiring OAC, owing to its favorable safety, accessibility, and cost-effectiveness. While risk-based de-escalation strategies are commonly adopted, variability persists in clinical practice. Significantly, gaps remain in the routine application of precision-based approaches, including limited access to genetic testing, limited adoption of PFT, and reliance on empirical decision-making. Future efforts should focus on improving access to precision diagnostics, generating significant and robust real-world evidence, and developing simplified and practical decision-support tools to optimize antithrombotic care across diverse Indian clinical settings.

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Conflict of Interest

The authors declare no competing interests.

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