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The Comparative Efficacy of Dual and Triple Antiplatelet Therapy in the Prevention of Thrombosis Following Percutaneous Coronary Intervention

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INTRODUCTION

Percutaneous Coronary Intervention (PCI) is a critical procedure for treating coronary artery disease, often involving the placement of stents to restore blood flow and prevent ischemic events. Following PCI, patients are at risk of thrombotic complications, necessitating effective antiplatelet therapy to reduce the likelihood of stent thrombosis and adverse cardiovascular events. Dual Antiplatelet Therapy (DAPT), typically consisting of aspirin and a P2Y12 inhibitor (such as clopidogrel, prasugrel, or ticagrelor), has been the standard treatment for preventing thrombosis after PCI. However, recent studies have explored the potential benefits of triple antiplatelet therapy, which combines DAPT with an additional anticoagulant, such as clopidogrel or a direct oral anticoagulant. TAPT aims to provide enhanced protection against thrombotic events, particularly in high-risk patients or those with complex PCI procedures. This introduction examines the comparative efficacy of DAPT versus TAPT in preventing thrombosis following PCI. It highlights the need to balance efficacy and safety, considering the increased risk of bleeding associated with more intensive antiplatelet regimens. By analyzing clinical outcomes, including rates of stent thrombosis, major adverse cardiovascular events, and bleeding complications, this study seeks to determine whether TAPT offers a significant advantage over DAPT in reducing thrombotic risks while maintaining an acceptable safety profile. The findings will contribute to optimizing post-PCI antiplatelet strategies and improving patient outcomes.

DESCRIPTION

Percutaneous Coronary Intervention (PCI) is a common procedure for managing coronary artery disease, involving the insertion of stents to alleviate blockages and restore blood flow. Post-PCI, patients are at increased risk for thrombosis, which necessitates effective antiplatelet therapy to prevent stent-related complications and reduce adverse cardiovascular events. Traditionally, Dual Antiplatelet Therapy (DAPT), comprising aspirin and a P2Y12 inhibitor (like clopidogrel, prasugrel, or ticagrelor), has been the standard approach for thrombosis prevention. Recent investigations have considered the use of Triple Antiplatelet Therapy (TAPT), which adds an additional anticoagulant to the DAPT regimen. TAPT is hypothesized to offer superior protection against thrombotic events, particularly in patients with higher thrombotic risk or those undergoing more complex PCI procedures. However, the use of TAPT comes with an increased risk of bleeding complications, which must be weighed against its potential benefits.

CONCLUSION

The comparative analysis of dual versus triple antiplatelet therapy following percutaneous coronary intervention reveals important insights into their efficacy and safety profiles. While triple antiplatelet therapy may offer enhanced protection against thrombotic events, it is accompanied by a higher risk of bleeding complications compared to dual antiplatelet therapy. This study underscores the need to balance the benefits of reduced thrombotic risk with the potential for increased bleeding. Ultimately, the choice between DAPT and TAPT should be individualized based on patient risk factors and clinical context, ensuring optimal management of thrombotic risks while minimizing adverse effects.

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CONFLICT OF INTEREST

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