

Dual antiplatelet therapy in acute coronary syndrome patients: Rationale and treatment regimens with aspirin and clopidogrel

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ABSTRACT

INTRODUCTION: Acute coronary syndrome (ACS) is a serious medical condition characterized by a sudden reduction in blood flow to the heart, typically due to thrombus formation in the coronary arteries. Effective management of ACS is crucial to prevent complications such as myocardial infarction and sudden death. Dual antiplatelet therapy (DAPT), involving the combined use of aspirin and clopidogrel, has proven to be an effective approach in preventing cardiovascular events in ACS patients. **OBJECTIVE:** This paper aims to explore the rationale and treatment regimens of DAPT in ACS patients, using aspirin and clopidogrel, based on bibliographic references from renowned pharmacology books.

METHODOLOGY: A literature review was conducted using books such as "Goodman & Gilman's The Pharmacological Basis of Therapeutics" (Brunton et al., 2018), "Basic and Clinical Pharmacology" by Katzung and Vanderah (2017), "Clinical and Therapeutic Pharmacology" by Fuchs and Wannmacher (2015), among others. **RESULTS:** Aspirin, a non-steroidal anti-inflammatory drug, irreversibly inhibits cyclooxygenase-1 (COX-1), reducing the production of thromboxane A₂, a potent inducer of platelet aggregation. Clopidogrel, an ADP receptor (P₂Y₁₂) inhibitor, prevents ADP-mediated platelet activation and aggregation. The combination of aspirin and clopidogrel results in a more robust inhibition of platelet function than the use of each drug alone, significantly reducing the risk of adverse cardiovascular events in ACS patients. **CONCLUSIONS:** DAPT with aspirin and clopidogrel is a well-established therapeutic strategy for ACS patients, providing additional protection against recurrent thrombotic events. A detailed understanding of the mechanisms of action and clinical benefits of these drugs is essential to optimize treatment and improve clinical outcomes.

Keywords: Dual antiplatelet therapy, Acute coronary syndrome, Aspirin, Clopidogrel, Pharmacological treatment.

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