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Drug-Induced Upper Gastrointestinal Bleeding in an Elderly Patient on Long-Term Dual Antiplatelet Therapy: A Case Report

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ABSTRACT:
Background: Dual antiplatelet therapy with aspirin and clopidogrel is widely prescribed for secondary prevention in patients with coronary artery disease. However, prolonged use increases the risk of gastrointestinal bleeding, particularly in elderly patients.
Case Presentation: We report the case of a 65-year-old male with a history of coronary artery disease and hypertension, on long-term aspirin and clopidogrel therapy, who presented with acute hematemesis and melena. Laboratory evaluation revealed anemia, and endoscopy demonstrated gastric mucosal erosions with active bleeding. Both antiplatelet agents were withheld, and the patient was managed with intravenous proton pump inhibitors, antiemetics, intravenous fluids, and blood transfusion. His condition stabilized, and clopidogrel monotherapy with gastroprotection was reintroduced prior to discharge.
Conclusion: This case highlights the risk of serious upper gastrointestinal bleeding in patients receiving long-term dual antiplatelet therapy. Careful risk–benefit assessment, early recognition of adverse effects, and preventive strategies such as concomitant gastroprotection are essential for optimizing patient safety
KEYWORDS: Elderly, Aspirin, Clopidogrel, Gastrointestinal Bleeding, Antiplatelet Therapy, Proton Pump Inhibitors

I. INTRODUCTION:

Dual antiplatelet therapy (DAPT), comprising aspirin and a P2Y12 receptor inhibitor such as clopidogrel, is a cornerstone in the management of coronary artery disease (CAD), particularly following percutaneous coronary interventions (PCI). While DAPT effectively reduces thrombotic events, it increases the risk of gastrointestinal (GI) bleeding, a significant concern in elderly patients. The incidence of GI bleeding in patients on DAPT ranges from 1.0% to 2.8% within 30 days after PCI.[(1)]

Elderly patients are particularly vulnerable due to age-related physiological changes, comorbidities, and polypharmacy. Studies have identified advanced age, prior GI bleeding, and concomitant use of proton pump inhibitors (PPIs) as independent predictors of GI bleeding in this population.[(2)] Moreover, the combination of aspirin and clopidogrel has been associated with a higher risk of major GI bleeding compared to aspirin monotherapy. [(3)]

The management of GI bleeding in patients on DAPT involves a delicate balance between mitigating thrombotic risk and preventing hemorrhagic complications. Recent guidelines suggest the use of bleeding risk scores, such as PRECISE-DAPT and ABO, to guide therapy in elderly patients.[(4)] Additionally, the concurrent use of PPIs has been shown to reduce the incidence of GI bleeding in these patients. [(2)]

This case report highlights the clinical challenges and management strategies in an elderly patient on long-term DAPT who developed drug-induced upper gastrointestinal bleeding.

II. CASE PRESENTATION:

A 65-year-old male with a history of coronary artery disease and hypertension presented to the emergency department with hematemesis and black-coloured loose stools, three episodes each within 24 hours. He also reported throat discomfort and loss of appetite for the past two days. His medical history included percutaneous coronary intervention three years prior, for which he had been on long-term dual antiplatelet therapy with aspirin 150 mg once daily and clopidogrel 75

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mg once daily, in addition to amlodipine 5 mg once daily. There was no history of nonsteroidal anti-inflammatory drug use, alcohol consumption, or prior gastrointestinal illness.

On examination, the patient appeared pale and mildly dehydrated. Vital signs revealed a pulse rate of 110 beats per minute and blood pressure of 120/80 mmHg. Laboratory investigations showed Hemoglobin 7.8 g/dL and Hematocrit 25%, with mildly elevated urea levels suggestive of an upper gastrointestinal source of bleeding.

An emergency upper gastrointestinal endoscopy revealed gastric mucosal erosions with active bleeding. Based on the history, clinical findings, and endoscopic evaluation, a diagnosis of drug-induced upper gastrointestinal bleed secondary to long-term dual antiplatelet therapy was made.

Management included withholding both aspirin and clopidogrel, initiating intravenous proton pump inhibitor therapy (pantoprazole 40 mg twice daily), intravenous ondansetron 4 mg twice daily, and intravenous fluid resuscitation. The patient also received two units of packed red blood cells. Over the next 48 hours, his hemodynamic status stabilized, and no further episodes of bleeding were observed.

Once stabilized, clopidogrel monotherapy was reintroduced, and the patient was discharged on oral pantoprazole for ongoing gastroprotection. The patient was advised to follow up for cardiovascular management and to monitor for any recurrence of gastrointestinal symptoms.

The causality of the adverse drug reaction was evaluated using the Naranjo ADR probability scale (Table 1), which indicated a probable relationship between long-term dual antiplatelet therapy and the patient's upper gastrointestinal bleed.

Table 1 Naranjo Adverse Drug Reaction Probability Scale

Questions	Yes (Score)	No (Score)	Do Not Know (Score)	Patient's Score
1. Are there previous conclusive reports on this reaction?	+1	0	0	+1
2. Did the adverse event appear after the suspected drug was given?	+2	-1	0	+2
3. Did the adverse reaction improve when the drug was discontinued?	+1	0	0	+1
4. Did the adverse reaction reappear when the drug was re-administered?	+2	-1	0	0 (not done)
5. Are there alternative causes that could have caused the reaction?	-1	+2	0	+2
6. Did the reaction reappear when a placebo was given?	-1	+1	0	0 (not done)
7. Was the drug detected in blood (or other fluids) in toxic concentrations?	+1	0	0	0 (not done)

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8. Was the reaction more severe when the dose was increased or less severe when the dose was decreased?	+1	0	0	0 (not applicable)
9. Did the patient have a similar reaction to the same or similar drug in the past?	+1	0	0	0 (no history)
10. Was the adverse event confirmed by objective evidence?	+1	0	0	+1
Total Score				7

III. DISCUSSION

This case underscores the significant risk of upper gastrointestinal (UGI) bleeding associated with long-term dual antiplatelet therapy (DAPT) in elderly patients. While DAPT is essential for preventing thrombotic events in patients with coronary artery disease, it increases the risk of gastrointestinal complications, particularly bleeding

The incidence of UGI bleeding in patients on DAPT varies, with studies reporting rates ranging from 0.7% to 1.3% for aspirin and 1.2% to 2% for the combination of aspirin and clopidogrel. Elderly patients are particularly vulnerable due to age-related physiological changes and the presence of comorbidities. In our case, the patient's advanced age and prolonged use of DAPT contributed to the development of a drug-induced UGI bleed.[1] Aspirin and clopidogrel, both antiplatelet agents, inhibit platelet aggregation by different mechanisms. Aspirin irreversibly inhibits cyclooxygenase-1, leading to decreased thromboxane A2 production, while clopidogrel inhibits the P2Y12 receptor on platelets.The combination of these agents enhances antithrombotic efficacy but also increases the risk of bleeding, including upper gastrointestinal bleeding. This is consistent with previous reports showing that dual antiplatelet therapy is associated with a higher incidence of gastrointestinal injury compared to monotherapy (Bittl J, Laine L, 2022).[5]The American Geriatrics Society's 2023 Beers Criteria identifies certain medications as potentially inappropriate for older adults due to their risk profiles. While the Beers Criteria primarily lists individual medications, it emphasizes the importance of considering drug combinations that may increase adverse effects. In this context, the combination of aspirin and clopidogrel, both of which are individually associated with gastrointestinal bleeding, may pose an additive risk when used together in elderly patients.[6]Management strategies for such cases typically involve the use of proton pump inhibitors (PPIs) to suppress gastric acid secretion and promote mucosal healing. Additionally, the use of PPIs has been shown to reduce the incidence of UGI bleeding in patients on long-term antiplatelet therapy.[3].

To assess the likelihood of an adverse drug reaction (ADR) in this case, the Naranjo Adverse Drug Reaction Probability Scale was applied. This scale evaluates causality based on factors such as temporal association, dose-response relationship, and dechallenge/rechallenge outcomes. In this instance, the scale indicated a probable ADR, supporting the association between DAPT and the observed gastrointestinal bleeding.[10]

IV. CONCLUSION:

This case highlights the increased risk of upper gastrointestinal bleeding in elderly patients receiving long-term dual antiplatelet therapy. Careful assessment of bleeding risk, vigilant monitoring, and timely intervention are essential to prevent serious adverse outcomes. Tools such as the Naranjo ADR probability scale can aid in

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establishing causality, while the Beers Criteria provide guidance for evaluating medication appropriateness in older adults. Clinicians should balance the cardiovascular benefits of dual antiplatelet therapy with potential gastrointestinal risks and consider prophylactic strategies, such as proton pump inhibitors, to mitigate complications.

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ETHICAL CLEARANCE

Written informed consent was obtained from the patient for the publication of this case report and any accompanying images. This case report adheres to the ethical principles outlined in the Declaration of Helsinki. Institutional ethical approval was not required for this single-patient case report, as per the hospital's policy.

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