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DRUG-INDUCED COAGULOPATHY SECONDARY TO WARFARIN–ANTIBIOTIC INTERACTION: A CASE REPORT

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Abstract:
Drug-induced coagulopathy is a clinically significant adverse drug reaction that may lead to serious bleeding complications. Warfarin, owing to its narrow therapeutic index, is highly susceptible to drug interactions. We report a case of a 68-year-old male on chronic warfarin therapy who developed severe coagulopathy following the administration of ceftriaxone for respiratory infection. The patient presented with gum bleeding and hematuria, with a markedly elevated international normalized ratio (INR) of 7.8. Prompt discontinuation of warfarin, administration of vitamin K and fresh frozen plasma, and supportive care led to clinical improvement. This case highlights the importance of monitoring coagulation parameters and recognizing potential drug interactions in patients receiving anticoagulant therapy.
Keywords
Drug-induced coagulopathy, Warfarin, INR, Drug interaction, Bleeding

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INTRODUCTION:

Coagulopathy refers to a disorder of hemostasis resulting in either bleeding or thrombotic tendencies. Drug-induced coagulopathy is commonly encountered in clinical practice, particularly in patients receiving anticoagulants, antibiotics, and chemotherapeutic agents. Warfarin is one of the most widely used oral anticoagulants and acts by inhibiting vitamin K-dependent clotting factors II, VII, IX, and X.

Due to its narrow therapeutic index, warfarin therapy requires regular monitoring using the international normalized ratio (INR). Several drugs, especially antibiotics, can potentiate the effect of warfarin by altering gut flora, reducing vitamin K synthesis, or interfering with hepatic metabolism. Cephalosporins such as ceftriaxone are known to enhance anticoagulant effects, increasing the risk of bleeding.

This case report emphasizes the clinical relevance of drug interactions leading to coagulopathy and the need for vigilant monitoring.

CASE REPORT:

A 68-year-old male presented to the emergency department with complaints of gum bleeding, hematuria, and generalized weakness for two days.

Medical History
The patient was a known case of:
Atrial fibrillation (on warfarin 5 mg once daily)
Hypertension
Type 2 diabetes mellitus

Drug History
The patient had been started on intravenous ceftriaxone five days prior for the treatment of lower respiratory tract infection.

Clinical Examination
Blood Pressure: 110/70 mmHg
Pulse: 96 beats per minute (irregularly irregular)
Respiratory Rate: 18/min
Mild pallor present
No signs of major internal bleeding

Laboratory Investigations
Parameter
Value
Hemoglobin
9.2 g/dL
Platelet count
2.5 lakh/mm³
Prothrombin Time
Markedly prolonged
INR
7.8
Liver Function Tests
Within normal limits
Renal Function Tests
Normal
Diagnosis
Drug-induced coagulopathy secondary to warfarin–ceftriaxone interaction

MANAGEMENT:
Immediate discontinuation of warfarin
Administration of intravenous vitamin K (5 mg)
Transfusion of fresh frozen plasma (FFP)
Close monitoring of INR and clinical status
Supportive care

OUTCOME:

The patient showed gradual clinical improvement within 48 hours.
INR decreased to 2.3
Bleeding manifestations resolved
Hemodynamic stability maintained
Warfarin therapy was restarted at a lower dose with strict INR monitoring.

DISCUSSION:

Drug-induced coagulopathy is an important and preventable adverse drug reaction. Warfarin is metabolized by hepatic cytochrome P450 enzymes, and its anticoagulant effect can be significantly influenced by concomitant medications.

Cephalosporins, including ceftriaxone, can enhance warfarin's anticoagulant effect through multiple mechanisms:

Suppression of vitamin K-producing intestinal flora
Inhibition of vitamin K-dependent clotting factor synthesis

Possible interference with hepatic metabolism
An INR above the therapeutic range significantly increases the risk of bleeding complications. In this case, the patient developed severe coagulopathy following antibiotic therapy, highlighting the importance of careful monitoring.

ADR Causality Assessment (Naranjo Scale)
Criteria
Score
Temporal association
+2
Improvement on dechallenge
+1
Alternative causes absent
+1
Previous reports
+1
Total Score
5 (Probable ADR)

CONCLUSION:

This case highlights the importance of:
Regular monitoring of INR in patients on warfarin
Awareness of potential drug interactions
Early identification and management of bleeding complications
Proper patient education and cautious prescribing can significantly reduce the risk of drug-induced coagulopathy.

DECLARATIONS:

Conflict of Interest
The authors declare no conflict of interest.
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Ethical Approval
Not required for case report. Patient consent was obtained.

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