

ACCP Clinical Case – Heparin Induced Thrombocytopenia

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A 35 year old woman presents to the ED with a fractured right knee after a biking accident. Orthopedic surgery is performed and she is discharged from the hospital 3 days later on enoxaparin 30mg every 12 hours for 7 days for DVT prophylaxis.

Baseline labs:

Ht 1.8m; Wt 71.9kg

Na 146; K 4.3; Cl 105; CO₂ 30; BUN 15; SCr 1.14; Gluc 101

WBC 6.7; Hgb 12.8; Hct 39.3; Plt 245

AST 25; ALT 40; Tbili 0.7; Alb 3.9; LDH 110

Five days after discharge she returns to the hospital with complaints of swelling and pain in her upper right leg. A VTE work up is performed, which is positive for a thrombus in the iliac vein and a platelet count of 117×10^9 cells/L. All other labs are normal. The patient is admitted with a suspicion of heparin-induced thrombocytopenia (HIT).

Test your knowledge:

1. What risk factors for HIT do the patient exhibit?
 - Recent orthopedic surgery places her at an increased risk of HIT
 - Exposure to heparin product (low molecular weight heparin) for 4-14 days
 - Signs of venous thromboembolism despite anticoagulation therapy
 - Is experiencing thrombocytopenia with a platelet level $<150 \times 10^9$ cells/L
 - Incidence of HIT is generally higher in females than males
2. What lab tests should be ordered to confirm the diagnosis of HIT? Should the team wait for these tests to return before initiating treatment?
 - Enzyme-linked immunosorbant assay (ELISA) → high sensitivity, low specificity
 - Serotonin release assay (SRA) → high sensitivity, high specificity
 - No, the ELISA test can usually be performed in the labs of most institutions but can take up to days to yield results; the SRA test typically has to be sent to an outside facility and will take even longer to yield results. Therefore, if there is a suspicion of HIT, then treatment should begin immediately, and adjusted if either of these tests comes back negative.
3. What steps should be taken in the initial treatment of HIT? What guideline recommended agent is currently available on the market and FDA approved for the treatment of HIT?

- Review patient history and other possible causes of thrombocytopenia, specifically among medications
- Immediately discontinue the enoxaparin, and make sure the patient has no other exposure to heparin sources (flushes, locks, and catheters), and note as an allergy to heparin in the patient's medical record
- Argatroban 2mcg/kg/min continuous IV infusion, adjusting until at a steady-state aPTT of 1.5 to 3 times the initial baseline value without exceeding 10mcg/kg/min or an aPTT of 100 seconds.

The patient's ELISA indicates HIT, and after four days of therapy with therapeutic argatroban, her platelets are 168×10^9 cells/L. The team wishes to switch her to warfarin for discharge.

4. Is this an appropriate course of therapy for this patient? What are the recommendations regarding warfarin conversion for the treatment of HIT?
 - Yes, a vitamin K antagonist (VKA) can be given to treat a confirmed case of HIT once a patient's platelets have recovered to $>150 \times 10^9$ cells/L. In patients with confirmed HIT, VKA therapy should be overlapped with a non-heparin anticoagulant for a minimum of 5 days and until the INR is within the target range (2.0-3.0).
 - Since argatroban increases the INR, continue argatroban and warfarin until the INR is >4 . Discontinue argatroban and recheck the INR 6 hours later to reveal warfarin's effects on the INR. If the INR is less than 2.0, immediately restart the argatroban, adjust the warfarin dose as appropriate, and recheck using the same method the following day and until the INR on warfarin therapy alone is therapeutic.
5. How long should this patient be anticoagulated?
 - Provided confirmation of HIT from the SRA, the CHEST guidelines recommend that VKA therapy should continue for 3 months for thrombotic events due to HIT.