

## Thrombocytopenia: Heparin induced

Heparin-induced thrombocytopenia (HIT) is a life-threatening complication of exposure to heparin. HIT results from an autoantibody directed against endogenous platelet factor 4 (PF4) in complex with heparin. This antibody activates platelets and can cause catastrophic arterial and venous thrombosis with a mortality rate as high as 20 percent.

Any one of the following scenarios should raise the possibility of heparin-induced thrombocytopenia (HIT):

New onset thrombocytopenia (PLT < 150,000)

A drop in PLT > 50% from prior value

Venous or arterial thrombosis

Necrotic skin lesions at heparin injection sites

Acute systemic reactions (fever, tachycardia, hypertension, dyspnea, cardiac arrest) after IV heparin

Dx: 4T's score:

| Criteria           | 2                                             | 1                                                  | 0                                |
|--------------------|-----------------------------------------------|----------------------------------------------------|----------------------------------|
| Thrombocytopenia   | PLT fall 50% or more                          | PLT fall 30-50 %                                   | PLT fall < 30%                   |
| Timing of PLT fall | Days 5-10 or <1 if prior exposure to heparin  | Days 5-10 but unclear or after day 10              | < 4 days without recent exposure |
| Thrombosis         | New, skin necrosis or acute systemic reaction | Non-necrotizing skin lesions, recurrent thrombosis | none                             |
| Other causes       | None apparent                                 | possible                                           | definitive                       |

0-3 points – low probability, 4-6 points – intermediate, > 6 points – high probability

The diagnosis of HIT is based on clinical features supported by laboratory testing. Thus, we only perform HIT antibody testing in those with a suspicion of HIT based on clinical findings (e.g. intermediate or high probability 4 T's score). The solid-phase ELISA is the most widely used laboratory test for HIT. This is an immunoassay that detects the presence of anti-platelet factor 4 (PF4) antibodies in patient serum

**Rx:** Patients with a presumptive diagnosis of HIT should have immediate discontinuation of all sources of heparin, and administration of a non-heparin anticoagulant unless there is bleeding or a high risk of bleeding, to reduce the risk of life-threatening thrombosis if the patient has HIT

Question:

A patient diagnosed with heparin-induced thrombocytopenia:

- a. Can use low molecular weight heparin (enoxaparin)
- b. Is not a candidate for cardiopulmonary bypass
- c. Is at increased risk for bleeding
- d. Should avoid heparin products for life

Answer: D - Patients with a presumptive diagnosis of HIT should have immediate discontinuation of all sources of heparin, and administration of a non-heparin anticoagulant unless there is bleeding or a high risk of bleeding, to reduce the risk of life-threatening thrombosis if the patient has HIT