

Heparin Induced Thrombocytopenia (HIT)

The most common cause of drug-induced thrombocytopenia with an incidence of 0.2 to 5.0% in patients who have been treated with heparin for greater than 4 days. Unfractionated heparin is more likely to cause HIT than Low Molecular Weight Heparin (LMWH).



PLAY PICMONIC

Pathophysiology

5-10 Days After Heparin Exposure

[Nickel and Dime drinks during Heparin Day](#)

Thrombocytopenia (decreased platelets $\geq 50\%$) typically occurs 5-10 days following initiation of heparin. Early onset of HIT (within ~ 10.5 hours) may be seen in patients who have received heparin therapy recently with persistent antibodies to the complex of heparin and platelet factor 4.

Heparin-Platelet Factor 4 Complex

[Hippie-heron with Plate and \(4\) Fork](#)

Platelet Factor 4 is released from the alpha granules of platelets upon platelet activation and binds to heparin.

Autoantibodies Form Against Complex

[Ant-tie-body Getting Defensive](#)

IgG, IgA and IgM autoantibodies form against the Heparin-Platelet Factor 4 complex.

Heparin-Platelet Factor 4-Antibody Complex Binds Platelets

[Hippie-heron with Plate \(4\) Fork and Ant-tie-body Binding to Plates](#)

This process leads to a disease sequelae of platelet aggregation, thrombocytopenia and increasingly more procoagulant leading to thrombosis.

Platelet Aggregation

[Sticky Plates](#)

Heparin-Platelet Factor 4-antibody complex bound to platelets results in platelet aggregation and less available circulating platelets, creating thrombocytopenia.

Procoagulant Release

[Pro-clog](#)

The platelet aggregation also results in the release of procoagulants which can cause thrombosis.

Symptoms

Thrombocytopenia

[Trombone-side-toe-peanut](#)

Platelets fall by $\geq 50\%$; however, the platelet count is usually still $\geq 20,000$ platelets.

Diagnosis

Serotonin Release Assay (SRA)

[Silver-tonic Releasing SRA-tap](#)

The Serotonin Release Assay (SRA) is the gold standard. The diagnosis of HIT is confirmed if high serotonin release occurs marking greater platelet activation. A CBC is always performed to determine the degree of thrombocytopenia.

Treatment

Stop Heparin, Start Direct Thrombin Inhibitor

[Red-light Hippie-heron, Green-light Direct-route Trombone Inhibitor](#)

Heparin must be stopped immediately and a direct thrombin inhibitor, such as FDA approved argatroban or bivalirudin, is started. Other important agents to consider using include fondaparinux, danaparoid and apixaban/rivaroxaban.