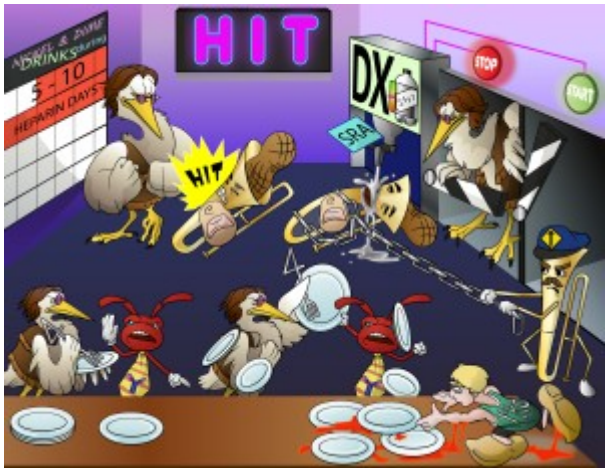
Heparin Induced Thrombocytopenia (HIT)

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).



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Pathophysiology

5-10 Days After Heparin Exposure
Nickel and Dime drinks during Heparin Day
Thrombocytopenia (decreased platelets >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 >50%; however, the platelet count is usually still >20,000 platelets.

Diagnosis

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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 bivalrudin, is started. Other important agents to consider using include fondaparinux, danaparoid and apixaban/rivaroxaban.

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