West Virginia University Healthcare
Heparin-Induced Thrombocytopenia (HIT)
Guidelines for Adults

Criteria:

1. Reduction in platelets of more than 50% from baseline within 5-10 days after exposure to heparin with or without unexplained thrombosis.

The 4Ts assessment point system

Category	2 points	1 point	0 points
Thrombocytopenia	greater than 50% fall or nadir of 20-100 x 10^9 cells/L	30-50% fall or nadir of 10-19 x 10^9 cells/L	less than 30% fall or nadir less than 10 x 10^9 cells/L
Timing of platelet count fall	Days 5-10 or less than 1 day if heparin exposure within past 30 days	Beyond day 10 or unclear (but fits with HIT) or less than 1 day if heparin exposure within past 30-100 days	No recent heparin use
Thrombosis or other sequelae	Proven thrombosis, skin necrosis, or, after heparin bolus, acute systemic reaction	Progressive, recurrent, or silent thrombosis; erythematous skin lesions	None
Other causes for thrombocytopenia	None Evident	Possible	Definite

*Probability of HIT: 6-8 = high, 4-5 = intermediate, 0-3 = low

If suspicious of HIT, immediately stop treatment with any Heparin or Low Molecular Weight Heparin (LMWH) products.

Platelet counts should be done every other day in high risk patients and every 2-3 day in patients with an intermediate risk for developing HIT.

If HIT is suspected or diagnosed, check platelet counts daily until normalized.

Diagnostic Criteria:
Differential diagnosis should be done to rule out other causes of thrombocytopenia.

Laboratory Diagnosis:
If there is a strong clinical suspicion of HIT, treatment, including the initiation of anticoagulation, should not be delayed while awaiting laboratory confirmation of HIT antibodies

Testing for HIT is performed using two primary methodologies: antigenic assays and platelet activation tests.

An antigenic (ELISA) test for HIT antibodies is available in the WVUH Clinical Laboratory. In order to ensure against falsely negative results, patients tested must be off heparin for at least 12 hours before the sample is drawn and blood cannot be drawn through arterial lines or any line that may contain heparin. This test is performed Mondays, Wednesdays, and Fridays, and samples must be received by 9am for same-day results. This test is highly sensitive for detection of HIT antibodies. Positive results are reported as critical values.

If results of the antigenic testing are indeterminate, or if otherwise clinically indicated, samples may be sent to a reference laboratory for platelet activation (serotonin release assay) testing. This testing is highly specific for HIT antibodies.

Treatment Options ADULTS:

For patients with strongly suspected or confirmed HIT who do not have active bleeding, it is suggested that prophylactic platelet transfusions should not be given.[3] For patients with active bleeding consider consulting hematology or contacting pathology.

1. Lepirudin (See adult HIT order set - pharmacy managed protocol)
    a. Bolus: 0.2-0.4mg/kg IV in life or limb threatening cases
    b. Max initial infusion: 0.1mg/kg/h IV
    c. aPTT should be performed at 4h intervals until a steady state is reached
    d. Adjust to maintain aPTT at 1.5 - 2.5 times the mean of the normal range (40-70 seconds)
    e. Adjust in renal insufficiency
    f. Avoid in dialysis patients
    g. Repeated use of lepirudin should be avoided because of the risk of anaphylaxis.
    h. $
2. Argatroban (See adult HIT order set - pharmacy managed protocol)
    a. Initial infusion: 2μg/kg/min IV
    b. Adjust to maintain aPTT at 1.5 - 2.5 times the mean of the normal range (40-70 seconds)
    c. Adjust in hepatic insufficiency when bilirubin is ≥ 1.5mg/dl
    d. If AST or ALT 3x upper normal limits, do not use
    e. Can increase the INR when restarting warfarin
    f. $$$$
3. Bivalirudin (In patients with or at risk for HIT undergoing PCI or CABG) (Not FDA approved for HIT).
    a. Initial infusion: 0.15-0.20 mg/kg/h IV
    b. Adjust to keep aPTT 1.5 – 2.5 times higher than baseline
    c. Adjust in renal insufficiency
    d. Is not intended for intramuscular administration
4. Fondaparinux (Not FDA approved) (See fondaparinux guidelines) (Not FDA approved for HIT.)
    a. Dose recommendations are not available for HIT
    b. Can be administered subcutaneously
    c. Should be used only when other options are not available
    d. Avoid when Crcl< 30ml/min

If the patient has been receiving warfarin when HIT is initially diagnosed, stop warfarin and strongly consider the administration of Vitamin K which may reduce the risk of limb necrosis.

phytonadione (vitamin K) 10mg orally
phytonadione (vitamin K) 5mg intravenously
phyonadione (vitamin K) 10mg intravenously

Initiating or RestartingWarfarin:

- Allow platelet counts to normalize (150,000 best, but at least 100,000)
- Initial warfarin dose should be less than or equal to 5mg a day. Larger loading doses should be avoided.
- Overlap current anticoagulant with warfarin for 4-5 days or until patient has 2 therapeutic INRs.
- Continue therapy for 3-6 months, with a minimum of 100 days or longer if patient has other indications for warfarin.
- Refer to argatroban guidelines when transitioning to warfarin.

References:

1. Shantsila E, et al. Heparin Induced Thrombocytopenia: A Contemporary Clinical Approach to Diagnosis and Management. CHEST 2009; 135:6:1651-64.
2. American Society of Hematology 2009 Clinical Practice Guideline on the Evaluation and Management of Heparin-Induced Thrombocytopenia (HIT) available online at www.hematology.org/policy/resources/guidelines.
3. Warkentin TE, et al. Treatment and Prevention of Heparin-Induced Thrombocytopenia. CHEST 2008; 133:340S-380S.
4. Clinical Pharmacology Online. <http://www.clinicalpharmacology-ip.com.soleproxy.hsc.wvu.edu/default.aspx>.