Approved by Quality & Patient Safety Committee
19 February 2015

HEPARIN INDUCED THROMBOCYTOPENIA SYNDROME (HITS) - ASSESSMENT AND MANAGEMENT

General

- **Heparin-induced thrombocytopenia** (HITS) is the most important of immune-mediated, drug-induced thrombocytopenia. It is caused by the development of antibodies to platelet factor 4 (PF4) and heparin. These antibodies can lead to platelet activation and subsequent thrombotic complications

Incidence

- 1-3% of patients exposed to unfractionated heparin (UFH) develop HITS
- 0-0.8% receiving low molecular weight heparin (LMWH) for $\geq$ 5 days develop HITS
- **More common with** longer duration, higher dose, in women and post-surgical > medical > obstetric
- The risk is very low in **obstetric patients** given prophylactic LMWH

Clinical features

- Moderate **thrombocytopenia** (with a median platelet count nadir of ~50-60x10^9 platelets/L) with the platelet count beginning to drop within 5 to 10 days of starting heparin. A more rapid drop in the platelet count can occur in patients who have been recently exposed to heparin (within the preceding 3 months), due to preformed anti-heparin/PF4 antibodies.
- Thromboembolism: arterial or venous
- Skin lesions at the injection site

Differential Diagnosis

- 10-30% of patients receiving heparin develop a mild thrombocytopenia, which must be differentiated from HITS. **Non-immune heparin-associated thrombocytopenia** is not associated with bleeding or thrombosis, it is not progressive, it usually occurs in the first 5 days of therapy and the platelet count is usually > 100x10^9/L

Monitoring for HITS
Check platelet count as directed below:

- *Prior to commencing* treatment with UFH: all patients
- *24 h after starting* UFH: patients who have been exposed to heparin in the last 100 days (risk of pre-sensitisation)

Risk group	Patients	Platelet Monitoring, days 4-14
High risk	Therapeutic UFH	Every 2 days
	UFH prophylaxis in post-surgical patients	
Intermediate risk	UFH prophylaxis in medical & obstetric patients	Every 3 days
	LMWH prophylaxis post-surgery	
Low risk	LMWH (treatment & prophylaxis) in medical & obstetric patients	Nil

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- **Suspect HITS if**
  - The platelet count falls >50%, or
  - Absolute platelet count is $\leq 150 \times 10^9$/L

Management

- Exclude other causes of thrombocytopenia
- Clinical decisions should be made in consultation with a haematologist
- If HITS is strongly suspected:
  - **CONSULT HAEMATOLOGIST**
  - Send appropriate samples for anti-heparin antibody testing
    - Do not wait for results
    - Screening test: PAIGIA: performed within 1-2 working days (Call Haematologist if weekend)
    - Gold Standard: Serotonin Release Assay, performed approximately monthly
  - **Stop heparin therapy**:
    - Every molecule of heparin must be discontinued, ie, unfractionated heparin, low-molecular-weight heparin, flushes, and all coated catheters
  - **Initiate therapy with alternative, non-heparin anticoagulant**
    - E.g. Danaparoid, Lepirudin, Fondaparinux (refer to POW Haematology clinical business rules for dosing and administration details)
  - Do not give warfarin until platelet count is $>150 \times 10^9$/L
  - Avoid LMWH due to potential for antibody cross-reactivity
  - Avoid platelet transfusions
  - Assess clinically for venous thrombosis
  - Clearly record the diagnosis in the medical record and allergy section of the eMR

Subsequent Management

- The non-heparin anticoagulant should be continued until the thrombocytopenia has resolved
- If a thrombosis has occurred, e.g. DVT, an extended period of anticoagulation will be required
- Further exposure to heparin should be avoided.
- In future, an alternative anticoagulant to UFH and LMWH should be used
- In specific clinical scenarios, repeat administration of heparin may be considered if HITS occurred a long time before (>100days), the patient is negative for antibodies to the heparin-PF4 complex, and the exposure time will be limited.

- **DISCUSS WITH HAEMATOLOGIST**

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References:

1. Shantsila E, Lip G, Chong B. Heparin-Induced Thrombocytopenia, A Contemporary Clinical Approach to Diagnosis and Management. *Chest* 2009; 135: 1651-1664.
2. Warkentin T, Greincher A, Koster A, Lincoff A. Treatment and Prevention of Heparin-Induced Thrombocytopenia. Antithrombotic and Thrombolytic Therapy 8th Ed; ACCP Guidelines. *Chest* 2008; 133 (6)
3. Franchini, M. Heparin-induced thrombocytopenia: an update. *Thromb J* 2005,3:14.
4. Warkentin TE, Greinacher A. Heparininducedthrombocytopenia: recognition, treatment, and prevention: the Seventh ACCP Conference on Antithrombotic and Thrombolytic Therapy. *Chest.* 2004;126(3 Suppl):311S-337S.

Related Policies:
Heparin
Bridging anticoagulation
Thromboembolism prophylaxis

Risk rating: Low- review in 2020

REVISION & APPROVAL HISTORY
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