# Excluding Heparin Induced Thrombocytopenia (HIT)

## What is HIT?

HIT is a major adverse reaction associated with unfractionated heparin (UFH) or low-molecular weight heparin (LMWH).

The clinically severe form "HIT 2" is characterized by thrombocytopenia beginning 4-14 days after heparin therapy, with the occurrence of antibodies against platelet factor 4 (PF4)/heparin complexes[1].

HIT has a prevalence of up to 3% in patients being treated with UFH or LMWH[2].

## Consequences of HIT

HIT is associated with severe venous and/or arterial thromboembolic events and high mortality. Many patients become permanently disabled due to stroke or other causes, including amputation.

If HIT is suspected clinically, immediate cessation of UFH or LMWH is mandatory. Alternative anticoagulation (e.g. direct thrombin inhibitors or danaparoid) is required.

Patients must not be exposed to UFH/LMWH for the rest of their life.

## Diagnosis

The diagnosis of HIT is based on clinical data, e.g. by using the "4-T's-score" (see opposite page) and by laboratory testing. This should at least include:

- a platelet count
- exclusion of other causes of thrombocytopenia
- the demonstration of antibodies against heparin/PF4 (e.g. rapid assay with Bio-Rad ID-PaGIA Heparin/PF4 Antibody Test) and potentially, platelet function tests.

**We recommend, to send the completed 4-T's-Score (opposite page) together with the sample to the laboratory.**

## Interpretation of Test Results

Due to an excellent negative predictive value of the combination of 4-T's-score with the Bio-Rad ID-PaGIA Heparin/PF4 Antibody Test[3], a negative result provides strong evidence against HIT. Positive immunological tests make HIT likely, but additional functional assays should be considered for confirmation of diagnosis.

### Literature


*1. Greinacher A, Warkentin TE. Thromb Res. Res. 2006; 118:165-76 (Review)*
*2. Prandoni P, Siragusa S, et al. Blood 2005; 106(9):3049-54*
*3. Pouplard C, et al. J Thromb Haemostas 2007; 5:1373-9*


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# Clinical Assessment of HIT with the 4-**T**'s-score

| | | Points |
|---|---|---|
| **T**hrombocytopenia | > 50% platelet count fall to nadir ≥ 20,000/µl | 2 |
| | 30-50% platelet count fall to nadir 10,000-19,000/µl | 1 |
| | < 30% platelet count fall to nadir < 10,000/µl | 0 |
| **T**iming of fall in platelet count or other sequelae | Onset 5-10 days or ≤ 1 day (if heparin exposure within 30 days) | 2 |
| | > 10 days, or timing unclear, or < 1 day (with recent heparin 31-100 days) | 1 |
| | Platelet count fall < 4 days without recent heparin exposure | 0 |
| **T**hrombosis or other seaquelae | New thrombosis; skin necrosis; post-heparin bolus acute systemic reaction | 2 |
| | Progressive or recurrent thrombosis; erythematous skin lesions; suspected thrombosis not confirmed | 1 |
| | No thrombosis or other complication | 0 |
| O**T**her cause for thrombocytopenia | No other cause for platelet count fall is evident | 2 |
| | Other cause is possible | 1 |
| | Other cause is defined | 0 |
| | **SCORE** | |

| Points | Probability of HIT |
|---|---|
| 0-3 | Low |
| 4-5 | Intermediate |
| 6-8 | High |

**Patient-ID** .....

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**Drug** ..... **Date** .....

Adapted from Lo GK, et al. J Thromb Haemostas 2006; 4:759-65
Please see also: http://www2.medizin.uni-greifswald.de/transfus/fileadmin/user_upload/doku_thrombo_gerinnung/anleitung_hit_score.pdf

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