HIT range

**Diagnosis of
Heparin Induced Thrombocytopenia**

What is HIT ?

- **H**eparin **I**nduced **T**hrombocytopenia

- **Adverse effect of heparin**

- **Antibody-mediated**

- **Main symptom: thrombocytopenia**
  - platelet count drop > 50% from the baseline
  - generally occurs 5-14 days after the start of heparin treatment

- **May affect up to 5% of patients on UFH and 0.5 - 1% of patients on LMWH therapy**

- **Strong association with venous and arterial thrombosis**
  - high morbidity risks

➔ HIT suspicion: huge stress for clinician/lab

Diagnosis

- **Combination of clinical and biological criteria**
  - pre-test scoring (4T's)
  - biological assays
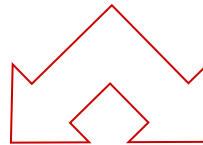
Functional assays (SRA, HIPA) = *detect platelets activating antibodies*	**Immunoassays** = *detect antibodies against [Heparin/PF4]*
☺ highest sensitivity/specificity	☺ better standardisation
☹ complex, expensive, time consuming	😐 easier to use
☹ not standardised	☹ lower specificity
☹ not widespread use	

➔ No perfect test, room for improvement

Treatment of HIT

HIT: **Severe** clinical impacts

Suspicion of HIT = stress for clinician/lab

Clinician does not wait for lab results
→ **switch to alternative anticoagulant**
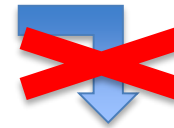
Alternative anticoagulants
→ **high risk of bleeding (no antidote)**
→ **much more expensive**

HIT Facts

HIT: **Severe** clinical impacts
Suspicion of HIT = stress for clinician/lab

Clinician does not wait for lab results
→ **switch to alternative anticoagulant**

Alternative anticoagulants
→ **high risk of bleeding (no antidote)**
→ **much more expensive**

Real frequency of HIT
→ **6~12%** of patients investigated for HIT **really have HIT***
→ **88~94%** of patients suspected of HIT **don't have HIT**

* Warkentin T.E. HIT paradigms and paradoxes. J Thromb Haemost 2011; 9: 105-117

ISTH recommendations
JTH Dec-11

Journal of Thrombosis and Haemostasis, 9: 2498–2500 DOI: 10.1111/j.1538-7836.2011.04536.x

OFFICIAL COMMUNICATION OF THE SSC

Laboratory testing for heparin-induced thrombocytopenia: a conceptual framework and implications for diagnosis

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➡ **Overdiagnosis of HIT is potentially dangerous**

bodies (as demonstrated in serosurveillance studies). Over-diagnosis of HIT is potentially dangerous because it may lead to withholding of certain diagnostic and therapeutic interventions during the acute event and in future admissions, and because it usually prompts treatment with alternative anticoagulants, which may increase bleeding risk (approximately 1%

➡ **How to exclude HIT?**

Therefore, a negative result of an HIT antibody test performed because of thrombocytopenia or thrombosis generally rules out HIT. Routine repeat testing a few days later is not indicated

➡ **How to improve specificity?**

ity of EIAs. Patients should be tested for IgG class antibodies, as only this isotype class activates platelets [2,6,16,17] (rare

Clinicians and labs needs

Clinician

High interest to **quickly rule-out HIT**
Avoid alternative treatment, maintain heparin
- Less bleeding risks
- Cost savings
  - **treatment**
  - **less additional expensive testing, labor cost**

From the lab perspective

- Unitary test
- Rapid
- Easy to use
- 24/7, STAT adapted
- Negative Predictive Value 100%
- High specificity

Results

SERUM

		HIT Rapid test *STic Expert®*	
		-	+
HIT	-	188	38
	+	0	33

Ss 100% - NPV 100%
Sp 83.2% - PPV 46.5%

PLASMA

|		HIT Rapid test *STic Expert®*	
		-	+
HIT	-	245	47
	+	1*	41

Ss 97.6% - NPV 99.6%
Sp 83.9% - PPV 46.6%

*negative result not confirmed by the centralized center after testing a deforsted sample

➔ **Excellent NPV :** serum 100% and plasma 99.6%
➔ **High specificity :** serum 83.2% and plasma 46.6%

Performances of the « 4T's »
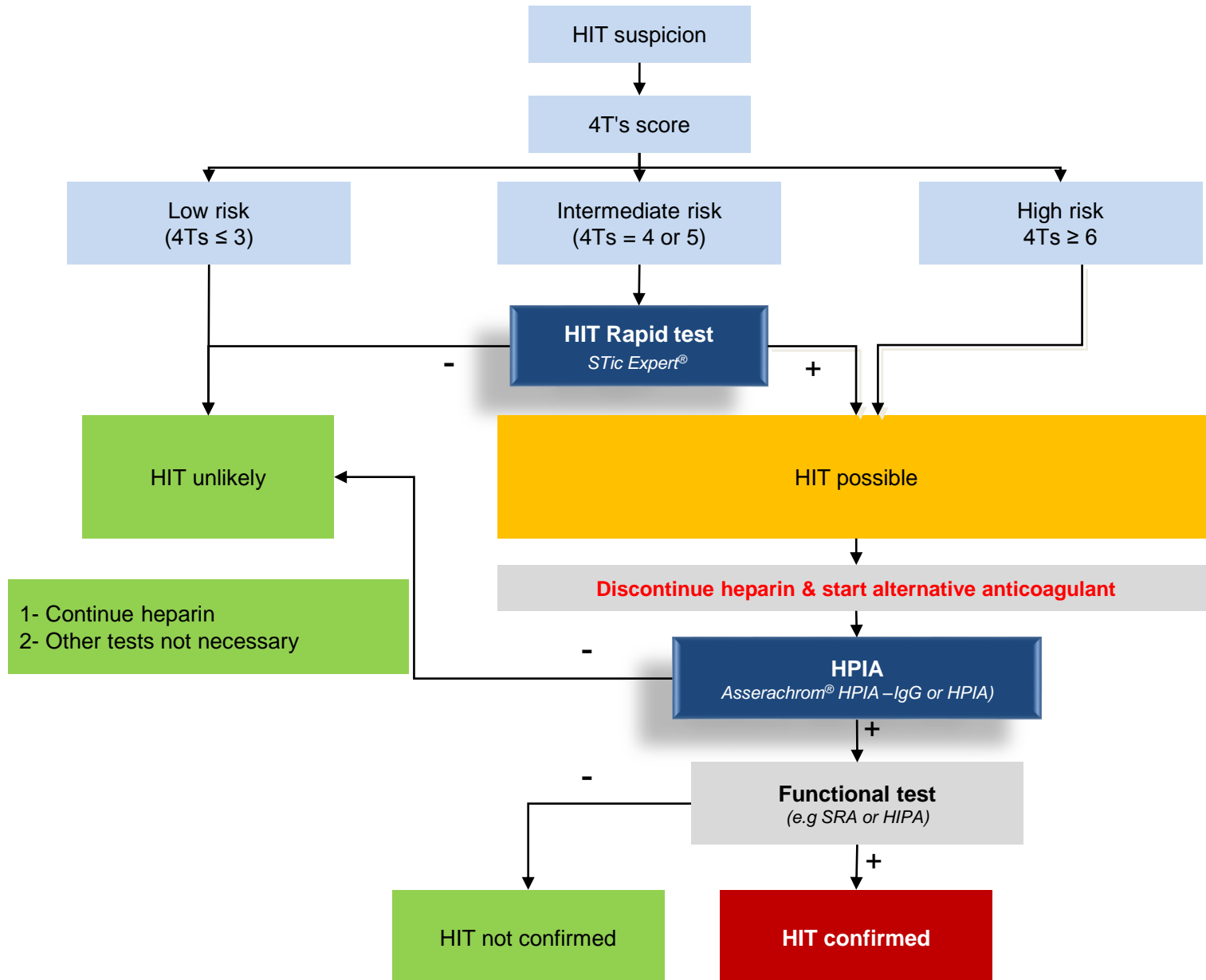*combined with HIT Rapid test*

4T's score		Pre-test probability	Post-test probability	
			HIT Rapid test *STic Expert*®	
			Negative	**Positive**
	Low risk (3/95)	**3.1%**	0.1%	16.4%
	Intermediate risk (24/207)	**11.6%**	0.39%	43.3%
	High risk (15/32)	**46.8%**	2.6%	84.2%
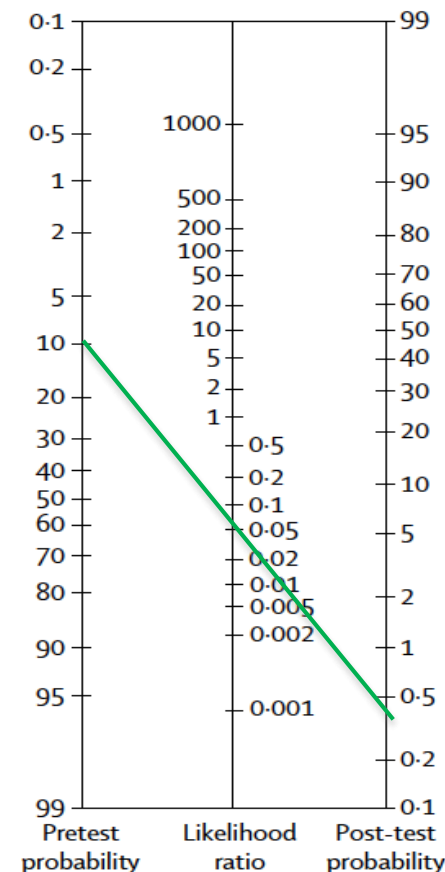
Low or intermediate risk
➔ a negative result is able to confidently rule-out HIT
➔ heparin treatment can be continued

Suggested diagnosis algorithm

Conclusion

- **6~12% of patients investigated for HIT really have HIT**

- **Ruling-out HIT quickly avoids unnecessary changes of heparin**
  - ~90% of suspected patients
  - reduce bleedings risks
  - reduce costs

- **Stago offers a comprehensive range for HIT diagnosis**
  - STic Expert® HIT
  - Asserachrom® HPIA-IgG
  - Asserachrom® HPIA