

Title	Biology of haemostasis disorders: Testing for antibodies to platelet factor 4 in a patient with heparin – induced thrombocytopenia
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Aim

The National Salaried Workers' Health Insurance Fund (CNAMTS) asked HAS to assess the value of the different laboratory tests for haemostasis abnormalities with a view to updating the section in the Nomenclature of Procedures in Laboratory Medicine (NABM) containing the procedures in laboratory medicine for measuring abnormalities of haemostasis (subsection 5-02). One of those procedures is testing for anti-PF4 antibodies by an immunological method. This test, which is not an NABM procedure, is one of the two types of tests that can be used to detect heparin-induced thrombocytopenia (HIT) along with the photometric platelet aggregation test. HIT is a serious complication of the parenteral anticoagulant treatments that are generally used for the prevention and treatment of venous thromboembolism (VTE). HIT is responsible for arterial or venous thromboembolic accidents that may be life-threatening or jeopardize patients' functional prognosis.

Conclusions and results

Testing for antibodies to PF4, combined with a functional test, is recommended in the following indications:

- a relative drop in platelets in two successive counts of 30% to 50% on treatment with heparin and/or a platelet count of < 100 to 150 G/l in the absence of an earlier count;
- venous or arterial thrombosis during treatment with heparin;
- thrombosis even if the patient has been off heparin for a few days;
- resistance to heparin therapy with spread of the initial thrombotic process.

The test for anti-PF4 antibodies and the photometric platelet aggregation test complement each other. The existing guidelines in France favour the systematic performance of the two types of tests, whereas the American guideline favours examination

in two stages (performance of a second immunological or functional test only if necessary, and in accordance with a predefined strategy). According to the documents analysed, the decision to stop heparin must be taken without awaiting confirmation of the presence of anti-PF4 antibodies, but testing for these antibodies is essential, since it changes the short- and long- term management of the patient (change in treatment, secondary prevention).

Recommendations

On the basis of the literature identified and analysed, testing for anti-PF4 antibodies is advisable if there is any suspicion of HIT which is a serious complication of parenteral anticoagulant treatments. According to the French guidelines analysed, it is essential to combine a functional test (such as the photometric platelet aggregation test) with an immunological test (ELISA). This allows HIT to be diagnosed on the basis of a body of arguments and treatment to be adjusted in the short and the long term (change of treatment, secondary prevention).

Methods

This assessment is based on a critical analysis of the literature made by the Haute Autorité de Santé, and reviewed by experts in haemostasis. It takes into account the arguments of a group of experts assembled by CNAMTS on which CNAMTS based its request. The assessment of this procedure is based on a critical analysis of the literature consisting of five documents comprising four guidelines, and one HAS technological assessment report from 2005 plus the review by three experts in haemostasis.

Written by

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