Title	Biology of haemostasis disorders: photometric platelet aggregation test
Agency	HAS, French National Authority for Health (Haute Autorité de Santé) 2 avenue du Stade de France F 93218 La Plaine Cedex, France Tel: + 33 (0) 1 55 93 71 13 Fax: + 33 (0) 1 55 93 74 35 contact.seap@has-santé.fr, www.has-sante.fr
Reference	http://www.has-sante.fr/portail/jcms/c_1009982/fr/biologie-des-anomalies-de- lhemostase

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 tests is the photometric platelet aggregation test (PAT), which is not an NABM procedure. The PAT is regarded as the reference test for the assessment of platelet function, for which it is still the most used test. This technique measures aggregation in platelet-rich plasma (PRP) obtained after low-speed centrifugation of a sample of the patient's blood collected in sodium citrate. Aggregation is measured by a photometric technique after the addition of various inducers, also called aggregating agents or agonists. Since the preanalytical and analytical requirements are relatively demanding (for example blood sampling conditions, storage of the sample, time for carrying out the examination, preparation of platelet-rich and platelet-poor plasmas, centrifugation conditions, etc.), the photometric platelet aggregation test would need to be carried out at experienced centres that are sufficiently busy to maintain expertise in using the technique and interpreting the results.

Conclusions and results

According to the different documents analysed, the photometric platelet aggregation test is recommended:

- for the diagnosis of haemorrhagic disorders;
- for the diagnosis of heparin-induced thrombocytopenia (HIT), combined with an immunological test, in the following cases:
- a relative drop in platelets, in two successive counts, of 30 % to 50 %, during treatment with heparin and/or a platelet count of < 100 to 150 G/L in the absence of any earlier count;
- venous or arterial thrombosis during treatment with heparin;
- thrombosis or thrombocytopenia, even if the patient has been off heparin for a few days;
- resistance to heparin therapy with spread of the thrombotic process.

On the other hand, on the basis of the different documents analysed, testing for resistance to antiplatelet drugs, whatever the method used, and thus including the photometric platelet aggregation test, is at present not recommended for routine individual use.

Recommendations

In conclusion, on the basis of the literature identified and analysed, the photometric platelet aggregation test is recommended for the diagnosis of platelet function abnormalities, and for the laboratory diagnosis of HIT. Since the preanalytical and analytical requirements were relatively demanding, the photometric platelet aggregation test needs to be carried out at experienced centres that are sufficiently busy to maintain expertise in using the technique and interpreting the results.

Methods

This assessment is based on a critical analysis of the literature carried out 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 15 documents comprising 10 guidelines, one diagnostic utility study, one HAS technical assessment report from 2005 and three position papers, plus the review by three experts in haemostasis.

Written by

Aurélie Pacull, Haute Autorité de Santé, HAS, France