ABSTRACT FORM ECAT SYMPOSIUM 15 – 16 SEPTEMBER 2022

Name and affiliations:

Katrien M.J. Devreese - Ghent University Hospital, Ghent Belgium

Title:

Antiphospholipid antibody results and clinical implications

Abstract:

The diagnosis of antiphospholipid syndrome (APS) relies on the detection of circulating antiphospholipid antibodies (aPL). Three groups of aPL are included as laboratory criteria if persistently present: lupus anticoagulant (LAC), anticardiolipin (aCL) and antibeta2-glycoprotein I antibodies (aβ2GPI) IgG or IgM. The APS diagnosis relies predominantly on laboratory results as the incidence of clinical symptoms (thrombotic complications and pregnancy morbidity) is high and these are often determined by other underlying factors. Moreover, the role of the laboratory is essential since detection of aPL is required, by definition. In addition, laboratory parameters define the antibody profile and are used in risk stratification in APS patients. An accurate laboratory diagnosis is mandatory, since over-diagnosis as well as misdiagnosis has severe clinical implications.

LAC assays are highly specific for the diagnosis of APS and show strong association with thrombotic events and fetal loss. On the other hand, LAC detection has several disadvantages, and the methodology is complicated and labour-intensive. The laboratory diagnosis of LAC is still a major challenge for the clinical lab, since, in spite of their refinement over the last years, test procedures have essentially not changed. Recently, an update on measurement of LAC has been published supported by the International Society of Thrombosis and Haemostasis (ISTH) Scientific Standardisation Subcommittee (SSC) of LAC/aPL. This guidance aims to reach more harmonization and provides guidance for laboratory workers as well as clinicians, handling pre-analytical, analytical and post-analytical issues for the detection of LAC. In my presentation I will focus on the methodology for LAC detection and give attention to the pitfalls, and how to deal with one of the main confounders, anticoagulant therapy.

Solid phase assays for aCL and aβ2GPI still show inter-assay differences and these methodological issues contribute to the challenging laboratory diagnosis of APS. Differences in results is illustrated in external quality control programs, where participants are asked, not only for the titer of the samples, but also to classify the sample as negative, borderline, low, medium or high positive. A semiquantitative interpretation is not recommended because of the differences in titer, but should be useful for the clinicians, and benefit uniformity in interpretation of results. Method-specific semiquantitative categorization of titers could improve and harmonize the interpretation across platforms. Threshold levels of 40/80 units show poor agreement between ELISA and automated platforms for classification into low/moderate/high positivity. Agreement for semiquantitative interpretation of aPL between ELISA and chemiluminescent methods improves with alternative thresholds.

Non-criteria aPL, such as antiphosphatidylserine-prothrombin (aPS/PT) antibodies have been studied intensively in the last years. There is a high association with LAC, although without a complete overlap. aPS/PT confirm the risk in APS but analysis on top of current laboratory criteria is not essential in thrombotic APS diagnosis. aPS/PT could be useful in patients with thrombosis and a double positive aPL profile. Although, at present, these non-criteria aPL are not performed routinely.

In conclusion, following the guidelines for measurement of aPL will harmonize results. An integrated interpretation of LAC, aCL and aβ2GPI (aPL profile) with result interpretation in a clinical context is important. Knowledge of the patient's anticoagulation status is mandatory for a good interpretation of results. Therefore, a report with an explanation should be given with warning for interferences. Overall, a close interaction between the laboratory and the clinician is mandatory for adequate diagnosis of APS.