To address current variation in the post-analytical phase of lupus anticoagulant testing with respect to how numerical results are reported and interpreted by pathologists across British Columbia. As a guide, the Special Coagulation specialists' team from St. Paul Hospital have developed a summary of lupus anticoagulant testing recommendations and interpretative comments.

Lupus Anticoagulant (LA): Summary of Testing Recommendations

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1. When reporting LA analytical results, the method and cut-off values should be provided [1,3].
2. Screening and confirmatory clotting times should be converted to normalized ratios using one of two values for the denominator [1,2,3]: the clotting time of Pooled Normal Plasma (PNP) analyzed with each test batch [1,3] or the mean clotting time of the reference interval (RI) for each specific assay [2]. This procedure helps to diminish variation depending on reagent, instrument, and operator.
3. If the results of both screening tests are below the assay specific cut off values, no further testing is indicated, and a report can be issued with a comment indicating LA is "not detected."
4. If the results of one or more screening assay are prolonged above the assay specific cut off(s), all three steps (screen, mix and confirm) are performed for that assay system. The laboratory can report the analytical results for each step (screen, mix, confirm) to allow clinicians to understand the interpretation according to the cutoff values and for comparison of results over time [1].
5. Results are suggestive of the presence of LA when the screening step result and the mixing step result are higher than the laboratory's cutoff value, and the confirmatory step shows correction.
6. Mixing tests introduce a dilution factor that may make weak LA samples appear negative. In the absence of any other causes of prolonged clotting times, such samples should be considered LA positive if the screen and confirmatory tests on undiluted plasma give positive results [1,2,3,4].
7. The method for calculating the degree of correction (in the confirm step) should employ either a final normalized LA ratio (screen normalized ratio/confirmatory normalized ratio) or percentage correction of ratio [(screen normalized ratio – confirm normalized ratio)/screen normalized ratio x 100] [1,2,3].
8. Using assay specific cutoff values allows final interpretation for each test system as LA not detected (result below the cutoff value for a specific test) or LA present (result above cut off value for a specific test). LA should be considered present if at least one of two test systems yields a final normalized ratio result above the assay specific cut off [1,3].
9. A final interpretative comment with an explanation of the results and conclusion of LA-present or LA-not detected [2] or alternatively, LA-positive or LA-negative [1] should be provided. Failure to observe LA activity in a particular test does not completely exclude the presence of LA, because the test itself may not be sufficiently robust or sensitive to capture the LA activity. Therefore, "LA not detected" is the preferred term and is not synonymous with LA-negative. Conversely, if LA activity is detected, the preferred term is "LA present" and not LA-positive [2].
10. Repeat testing is required after an initial positive result on a second occasion after at least 12 weeks to confirm the presence of LA and exclude a transient lupus anticoagulant [1,3] [2006 Sydney classification criteria].
11. Preanalytical conditions potentially influencing test results should be mentioned in the report, including a warning about possible interference by anticoagulants (i.e., warfarin, heparins, DOAC) and acute phase proteins (e.g., CRP, FVIII and fibrinogen) causing false positive and negative results [1,2]. This is especially important when information regarding these interferences is lacking.
12. While APTT, PT and TT should be performed before starting LA testing to have more information on the coagulation background of the patient, this is not fully conclusive because normal APTT and/or PT do not exclude presence of DOACs or LMWH.
13. If available, information on the patient's anticoagulation status should be incorporated into the report.
14. If anticoagulant neutralizing reagents are used (e.g., DOAC adsorbents or Hepzyme), this should be mentioned in the interpretive comment (e.g., "LA not detected after adsorption of DOAC with DOAC STOP reagent" or "LA is detected after adsorption of DOAC with DOAC STOP reagent").
15. Acquired FVIII inhibitors can mimic LA in APTT test systems [2,5]. Caution with interpretation is recommended for cases with an isolated prolonged APTT with LA detection limited to the APTT system (i.e., LA not detected in DRVVT system). Chromogenic FVIII levels are a useful safeguard for this scenario.

16. LA results should always be correlated with the results of anti-cardiolipin (aCL) and anti-β2-glycoprotein I (aβ2GPI) to assess the risk profile [1].

Interpretive comments for Lupus Anticoagulant (LA) testing

Key components and examples of an interpretive comment for a positive result

1. Confirm LA detection:
   A lupus anticoagulant (LA) is present.
2. Recommend repeat testing to confirm persistent LA activity (2006 Sydney criteria):
   If the diagnosis is not established, repeat testing is required after at least 12 weeks to confirm this finding and exclude a transient LA (2006 Sydney criteria).
3. Warning about possible interference:
   Anticoagulant therapy (e.g., warfarin, heparin and DOACs) and acute phase proteins (e.g., CRP, FVIII and fibrinogen) may cause false positive or negative results.
4. Recommend correlation with anti-cardiolipin and anti-beta 2 glycoprotein 1 antibody testing:
   Correlation with medication history, anti-cardiolipin and anti-beta 2 glycoprotein 1 antibody testing is recommended.

Example comments for a positive result

A lupus anticoagulant (LA) is present. If the diagnosis is not established, repeat testing is required after at least 12 weeks to confirm this finding and exclude a transient LA (2006 Sydney criteria). Caution, anticoagulant therapy (e.g., warfarin, heparin and DOACs) and acute phase proteins (e.g., CRP, FVIII and fibrinogen) may cause false positive or negative results. Correlation with medication history, anti-cardiolipin and anti-beta 2 glycoprotein 1 antibody testing is recommended.

Key components and examples of an interpretive comment for a negative result

1. State LA not detected:
   A lupus anticoagulant (LA) is not detected.
2. Warning about possible interference:
   Anticoagulant therapy (e.g., warfarin, heparin and DOACs) and acute phase proteins (e.g., CRP, FVIII and fibrinogen) may cause false positive or negative results.
3. Failure to detect LA does not exclude Antiphospholipid Antibody Syndrome (APS). Recommend correlation with anti-cardiolipin and anti-beta 2 glycoprotein 1 antibody testing:
   Correlation with medication history, anti-cardiolipin and anti-beta 2 glycoprotein 1 antibody testing is recommended.

Example comments for a negative result

A lupus anticoagulant (LA) is not detected. Anticoagulant therapy (e.g., warfarin, heparin and DOACs) and acute phase proteins (e.g., CRP, FVIII and fibrinogen) may cause false positive or negative results. Correlation with medication history, anti-cardiolipin and anti-beta 2 glycoprotein 1 antibody testing is recommended.

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