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PATIENT REPORT

Patient Age/Sex: 23 years Male

Specimen Collected: 21-Dec-23 06:20

APC with Reflex to Factor V Leiden | **Received: 21-Dec-23 06:20** | **Report/Verified: 21-Dec-23 06:51**

Procedure	Result	Units	Reference Interval
APC Resistance	4.42 i1		[>=2.00]
Factor V Leiden by PCR	Not Done f1		
FACV REF Specimen	Not Done		

Lupus Anticoagulant Reflex Panel | **Received: 21-Dec-23 06:20** | **Report/Verified: 21-Dec-23 06:52**

Procedure	Result	Units	Reference Interval
Prothrombin Time (PT)	26.3 H	s	[12.0-15.5]
PTT-LA Ratio	1.52 H		[<=1.20]
dRVVT Screen Ratio	0.96		[<=1.20]
Anti-Xa Qualitative Interpretation	Not Present		[Not Present]
Thrombin Time (TT)	19.5	s	[<=19.5]
Anticoagulant Medication Neutralization	Not Performed		[Not Performed]
Neutralized PTT-LA Ratio	Not Performed		[<=1.20]
Neutralized dRVVT Screen Ratio	Not Performed		[<=1.20]
dRVVT 1:1 Mix Ratio	Not Performed		[<=1.20]
dRVVT Confirmation Ratio	Not Performed		[<=1.20]
Hexagonal Phospholipid Confirmation	17.8 H	s	[<=7.9]
Lupus Anticoagulant, Interpretation	See Note f2 i2		

Antithrombin, Enzymatic (Activity) | **Received: 21-Dec-23 06:20** | **Report/Verified: 21-Dec-23 06:54**

Procedure	Result	Units	Reference Interval
Antithrombin,Enzymatic (Activity)	80 i3	%	[76-128]

B2glycoprotein I Abs, IgG and IgM | **Received: 21-Dec-23 06:20** | **Report/Verified: 21-Dec-23 06:54**

Procedure	Result	Units	Reference Interval
B2Glycoprotein 1,IgG Antibody	15	SGU	[<=20]
B2Glycoprotein 1,IgM Antibody	<10 i4	SMU	[<=20]

Cardiolipin Antibodies, IgG/IgM | **Received: 21-Dec-23 06:20** | **Report/Verified: 21-Dec-23 06:54**

Procedure	Result	Units	Reference Interval
Cardiolipin Antibody IgG	<10 i5	GPL	[<=14]
Cardiolipin Antibody IgM	28 H i6	MPL	[<=12]

Homocysteine, Total | **Received: 21-Dec-23 06:20** | **Report/Verified: 21-Dec-23 06:54**

Procedure	Result	Units	Reference Interval
Homocysteine,Total	13 i7	umol/L	[0-15]

Protein C, Functional | **Received: 21-Dec-23 06:20** | **Report/Verified: 21-Dec-23 06:54**

Procedure	Result	Units	Reference Interval
Protein C Functional	25 L i8	%	[83-168]

*=Abnormal, #=Corrected, C=Critical, f=Result Footnote, H-High, i-Test Information, L-Low, t-Interpretive Text, @=Performing lab

Protein S Ag, Free	**Received: 21-Dec-23 06:20**		**Report/Verified: 21-Dec-23 06:54**
Procedure	**Result**	**Units**	**Reference Interval**
Protein S Ag Free	52 L i9	%	[74-147]

Prothrombin (F2) G20210A Variant	**Received: 21-Dec-23 06:20**		**Report/Verified: 21-Dec-23 06:54**
Procedure	**Result**	**Units**	**Reference Interval**
PT PCR Specimen	Whole Blood		
Prothrombin (F2) G20210A Variant	Negative f3 i10		

Thrombotic Risk Reflex Panel	**Received: 21-Dec-23 06:20**		**Report/Verified: 21-Dec-23 11:53**
Procedure	**Result**	**Units**	**Reference Interval**
Thrombosis Interpretation -Risk	See Note f4 i11		

Result Footnote

f1: Factor V Leiden by PCR

Because the APCR was negative, the Factor V Leiden by PCR assay was not run.

f2: Lupus Anticoagulant, Interpretation

Lupus anticoagulant detected.

This panel did not detect evidence for heparin, direct thrombin inhibitors, or direct Xa inhibitors and drug neutralization was not performed.

Testing on two or more occasions at least 12 weeks apart is recommended to confirm persistently positive results (J Thromb Haemost. 2020; 18:2828-2839). Lupus anticoagulant testing is best performed when the patient is not acutely ill and not anticoagulated since acute inflammation or high concentrations of anticoagulant medications may lead to erroneous results. Consider testing for cardiolipin and beta-2 glycoprotein 1 antibodies (IgG and IgM) if this testing has not already been performed.

Current guidelines vary regarding use of mixing studies for lupus anticoagulant identification. The interpretation of "lupus anticoagulant detected" was generated due to a prolonged aPTT and/or DRVVT that demonstrated phospholipid dependence in the confirmatory assay(s). Multiple or severe factor deficiencies (including warfarin therapy) and specific factor inhibitors may result in false positive results in lupus anticoagulant assays. If clinically indicated, consider performing factor assays and/or specific factor inhibitor assays for further evaluation.

f3: Prothrombin (F2) G20210A Variant

Indication for testing: Assess genetic risk for thrombosis.

NEGATIVE: The Factor II, prothrombin G20210A mutation, was not detected. Other causes of elevated prothrombin levels and hereditary forms of venous thrombosis have not been excluded.

Recommendations: If clinically indicated, testing for other inherited or acquired thrombophilic disorders is recommended including DNA testing for the factor V Leiden mutation, measurement of total plasma homocysteine concentration, serological assays for anticardiolipin antibodies, multiple phospholipid-dependent coagulation assays for lupus inhibitor, protein C activity, protein S activity or free protein S antigen, and antithrombin activity.

This result has been reviewed and approved by [redacted]

f4: Thrombosis Interpretation - Risk

A Lupus anticoagulant and a low to moderately positive IgM anti-cardiolipin antibody is identified as risk factors for thrombosis.

A decreased functional protein C is identified. However, protein C may be decreased due to vitamin K deficiency/warfarin therapy, liver disease, acute thrombosis, DIC, or other causes. In the absence of

Result Footnote

f4: Thrombosis Interpretation - Risk
acquired conditions, the low value may represent a risk factor for thrombosis. If clinically indicated, consider repeat testing on a fresh specimen for confirmation after acquired conditions have been excluded. A diagnosis of inherited protein C deficiency should be established only after other acquired causes of decreased protein C have been excluded (Arch Pathol Lab Med 2002;126:1337-1348).

A decreased free protein S is identified. However, protein S may be decreased due to vitamin K deficiency/warfarin therapy, liver disease, acute thrombosis, DIC, pregnancy, oral contraceptives, hormone replacement therapy, inflammatory syndromes, or other causes. In the absence of acquired conditions, the low value may represent a risk factor for thrombosis. If clinically indicated, consider repeat testing on a fresh specimen for confirmation after acquired conditions have been excluded. A diagnosis of inherited protein S deficiency should be established only after other acquired causes of protein S deficiency have been excluded (Arch Pathol Lab Med 2002;126:1349-1366).

Test Information

i1: APC Resistance
TEST INTERPRETATION: APC Resistance Profile

Ratios less than 2.00 suggest APC resistance. This method uses factor V deficient plasma; therefore, APC resistance due to a nonfactor V mutation will not be detected. Extreme factor V deficiency or presence of direct oral anticoagulants (DOACs) may cause an unreliable ratio.

i2: Lupus Anticoagulant, Interpretation
INTERPRETIVE INFORMATION: Lupus Anticoagulant Reflex Panel

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the U.S. Food and Drug Administration. This test was performed in a CLIA-certified laboratory and is intended for clinical purposes.

i3: Antithrombin, Enzymatic (Activity)
REFERENCE INTERVAL: Antithrombin, Enzymatic (Activity)

Access complete set of age- and/or gender-specific reference intervals for this test in the ARUP Laboratory Test Directory (aruplab.com).

i4: B2Glycoprotein 1, IgM Antibody
INTERPRETIVE INFORMATION: B2Glycoprotein I, IgG and IgM Antibody

The persistent presence of IgG and/or IgM beta 2 glycoprotein I (B2GPI) antibodies is a laboratory criterion for the diagnosis of antiphospholipid syndrome (APS). Persistence is defined as moderate or high levels of IgG and/or IgM B2GPI antibodies detected in two or more specimens drawn at least 12 weeks apart (J Throm Haemost. 2006;4:295-306). B2GPI results greater than 20 SGU (IgG) and/or SMU (IgM) are considered positive based on the cutoff values established for this test. International reference materials and consensus units for anti-B2GPI antibodies have not been established (Clin Chim Acta. 2012;413(1-2):358-60; Arthritis Rheum. 2012;64(1):1-10.); results can be variable between different commercial immunoassays and cannot be compared. Strong clinical correlation is recommended for a diagnosis of APS. Low positive IgG and IgM B2GPI antibody levels should be interpreted in

Test Information

i4: B2Glycoprotein 1, IgM Antibody
light of APS-specific clinical manifestations and/or other criteria phospholipid antibody tests.

i5: Cardiolipin Antibody IgG
INTERPRETIVE INFORMATION: Anti-Cardiolipin IgG Ab

<=14 GPL: Negative
15-19 GPL: Indeterminate
20-80 GPL: Low to Moderately Positive
81 GPL or above: High Positive

The persistent presence of IgG and/or IgM cardiolipin (CL) antibodies in moderate or high levels (greater than 40 GPL and/or greater than 40 MPL units) is a laboratory criterion for the diagnosis of antiphospholipid syndrome (APS). Persistence is defined as moderate or high levels of IgG and/or IgM CL antibodies detected in two or more specimens drawn at least 12 weeks apart (J Throm Haemost. 2006;4:295-306). Lower positive levels of IgG and/or IgM CL antibodies (above cutoff but less than 40 GPL and/or less than 40 MPL units) may occur in patients with the clinical symptoms of APS; therefore, the actual significance of these levels is undefined. Results should not be used alone for diagnosis and must be interpreted in light of APS-specific clinical manifestations and/or other criteria phospholipid antibody tests.

i6: Cardiolipin Antibody IgM
INTERPRETIVE INFORMATION: Anti-Cardiolipin IgM

<=12 MPL: Negative
13-19 MPL: Indeterminate
20-80 MPL: Low to Moderately Positive
81 MPL or above: High Positive

The persistent presence of IgG and/or IgM cardiolipin (CL) antibodies in moderate or high levels (greater than 40 GPL and/or greater than 40 MPL units) is a laboratory criterion for the diagnosis of antiphospholipid syndrome (APS). Persistence is defined as moderate or high levels of IgG and/or IgM CL antibodies detected in two or more specimens drawn at least 12 weeks apart (J Throm Haemost. 2006;4:295-306). Lower positive levels of IgG and/or IgM CL antibodies (above cutoff but less than 40 GPL and/or less than 40 MPL units) may occur in patients with the clinical symptoms of APS; therefore, the actual significance of these levels is undefined. Results should not be used alone for diagnosis and must be interpreted in light of APS-specific clinical manifestations and/or other criteria phospholipid antibody tests.

i7: Homocysteine, Total
INTERPRETIVE INFORMATION: Homocysteine, Total

Test Information

i7: Homocysteine, Total

Elevated total homocysteine (tHcy) concentrations may be associated with vitamin B12 deficiency, folate deficiency, or inherited disorders of methionine metabolism. tHcy may also be used as a weak-graded risk factor for cardiovascular disease or stroke.

i8: Protein C Functional

INTERPRETIVE INFORMATION: Protein C, Functional

Patients on warfarin may have decreased protein C values. Patients should be off warfarin therapy for two weeks for accurate measurement of protein C levels. Artificially increased functional protein C values may be due to heparin therapy or the presence of direct thrombin inhibitors or factor Xa inhibitors.

Access complete set of age- and/or gender-specific reference intervals for this test in the ARUP Laboratory Test Directory (aruplab.com).

i9: Protein S Ag Free

INTERPRETIVE INFORMATION: Protein S Ag, FREE

Patients on warfarin may have decreased free protein S values. Patients should be off warfarin therapy for two weeks for accurate measurement of free protein S levels. Decreased levels of free protein S are also associated with DIC, liver disease, pregnancy, and inflammatory syndromes.

Access complete set of age- and/or gender-specific reference intervals for this test in the ARUP Laboratory Test Directory (aruplab.com).

i10: Prothrombin (F2) G20210A Variant

BACKGROUND INFORMATION: Prothrombin (F2) c.*97G>A
(G20210A) Pathogenic Variant
CHARACTERISTICS: The Factor II, c.*97G>A (G20210A) pathogenic variant is a common genetic risk factor for venous thrombosis associated with elevated prothrombin levels leading to increased rates of thrombin generation and excessive growth of fibrin clots. The expression of Factor II thrombophilia is impacted by coexisting genetic thrombophilic disorders, acquired thrombophilic disorders (eg, malignancy, hyperhomocysteinemia, high factor VIII levels), and circumstances including: pregnancy, oral contraceptive use, hormone replacement therapy, selective estrogen receptor modulators, travel, central venous catheters, surgery, and organ transplantation.
INCIDENCE: Approximately 2 percent of Caucasians and 0.3 percent of African Americans are heterozygous; homozygosity occurs in 1 in 10,000 individuals.
INHERITANCE: Incomplete autosomal dominant.
PENETRANCE: The risk of thrombosis is increased 2-4 fold for heterozygotes and further increased for homozygotes.
CAUSE: Homozygosity or heterozygosity for F2 c.*97G>A (G20210A).
PATHOGENIC VARIANT TESTED: F2 c.*97G>A (G20210A).
CLINICAL SENSITIVITY FOR VENOUS THROMBOSIS: Approximately 10 percent.

Test Information

i10: Prothrombin (F2) G20210A Variant

METHODOLOGY: Polymerase chain reaction and fluorescence monitoring.
ANALYTICAL SENSITIVITY AND SPECIFICITY: 99 percent.
LIMITATIONS: Diagnostic errors can occur due to rare sequence variations. F2 gene variants, other than c.*97G>A (G20210A), will not be detected.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Counseling and informed consent are recommended for genetic testing. Consent forms are available online.

i11: Thrombosis Interpretation - Risk

INTERPRETIVE INFORMATION: Thrombotic Risk Reflex Panel

Refer to individual components

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Counseling and informed consent are recommended for genetic testing. Consent forms are available online.