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Updated Criteria for Diagnosis of Antiphospholipid Antibody Syndrome

Antiphospholipid antibodies (APLA) are a family of autoantibodies that recognize various combinations of phospholipids, phospholipid-binding proteins, or both. These antibodies include lupus anticoagulants, detected by coagulation assays, and anticardiolipin antibodies (ACA), detected by immunoassays. The antiphospholipid antibody syndrome (APS) refers to the clinical association between these antibodies and a syndrome of hypercoagulability. Correct diagnosis of APS has important implications regarding the use, choice and duration of anticoagulant therapy

An international consensus statement was recently issued revising and updating the criteria for diagnosis of APS (J Thromb Haemost 2006; 4:295-306). The major changes/additions included in the new criteria are:

- Inclusion of anti-beta-2-glycoprotein I (anti-B2GPI) as an additional laboratory criterion. One of the protein targets of APLA is beta-2-glycoprotein I, and antibodies against this protein are known to be closely related to clinical manifestations of APS.
- Increase in the interval required to demonstrate persistence of the antibodies from 6 weeks to 12 weeks. This provides greater reassurance that the laboratory findings are clinically relevant, and not transient epiphenomena.
- A diagnosis of APS should not be made if a period of greater than 5 years separates the clinical event and positive laboratory test.

According to the revised recommendations, APS is present if at least one of the following clinical criteria and one of the following laboratory criteria are met. Please note that the threshold values listed for ACA and anti-B2GPI are specific for Saint Luke's Regional Laboratories.

Clinical Criteria:

1. Vascular thrombosis- arterial, venous or small vessel, in any tissue or organ, confirmed by objective validated criteria
2. Pregnancy morbidity
 - a) Unexplained fetal death at or beyond 10 weeks gestation
 - b) Premature birth before 34 weeks gestation because of eclampsia, severe pre-eclampsia or placental insufficiency
 - c) Three or more unexplained consecutive spontaneous abortions before 10 weeks gestation

Laboratory Criteria:

1. Lupus anticoagulant, present on at least 2 occasions, at least 12 weeks apart.
2. Anticardiolipin antibodies (ACA), IgG or IgM, >30 units for both, present on at least 2 occasions, at least 12 weeks apart.
3. Anti-beta-2-glycoprotein I antibodies (anti-B2GPI), IgG or IgM, >20 units for both, present on at least 2 occasions, at least 12 weeks apart.

The entire panel of laboratory tests required for diagnosis of APS is available at Saint Luke's Regional Laboratories - request an "Antiphospholipid III Panel". Specimen requirement is 2 blue-top and 1 red-top tubes. The tests are run 3 times a week.

Beneficial Effect of Leukocyte Reduced Blood for Cardiac Surgery Patients

Units of whole blood, red blood cells, and platelets contain significant numbers of leukocytes while fresh frozen plasma and cryoprecipitate do not. Transfusion of leukocytes has been associated with several adverse sequelae, including:

- Febrile transfusion reactions
- Transfusion related acute lung injury (TRALI)
- HLA alloimmunization of chronically transfused patients
- Refractoriness to platelet transfusions
- Leukotropic (CMV and HTLV) virus transmission

- Immune suppression
- Graft vs. Host Disease

More than 99% of leukocytes can be removed from blood using third generation adsorption filters. Several countries including the United Kingdom, France and Canada have mandated universal leukocyte reduction for many years. Leukocyte reduction remains elective in the United States in spite of a recommendation for universal leukocyte reduction by the Blood Products Advisory Committee of the FDA in 1998. Saint Luke's Hospital has issued only leukocyte reduced red blood cells and platelets since November 1, 1998.

A recent study from the University of Pittsburgh School of Medicine has convincingly demonstrated that leukocyte reduction decreases the postoperative length of stay (PLOS) after cardiac surgery (Transfusion 2006;46:386-91). All patients admitted to the same hospital for primary or redo coronary artery bypass grafting and/or cardiac valve replacement were included in the study. The study was divided into three 1 year intervals. During the first year (2000 – 2001) patients were transfused with non-leukocyte reduced blood, during the second year (2001 – 2002) with leukocyte reduced blood and during the third year (2003) with non-leukocyte reduced blood. Patient demographics were similar during all three periods.

Transfusion of non-leukocyte reduced blood was associated with an increase of mean PLOS from 9.5 to 10.7 days, which was largely due to an increase in the days spent in the intensive care unit. This effect did not appear to be dose dependent, because a subset of patients who were transfused with only a few units of red blood cells also had a significantly increased PLOS. Mean PLOS for patients who were not transfused did not change during the 3 phases of the study. This study demonstrated an improvement in PLOS with implementation of leukocyte reduced blood and also the loss of this effect when patients were switched back to non-leukocyte reduced blood.

Considering the number of open heart surgery cases performed at Saint Luke's Hospital each year and an estimated ICU cost of \$6500 per day, the universal use of leukocyte reduced blood saves approximately \$4,000,000 per year for patients undergoing open heart surgery. This savings more than offsets the \$14 additional cost per unit for leukocyte reduced blood.

Testosterone Method Change

Saint Luke's Regional Laboratories is changing the testosterone method from a manual radioimmunoassay to an automated chemiluminescent immunoassay. As a consequence of this conversion, the reference range and units of measure will change.

Gender	Previous Range	New Range
Male	2500 - 7000 pg/mL	241 - 827 ng/dL
Female	100 – 800 pg/mL	14 – 76 ng/dL

Twenty-five years of HIV

Since the first case reports from Los Angeles in 1981, the HIV epidemic has continued to expand. In the U.S., more than a million people are currently living with HIV/AIDS, and the disease has killed more than 22 million people world-wide. Two recent issues of MMWR review the epidemiology of HIV/AIDS and describe current efforts toward prevention (MMWR 2006, Vol. 55, No. 21 & 24). Substantial progress has been made in reducing perinatal HIV transmission rates from 25-30% in 1991 to the current <2% transmission rate. This reduction is attributed to increased HIV screening of pregnant women, use of antiretroviral drugs, and elective cesarean deliveries.

There are an estimated 250,000 to 300,000 HIV-infected people in the U.S. who are unaware of their infection. As an extension of the Advancing HIV Prevention initiative which began in 2003, the CDC will publish new recommendations for HIV testing of adults, adolescents, and pregnant women later this year. It is expected that testing on all people between the ages of 13 and 64 will be suggested as part of routine physical examinations, with annual testing recommended for those considered at high risk of infection.

Results to Patients

Recent review of hospital policy, HIPAA and patient safety concerns has prompted us to amend the laboratory policy for communicating results directly to patients. Effective September 1st, patients will be directed to contact their physician, EXCEPT for protime or neonatal bilirubin results. The laboratory will continue to verbally provide these results directly to patients who contact SLRL Client Services at 932-3850. The laboratory will not mail a copy of these results to patients. Patients may request a written copy by contacting SLH Health Information Management Customer Service at 932-2860.