LifeLabs® Medical Laboratory Services

Inside Diagnostics

THE *ASA EFFECT* TEST: LIFELABS NOW OFFERS A URINE TEST TO DETERMINE IF A PATIENT IS RECEIVING THE BENEFICIAL EFFECTS OF ASA

Up to a quarter of individuals who take acetylsalicylic acid (ASA) may not benefit from its anti-clotting effect. In aspirin-treated patients, urinary concentrations of 11-dehydro thromboxane B2 predict future risk of myocardial infarction or cardiovascular death. The *ASA Effect* test measures urinary thromboxane B2 levels to identify patients who are relatively resistant to aspirin and who may benefit from additional antiplatelet therapies or treatments that more effectively block thromboxane function.

ASA is one of the most commonly used medications around the world and is known to reduce the risk of serious cardiovascular events in a broad range of high-risk patients. The primary effect of ASA on hemostasis is to acetylate platelet cyclooxygenase (COX-1) and thereby inhibit the synthesis of thromboxane A2, a powerful platelet activator.

Some 25 percent of patients have been reported to be resistant to ASA and continue to generate thromboxane A2 and thereby activate platelets. Possible mechanisms of ASA resistance include: poor compliance with ASA treatment, inadequate ASA dose, and concomitant use of other COX inhibitors that interfere with the antiplatelet effects of ASA, increased platelet turnover, and true genetic-based "resistance" to the inhibitory effects of ASA.

For more information about the *ASA Effect* test please contact our Customer Care Centre at 1-877-849-3637.

CONTENTS

REFERENCES

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NEW METHOD FOR SCREENING FOR GROUP B STREPTOCOCCUS IN PREGNANCY

Invasive Group B Streptococcal (GBS) disease is a leading cause of morbidity and mortality in neonates. Early onset GBS disease occurs within 7 days of birth and presents with bacteremia and/or meningitis. The incidence of early onset GBS disease initially decreased by 65% in 1998 following recommendations for intra-partum chemoprophylaxis based on a risk-based strategy. With the adoption of universal screening for GBS at 35-37 weeks gestation in 2002, a further decrease in incidence by 27% was demonstrated in the United States.[1]

Adoption of universal late antenatal screening of pregnant women for GBS colonization has been successful. A retrospective cohort study in the United States showed an 85% screening rate.[2] However, the incidence of early-onset GBS disease although decreased, remains significant. Several factors are important. Although compliance with screening was high, missed screening of term infants accounted for 13.4% of cases of early onset GBS disease. In addition, the timing of screening at 35-37 weeks was not always done and screening prior to 35 weeks gestation occurred in 14.9%. Also, a proportion of term infants with early onset GBS had mothers with negative GBS cultures. This highlights the importance of improving compliance with screening and the need to improve the sensitivity of detection of GBS.

A new method for detection of GBS in pregnant women has been implemented at LifeLabs. A recent evaluation at LifeLabs of a new chromogenic agar for the detection of GBS in recto-vaginal swabs demonstrated an improved sensitivity.[3] Chromogenic media for the detection of GBS has been demonstrated to be a sensitive and specific method.[4] The ability to detect GBS is improved by the use of chromogens in the media that differentiate GBS from normal vaginal flora. The implementation of this new method will improve the positivity rate and the turn-around time (TAT) for positive GBS reports however, the TAT for negative results will be increased.

The 2002 CDC guidelines recommend intra-partum prophylaxis using penicillin or ampicillin.[5] Cefazolin is recommended for women who have an allergy to penicillin but are at low risk for anaphylaxis. If clindamycin is being considered, clinicians are reminded to provide the information of penicillin allergy on the OHIP requisition. Susceptibility testing for clindamycin and erythromycin is recommended due to possible resistance and will be performed if information on penicillin allergy is provided.

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SERUM FREE LIGHT CHAINS

The serum free light chain (FLC) assay measures the levels of free kappa and lambda immunoglobulin light chains. The International Myeloma Working Group has recently developed consensus guidelines, which incorporate the FLC test in the diagnosis and management of plasma cell proliferative disorders (PCDs).[1] They cite the following characteristics and advantages of the FLC assay:

- Baseline FLC values have prognostic value in virtually all PCDs.
- In the initial investigation of monoclonal gammopathies, the FLC test negates the need for 24-hour urine studies for all PCD diagnoses, except Amyloidosis.
- Serial measurement of serum FLC can be used to monitor response in patients with oligosecretory PCD.
- Normalization of FLC ratio is one of the requirements for documenting stringent complete response in the International Myeloma Working Group Uniform Response Criteria for patients with multiple myeloma. [2]

To order this test, write "Serum Free Light Chains" in the "Other Tests" section of the OHIP requisition. A frozen aliquot of serum collected in a plain red top tube is required for the test.

The Serum Free Light Chain test is not OHIP-insured and patients will be billed for the test. Some or all of this cost may be reimbursed by supplemental health plans.

REFERENCES

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CANADIAN CARDIOVASCULAR SOCIETY 2009 REVISED LIPID TARGET VALUES

In October 2009, the Canadian Cardiovascular Society published a revised guideline for the diagnosis and treatment of dyslipidemia and prevention of cardiovascular disease in adults.[1] The table following includes a summary of the updated recommendations for initiation of therapy based on individual patient risk assessment, and primary lipid target values following treatment:

Risk Level	10 Year Risk of Cardiovascular Disease (CVD)*	When to consider initiation of lipid lowering therapy	Primary Lipid Target LDL-C and Apolipoprotein B (Apo B)
High (Includes patients with diabetes, atherosclerotic disease or renal failure)	≥ 20%	Consider in all high risk patients	LDL-C < 2.0 mmol/L **or** ≥ 50% decrease from baseline **or** Apo B < 0.8 g/L
Moderate	10% - 19%	LDL-C > 3.5 mmol/L **or** TC:HDL-C ratio > 5.0 **or** hscRP > 2.0 mg/L **	LDL-C < 2.0 mmol/L **or** ≥ 50% decrease from baseline **or** Apo B < 0.80 g/L
Low	< 10%	LDL-C ≥ 5.0 mmol/L **or** TC: HDL-C ratio > 6.0	LDL-C ≥ 50% decrease from baseline

* 10 year risk of cardiovascular disease (CVD) as calculated using the Framingham risk study (FRS) calculator tables.
** hsCRP is high sensitive C-reactive protein. Consider treatment when hsCRP is > 2.0 mg/L in men > 50 years or women > 60 years of age or where a family history of CVD exists and hsCRP levels indicate a moderate risk.

Primary Lipid Goals

The inclusion of apolipoprotein B (Apo B) and hsCRP in the lipid assessment is recognition of their roles as independent modifiers of CVD risk.

Apo B is the primary protein component of LDL, VLDL, IDL and lipoprotein(a) and has been established as a good indicator of CVD risk. It has been included in the treatment target values as a possible substitute for LDL-C. The LDL-C value is routinely determined by calculation from cholesterol, HDL-C and triglycerides and is known to be unreliable in patients where the triglyceride concentration is >4.52 mmol/L.

High sensitive C reactive protein (hsCRP) has been documented as a risk factor in development of CVD. Increased blood levels of hsCRP demonstrate a synergistic effect on the relative risk of CVD when combined with the individual's lipid profile. In 2008, the Jupiter study illustrated the patients with hsCRP levels > 2 mg/L, even in the absence of elevated LDL-C may benefit from statin therapy.[2] It should be noted that hsCRP measurement is only recommended for patients with LDL-C < 3.5 mmol/L and who are at moderate risk for CVD at ages > 50 for men or > 60 years of age for women.[1]

Secondary Lipid Goals

The new recommendations include secondary (optional) lipid targets which may be considered after achieving the LDL-C goal. These include: triglyceride < 1.70 mmol/L, TC: HDL-C ratio < 4.0 and hsCRP < 2 mg/L. Clinical judgment is warranted to before a treatment plan is implemented to address potential secondary goals.[1]

Laboratory Testing

Lipid levels should be determined after a 12-hour fast. A routine lipid profile including quantitation of serum total cholesterol (TC), HDL-C, TC: HDL-C ratio, LDL-C and triglycerides is recommended initially and then every 6-12 months. These assays may be ordered by checking "lipid assessment" on the OHIP laboratory requisition. Apo B measurement is available from LifeLabs but is not included on the OHIP schedule and is therefore a direct pay assay.

hsCRP: To obtain a reliable measure of hsCRP it is recommended that testing include 2 measurements taken 2 weeks apart. Patients should be well at the time of blood collection. The lower of the 2 assay values should be considered as the baseline value.

Where drug therapy is indicated, the addition of other markers of toxicity should be also considered. For example, ALT and CK may be requested to monitor potential side effects when statins are prescribed and creatinine levels in the presence of fibrate therapy. Under these circumstances more frequent monitoring may be necessary and when symptoms develop.

For more detailed information, physicians are referred to the detailed description of therapy and monitoring recommendations included in the original article published in the Canadian Journal of Cardiology.[1]

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POSITIVE OPIATES TESTING RESULTS DUE TO PRESCRIPTION MEDICATIONS

We are often asked about possible explanations for a positive opiate result reported after drugs of abuse (DOA) testing.

Some prescription drugs/medications containing opioid will generate positive opiate results when assayed by immunoassay technologies. They are "true" positive, since the detected chemical compounds are exactly the same as abused substances listed by Substance Abuse and Mental Health Services Administration (SAMHSA). It is therefore important to be aware of these medications and verify the medical use of such medications with a valid prescription to avoid unfair adverse action against the individual.

Several prescription medications for pain management contain morphine, codeine, hydrocodone, oxycodone, or related opioids. Ingestion of codeine or morphine containing analgesic medication produces positive opiate-screening test results while oxycodone has variable cross-reactivity with different opiate-screening assays. LifeLabs' opiate test is not sensitive enough to detect oxycodone however, an oxycodone specific immunoassay which recognizes the presence of oxycodone in urine is also routinely available upon request. This test is OHIP billable and can be requested by writing "oxycodone" in the "Other Tests" section in the laboratory requisition of MOHLTC.

On the other hand, fentanyl containing drugs, which are also opioid, or use of the fentanyl patch should not cause a positive opiate test because fentanyl has very poor cross-reactivity against antibodies used in opiate-screening assays, which recognize morphine and related substances only.

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OAHPP GENERAL TEST REQUISITION

With the release of the new Ontario Public Health Agency (OAHPP) General Test Requisition, OAHPP is requesting all sections be completed prior to the submission of the requisition and specimen(s). Completion of all sections, including the patient's Health Card Number will allow for appropriate handling of the specimen by the Public Health laboratory.

Due to the sensitive and private nature of the information that OAHPP is requesting, LifeLabs can no longer complete the OAHPP General Test Requisition on behalf of the client.

If you do not have a supply of OAHPP General Test Requisitions, they may be obtained by calling your local Public Health Laboratory or download through the OAHPP website: **http://www.oahpp.ca/labrequisition**

LIFELABS CLIENT SURVEY:

We are interested in your feedback!

LifeLabs will be conducting a client survey beginning in March 2009 related to the quality of our Medical-Scientific services. You can access the survey online through the following link:

http://www.surveymonkey.com/s/Lifelabs_Client_Satisfaction_Survey

The survey should take less than five minutes of your time and is completely confidential. The results will help us understand how we are doing today and where we need to make improvements.

Thanks in advance for participating in the survey. We look forward to receiving your feedback.

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