Laboratory Bulletin

Important News from DCL Medical Laboratories

December 21, 2009

DCL Medical Laboratories adds quantitative interpretive statements to reference ranges for C-Reactive Protein, High Sensitivity

Clients should now order in-house test in place of send-out test C-Reactive Protein Quant

The quantitative measurement of C-reactive protein (CRP) in plasma is performed as an aid in the detection and evaluation of infection, tissue injury, inflammatory disorders and associated diseases. Measurements may also be used as an aid in the identification of individuals at risk for future cardiovascular disease.

DCL Medical Laboratories has added additional interpretive statements to the reference ranges for in-house test C-Reactive Protein, High Sensitivity [# 3003] to accommodate reporting CRP results that are ordered to evaluate cardiac risk, as well as CRP results that are ordered for the detection and evaluation of infection and inflammatory disorders. This change allows DCL to perform all C-Reactive Protein testing in-house.

C-Reactive Protein, High Sensitivity	
hs-CRP	**DCL #: 3003**
Collection Container:	SST - Serum
Storage/Stability:	3 days refrigerated; 2 months frozen
Turnaround Time:	Within 24 hours
Preferred amount:	1.0 mL Serum
Minimum amount:	0.5 mL Serum
Centrifuge required?:	Yes
Fasting required?:	No
Method:	Solid-phase Chemilluminescent Immunometric Assay
Reference Range:	See chart below
Clinical Utility:	• Used as a screening aid for inflammatory diseases, infections, and neoplastic diseases. • Used as an acute phase reactant, and in monitoring the progression of erosions in rheumatoid arthritis.
CPT: 86140	Medicare Reimbursement*: $7.56

* Per Jan. 2009 Clinical Diagnostic Laboratory Fee Schedule for Indiana.

DCL's C-Reactive Protein, High Sensitivity [# 3003] should now be used for both purposes. Clients will no longer be able to order the Nichols Institute test, C-Reactive Protein Quant [# 990042;4420X].

If you have any questions regarding the changes in reference ranges for hs-CRP testing from DCL Medical Laboratories, please contact DCL Client Services at (317) 874-1334 or (866) 874-1334.

The new references ranges including interpretive statements are as follows:

hs-CRP result	Risk Level
< 1.0 mg/L	Low risk for Cardiovascular Disease (CVD) prediction
1.0 mg/L - 3.0 mg/L	Average Risk for Cardiovascular Disease (CVD) prediction
> 3.0 mg/L	High Risk for Cardiovascular Disease (CVD) predication
Patients with persistent, unexplained elevations of hsCRP (greater than 10.0 mg/L) after repeated testing should be evaluated for non cardiovascular etiologies	
The CRP assay provides useful information for the diagnosis, therapy and monitoring of inflammatory conditions and associated diseases.	

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Combining hs-CRP testing with Cholesterol testing can provide more detail

For individuals with intermediate or high cardiovascular risk scores, hs-CRP testing can be an important part of risk assessment for primary cardiovascular disease prevention. When atherosclerosis, fatty deposits built up in the lining of arteries[5], damages arteries around the heart, they become inflamed, and the body produces C Reactive Protein (CRP). In some people, inflamed, softened artery walls can develop weak areas that rupture suddenly, causing a heart attack. Plaque also builds up more quickly in inflamed arteries, increasing the risk of blood clots and stroke[2].

The American Heart Association (AHA) recommends hs-CRP testing in combination with cholesterol screening for individuals with intermediate or high risk of cardiovascular disease[3]. When combined with LDL Cholesterol testing, a more detailed risk assessment is possible than simply using hs-CRP alone (see chart at right)[4]. Studies have found that the risk for heart attack in people in the upper third of hs-CRP levels is twice that of those whose hs-CRP is in the lower third[5].

High Risk		
High hsCRP	**+**	**High LDL or Borderline LDL or Low LDL**
Intermediate hsCRP	**+**	**High LDL**
Intermediate Risk		
Intermediate hsCRP	**+**	**High LDL or Borderline LDL**
Low hsCRP	**+**	**High LDL or Borderline LDL**
Low Risk		
Low hsCRP	**+**	**Low LDL**

Baseline hsCRP levels should be used for risk assessment

To establish a baseline hs-CRP level, measure hsCRP twice, two weeks apart, then average both results. If the average result is greater than 10 mg/L the test should be repeated in one month. If the repeat test result is also greater than 10 mg/L the patient should be examined for other causes of increased CRP before a risk assessment is made[4].

Inflammation in the body due to an infection or serious arthritic flare, for example, can raise CRP. Patients should also be evaluated for other problems that can cause general inflammation. Identifying an alternative reason for a high hs-CRP result, however, does not necessarily eliminate an increased risk for cardiovascular disease. The patient should be re-tested once the alternative reason is not a concern[2].

Inflammation resulting in elevated CRP can be treated with lifestyle changes such as weight loss, exercise, controlling diabetes, controlling blood pressure, reducing alcohol intake or stopping smoking. Antithrombotic medications like aspirin or cholesterol-lowering drugs can also reduce CRP levels[2].

References

1 Pearson, MD, Ph,D., Thomas A., Mensah, MD, George A., et. al. (2003). Markers of inflammation and cardiovascular disease. *Circulation* 107: 499-511.

2 Questions and answers about C-Reactive Protein. (2006, April). Cleveland Clinic. Retrieved July 25, 2006 from www.clevelandclinic.org

3 Ridker MD, MPH, Paul M. (2003). Clinical application of C-Reactive Protein for cardiovascular disdase detection and prevention. *Circulation* 107: 363-369.

4 When can low LDL mean high risk? (2003). Diagnostic Products Corporation.

5 Inflammation, heart disease and stroke: The role of C-Reactive Protein. (2006). American Heat Association. Retrieved August 7, 2006 from www.americanheart.org