High-Sensitivity C-Reactive Protein and Cardiovascular Disease

With the increased interest in the utility of hsCRP in cardiovascular disease risk assessment, the number of hsCRP measurements performed in laboratories in the US has been rising over the past few years (Fig. 1). As a result of the findings from JUPITER, we anticipate an even greater increase in hsCRP testing in the US and elsewhere. On November 9, 2008, the day the data from JUPITER were presented and the findings from 2 pivotal hsCRP studies from the Physicians’ Health Study and the Framingham Heart Offspring Study were published, Elizabeth G. Nabel, director of the National Heart, Lung and Blood Institute, released a statement on the role of inflammation and hsCRP in cardiovascular disease. Nabel concluded that “Together, these studies show great promise in helping clinicians better identify and treat individuals at risk for cardiovascular disease—potentially saving millions more lives.” These developments create a larger role for clinical chemists in this endeavor, through implementing appropriate methods, providing correct interpretations, and supporting clinicians. Unfortunately, 2 common problems in the measurement of hsCRP and the reporting of its results remain to be addressed.

1. As shown in Fig. 1, the number of CRP tests performed by using traditional methods for the detection and monitoring of active infection and inflammation was almost constant between 1997 and 1999. Since that time infectious disease clinical protocols have undergone no important changes related to the utility of CRP that justify or explain the increase in CRP measurement in the following years. The exponential rise seen since 1998 in CRP testing by use of both the high-sensitivity and traditional assays suggests that laboratories may have been using both assays for assessing cardiovascular disease risk. The traditional method is useless in this regard because it cannot detect values below 3 mg/L, and most values measured in apparently healthy individuals will be reported to the clinician as below the detection limit. Clinical chemists must provide the correct method of testing and work with clinicians to identify the appropriate mechanism and protocols for ordering the test. Failure to do so will serve only to frustrate and discourage clinicians and potentially harm the patients they are trying to serve.

2. The American Heart Association and the CDC have issued guidelines for the utility of hsCRP in cardiovascular disease risk assessment; values below 1 mg/L are associated with low risk, between 1 and 3 mg/L with...
moderate risk, and above 3 mg/L with high risk. Data from the College of American Pathologists surveys have repeatedly suggested that substantial numbers of laboratories still report their hsCRP results in milligrams per deciliter. Such a practice is inconsistent with national guidelines, confusing to physicians, and potentially harmful to the patient. Laboratories should follow current recommendations to report hsCRP values only in milligrams per liter.

Close collaboration between physicians and clinical chemists will be required to correctly implement hsCRP testing for cardiovascular disease risk assessment and to fully realize the benefits of hsCRP testing for patient care. We sincerely hope that the articles in this issue will encourage clinical chemists to take a leadership role in this worthwhile endeavor.

Fig. 1. Trends in the measurement of CRP in the US by use of both traditional and high-sensitivity methods.
The figure was generated with data from Information Dynamics, used with permission. *The data for 2007 have been projected.

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