To Use or Not to Use C-Reative Protein Test (CRP)

AHA/CDC Consensu Panel issues recommendations on CRP testing.

Evidence has been building for several years that painless inflammation can cause heart trouble and may even be more dangerous than high cholesterol. But until now, doctors have had no formal guidelines to tell them how or when to look for inflammation, which can be measured with a simple blood test

A panel of experts convened by the American Heart Association and the Centers for Disease Control and Prevention is recommending limited use of a new blood test that has been widely promoted for assessing heart disease risk. That recommendation and others regarding the role of the blood test are published in last week's *Circulation: Journal of the American Heart Association.*

How does inflammation relate to heart disease and stroke risk?

"Inflammation" is the process by which the body responds to injury. Laboratory evidence and findings from autopsy studies suggest that the inflammatory process plays an important part in atherosclerosis (ath"er-o-skleh-RO'sis). That's the process in which fatty deposits build up in the lining of arteries.

C-reactive protein (CRP) is a protein in the body whose level increases when there's inflammation of blood vessels. It's been suggested that CRP may provide a new way to assess cardiovascular disease risk.

Researchers have found that blood levels of CRP are elevated many years before a first heart attack or stroke. One important study was published in the April 3, 1997, *New England Journal of Medicine*.

Using a test called high-sensitivity testing for CRP, the researchers measured baseline levels of CRP among 1,086 apparently healthy men participating in the Physicians' Health Study. These men were then followed over an eight-year period for future development of their first heart attack, stroke or venous thrombosis (blood clot in a vein).

What is the CRP test?

The test is the highly sensitive C-reactive protein (hs-CRP) test. CRP is an inflammatory marker found in the blood. Several studies have demonstrated that increased concentrations of CRP appear to be associated with increased risk for coronary heart disease, sudden death and peripheral arterial disease.
Thomas A. Pearson, M.D., Ph.D., co-chair of the AHA/CDC writing group, says there is "no need for hs-CRP screening of the entire adult population as a public-health measure."

George A. Mensah, M.D., co-chair of the writing group and chief of the cardiovascular health program at the CDC, explains: "For clinicians and public health practitioners, it is important to emphasize that although abnormal CRP values identify high risk

persons, we have no evidence that treatment strategies based on CRP levels improve survival or reduce cardiovascular complications.

"Although our statement identifies a subgroup of patients who may benefit from hs-CRP testing, for most patients the emphasis must remain on detection, treatment, and control of the major risk factors, such as high blood pressure, high blood cholesterol, cigarette smoking and diabetes," adds Mensah.

Pearson says the test might be useful when a physician is undecided about a course of treatment for a patient who is considered intermediate risk.

For example, a person at intermediate risk may be someone considered to have a 10 percent to 20 percent risk for heart attack in the next 10 years based on his or her current health status and history. "In those cases, an CRP test might tip the scale to help a physician decide on moderate or more intensive treatment," he says.

CRP, a chemical necessary for fighting injury and infection, is made in the liver in response to inflammation somewhere in the body. While high cholesterol causes fatty buildups in the blood vessels, heart attacks are triggered when inflammation causes the deposits to break off and clog an artery.

The AHA/CDC group reports that the results of CRP tests should be expressed as milligrams per Liter (mg/L) with concentrations of less than 1.0 mg/L defined as low risk, 1.0-3.0 mg/L as average risk and concentrations higher than 3.0 mg/L defined as high risk. People in the high-risk group have about a two-fold increase in relative risk for cardiovascular disease compared to those in the low-risk group.

CRP can be lowered by the same strategies that decrease cholesterol -- exercising, weight loss, stopping smoking and statin drugs. The first new blood test accepted for assessing heart disease risk since cholesterol screening became common 30 years ago, it costs a few dollars to perform, and labs and hospitals charge $10 to $120. The guidelines recommend against testing people at very low risk, since they likely wouldn't be put on heart treatment even if inflammation were found, and those already diagnosed with heart disease, since they should already be getting all standard treatments.

The Recommendations

Pearson says the new recommendations set down these evidence-based parameters for using CRP:

- No need for CRP screening of the entire adult population as a public health measure.
- CRP can, however, be an independent marker of risk and may be useful as a discretionary tool for evaluating people with moderate risk.
- There is not enough evidence to suggest using CRP to track the efficacy of treatment.

The average CRP reading in this country is 1.5. The risk is dramatically higher when the levels hit 3, studies show.

Another study in last week's Circulation suggests CRP levels may also help predict heart attack risk in women with metabolic syndrome, a condition linked to obesity, impaired metabolism of blood sugar, high blood pressure and high levels of blood fats.

Women with the syndrome and CRP levels 3 or higher are twice as likely to have a cardiovascular event than those with CRP levels of 1, the study showed.

Both Pearson and Mensah emphasize that the new recommendations are based on current evidence, and may need to be changed as new clinical trial results become available.