

## **C-REACTIVE PROTEIN-DOES THIS SIMPLE BLOOD TEST REALLY SAVE LIVES?**

I originally posted this article on C-reactive protein in late 2010. After watching the NBC Nightly News recently and listening to a story about a "simple blood test that could save women's lives," I feel that it is necessary to set the record straight. It is becoming more apparent everyday that the news not only presents misleading medical information but some of it is simply erroneous. It is unfortunate that the hired doctors comment on subjects that they have no knowledge about and many of the doctors have no clinical practice and do not treat patients.

Brian Williams led into the story stating: "Two of three women who die suddenly of cardiac heart disease have no previous symptoms which is all the more reason women may want to ask their doctors about a blood test that can be a lifesaver." Then NBC News chief medical editor Dr. Nancy Snyderman said: "It's not a new test, it's not an experimental test but nonetheless it's a test not a lot of people know about and that's a problem because this simple blood test could save your life." The story is about a woman at high risk of heart attack, but quickly transitions to stating that unspecified numbers of women who are told they're at low risk are clearly at high risk. A doctor interviewed says: "All too often we see people who were told they were at low risk for heart disease but they're in the emergency room having a heart attack and so they're clearly not low risk." Snyderman then says "... that's because most doctors do not check for C-reactive protein for fear of over treating them." This statement is absolutely ridiculous. Women are having heart attacks because doctors didn't check their C-reactive protein? It is unfortunate that NBC's choice of expert interviewee is Dr. Paul Ridker, who says: "We have learned that the cost of the screening and the cost of the medication is quite small compared to the number of events prevented so it's a win-win for everyone involved." It was not stated that Ridker holds the patent for this test. There was nothing ever mentioned about the financial conflict of interest.

During the last ten years, compelling experimental and clinical evidence has demonstrated that both systemic and local inflammation might play a prominent role in the cause of atherosclerosis (clogging of arteries) and its clinical complications. Because these processes accompany all stages of atherogenesis, measurement of plasma concentrations of these inflammatory markers might aid in identifying those individuals at high risk for coronary artery disease. In particular, they may add to the predictive value to improve the assessment of future global cardiovascular risk.

Among the numerous circulating biomarkers of inflammation, C-reactive protein (CRP) is an acute phase reactant with a short half-life of approximately 19 hours. More than 25 studies published during the last 10 years have provided strong evidence that C-reactive protein predicts cardiovascular risk in various scenarios, not only in initially healthy subjects, but in those who manifest atherosclerosis. This blood protein, which only a short time ago was thought to be by many more important than cholesterol, is now regarded as just a risk factor for cardiovascular disease. This substance, C-reactive protein, is unquestionably associated with heart disease in that the more C-reactive protein in a person's blood, the greater the likelihood of heart disease.

In early July 2009, a study published in The Journal of the American Medical Association analyzed data from approximately 100,000 people and concluded that their study argues against the notion that the protein causes heart disease. The idea that if indeed an elevated C-reactive protein causes heart disease, wouldn't decreasing it protect people? Well, this is not the case. Lowering C-reactive protein does not protect people from the development of cardiovascular disease. There was much confusion last year after the findings of the Jupiter

Study were released because many people believe that C-reactive protein caused heart disease and those patients who had low cholesterol but high C-reactive protein had fewer heart attacks if they took the statin Crestor. Statins also have the effect of lower C-reactive protein. Could this mean that lowering C-reactive protein could prevent heart disease? It may; however, what has been proven time and time again is that cholesterol-lowering was protective.

Despite multiple attempts to develop drugs to lower C-reactive protein, many experts now feel that it is time to abandon that search. There was a study also done in London with 35 co-authors who developed a technique that allows one to get answers quickly about causality. In other words, it is their thought that white blood cells invade artery walls releasing damaging chemicals leading to plaque formation. The study showed that in a population, there are people who just happen to produce more C-reactive protein throughout their lives and others who just happen to produce less. If indeed C-reactive protein causes heart disease, those who make more would have more heart disease. The study did not find this. There was absolutely no association between CRP and heart disease rate. So, in other words, the association between C-reactive protein and heart disease must reflect something else. C-reactive protein is thus just a marker of inflammation.

The United States Preventative Services Task Force concludes that "The U.S. Preventive Services Task Force concludes that the current evidence is insufficient to assess the balance of benefits and harms of using the nontraditional risk factors (including CRP) to screen asymptomatic men and women with no history of coronary heart disease to prevent coronary heart disease events.... Although using CRP to screen men and women with intermediate coronary heart disease risk would reclassify some into the low-risk group and others into the high-risk group, the evidence is insufficient to determine the ultimate effect on the occurrence of coronary heart disease events and coronary heart disease-related deaths."

While I do have multiple patients who come in asking for C-reactive protein to be drawn, I feel it does not need to be done routinely as there are many other markers of increased risk of cardiovascular events that can be measured. Indeed, C-reactive protein can be elevated due to other causes of inflammation, leading to falsely elevated results.