

## C-REACTIVE PROTEIN (CRP) IN BLOOD AND EARLY DETECTION OF DISEASES

**Panova G.Panov.N.Panova.B.**

*University Goce Delcev" - Faculty of Medical Sciences - Stip R.Makdonia*

### ABSTRACT

**Introduction:** C - reactive protein (CRP) is known in laboratory diagnosis as the most studied plasma protein that serves as a marker for inflammation. It is an important indicator of inflammation, tissue necrosis, or in trauma. **Labor targets:** CRP test for the detection of acute inflammation, heart attack, thrombosis, chronic inflammation, rheumatic diseases and cancer therapy in cancer or infection.

**Results:** The study included 1220 people aged 35 years and older. Made CRP tests of a blood sample taken from a vein. All participants were tested CRP binding was assessed risk factors for stroke and heart attack. Their condition was followed in the next 5 years. For that time there were 98 strokes, 105 conditions associated with heart problems, and 286 deaths.

**Discussion:** Researchers have found that people with elevated levels of CRP more than 3mg / l, were 70% more likely to suffer a heart attack and 55% more chances of premature death, compared with those whose levels were less than 1mg / l.

**Conclusion:** CRP is an important indicator of inflammation, tissue necrosis or when trauma. In healthy individuals, CRP is present in very low concentrations. Its values rise sharply in the case of acute inflammation, so the values of this protein can grow hundreds of times within just 24 hours. CRP test can be used to check the response to therapy in cancer or infection. CRP levels will be normal if the treatment is successful.

*Key words : C - reactive protein (CRP), cancer or infection.*

### Introduction

CRP was originally discovered by Tillet and Francis in 1930 as a substance in the serum of patients with acute inflammation that reacted with the C polysaccharide of pneumococcus. Initially it was thought that CRP might be a pathogenic secretion as it was elevated in people with a variety of illnesses including cancer, however discovery of hepatic synthesis demonstrated that it is a native protein. The CRP gene is located on the first chromosome (1q21-q23).

### Function

The protein is an annular pentameric disc in shape and a member of the small pentraxins family. CRP is a member of the class of acute-phase reactants, as its levels rise dramatically during inflammatory processes occurring in the body. This increment is due to a rise in the plasma concentration of IL-6, which is produced predominantly by macrophages as well as adipocytes. CRP binds to phosphocholine on microbes. It is thought to assist in complement binding to foreign and damaged cells and enhances phagocytosis by macrophages (opsonin mediated phagocytosis), which express a receptor for CRP. It is also believed to play another important role in innate immunity, as an early defense system against infections. It rises above normal limits within 6 hours, and peaks at 48 hours. Its half-life is constant, and therefore its level is mainly determined by the rate of production.

Various analytical methods are available for CRP determination, such as ELISA, immunoturbidimetry, rapid immunodiffusion, and visual agglutination.

### Why it's done

Assessment heart attack or coronary artery disease risk, Inflammatory bowel disease, some forms of arthritis, pelvic inflammatory disease, lupus, Infection following surgery, check to see how well treatment is working, such as treatment for cancer or for an infection. CRP levels go up quickly and then become normal quickly if you are responding to treatment measures, tuberculosis, diagnostic significance of High-sensitivity C-reactive protein (hs-CRP).

- A special type of CRP test, the high-sensitivity CRP test (hs-CRP), may be done to find out if you have an increased chance of having a sudden heart problem, such as a heart attack. Inflammation can damage the inner lining of the arteries and make having a heart attack more likely. People with high levels of CRP may be at higher risk for an acute coronary event (heart attack) and death but not stroke, according to a study published in the October 20, 2009, print issue of *Neurology*<sup>®</sup>, the medical journal of the American Academy of Neurology.
- The study involved 1,240 people who were 35 years old or older and stroke-free. A CRP test is done on a sample of blood taken from a vein. All participants had their blood tested for CRP levels and were evaluated for stroke and heart attack risk factors. They were followed for an average of eight years. In that time, there were 98 strokes, 105 heart-related events and 286 deaths.
- The researchers found that people with C-reactive protein levels greater than 3 mg/L were 70 % more likely to suffer a heart attack and 55 % more likely to die early compared to people who had levels of less than 1 mg/L of the protein in their blood. The researchers suggest that the CRP itself is not the cause of heart disease but may merely be an indicator of its existence.
- CRP levels
- Normal: 0–1.0 mg/dL or less than 10 mg/L (SI units)

High-sensitivity C-reactive protein (hs-CRP) levels	
Less than 1.0 mg/L	Lowest risk
1.0 to 3.0 mg/L	Average risk
More than 3.0 mg/L	Highest risk

#### Role in cancer

The role of inflammation in cancer is not well known. Some organs of the body show greater risk of cancer when they are chronically inflamed.

Blood samples of persons with colon cancer have an average CRP concentration of 2.69 milligrams per liter. Persons without colon cancer average 1.97 milligrams per liter. The difference was statistically significant. These findings concur with previous studies that indicate that anti-inflammatory drugs could lower colon cancer risk.

A CRP test can be done to check how well treatment is working, such as treatment for cancer or for an infection. CRP levels go up quickly and then become normal qui

What affects the test?

You have just exercised, medicines, such as hormone replacement therapy (HRT), birth control pills, nonsteroidal anti inflammatory drugs (NSAIDs) corticosteroids, ,

Medicine to lower your cholesterol (for example, pravastatin).

You have an intrauterine device (IUD) in place.

You are pregnant

You are very overweight (obese).

Conclusion-A C-reactive protein (CRP) test is a blood test that measures the amount of a protein called C-reactive protein in your blood. C-reactive protein measures general levels of inflammation in your body. High levels of CRP are caused by infections and many long-term diseases. But a CRP test cannot show where the inflammation is located or what is causing it. Other tests are needed to find the cause and location of the inflammation.