C-REACTIVE PROTEIN TEST

Uses of the CRP test in Inflammation

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The C-Reactive Protein test is used to help diagnose inflammatory autoimmune conditions and evaluate treatment response.

Discovery

C-Reactive Protein or CRP was discovered in 1930 by researchers at Rockefeller University. In early studies, C-Reactive Protein was identified as a unique protein molecule seen in infections and other acute inflammatory illnesses, including arthritis and heart attacks, which precipitated polysaccharide molecules. CRP was the first member of a class of proteins that are now referred to as “acute phase reactants.” The exact function of CRP hasn’t yet been defined, although it’s known that CRP levels rise in inflammatory conditions and levels fall during periods of remission.

During inflammation and infection, white blood cells secrete immune system chemicals known as cytokines, such as interleukin-6 (IL-6). These cytokines then stimulate liver cells to produce increased amounts of C-reactive protein. C-reactive protein, in turn, activates the complement cascade, which is involved in the inflammatory response.

CRP in Inflammation

In inflammatory conditions, CRP levels can rise to levels as high as 500 mg for each liter of blood (500 mg/L). In conditions where inflammation may not be obvious, the CRP level can be used to confirm the presence of inflammation. The CRP result is similar to the erythrocyte sedimentation rate (ESR, sed rate) test although it is considered to be more specific and precise.

Measuring CRP

Current tests for CRP are generally called high-sensitive assays or hsCRP tests. Levels of CRP in inflammation are generally higher than 100 mg/L compared to the normal or reference range of less than 10 mg/L (less than 1.0 mg/dl).

Uses of the CRP Test

CRP is used to help diagnose inflammation and infection. For instance, after surgery, CRP will generally be elevated for 1-2 days. Levels that are elevated after the third day suggest that infection may be present.
CRP is useful in helping diagnose autoimmune conditions such as vasculitis, systemic lupus erythematosus, inflammatory bowel disease, and rheumatoid arthritis. However, because autoimmune disorders tend to wax and wane, the level CRP will not be elevated if patients with these disorders are not in an active disease state.

The CRP test is also a generalized test that doesn’t indicate the cause or site of inflammation. In chronic autoimmune disorders, the CRP level is helpful in gauging a patient’s response to therapy or to tell if disease flares are present. However, in terms of diagnosing autoimmune conditions, a low CRP level can’t be used to rule out specific diseases.

**Resources:**

CRP: A Useful Test for Coronary Risk, Perspectives in Pathology, Advance for Medical Laboratory Professionals, February 2007,: 20-22.
