- The biologic functions of CRP are protective:

(i) it exhibits both proinflammatory and anti-infla

(i) it exhibits both proinflammatory and anti-inflammatory activities. (ii) CRP has several calcium-dependent binding properties and of CRP

biologic functions, related to nonspecific innate immune response

- bacterial and fungal infections are potent inflammatory stimuli that induce a major acute phase response producing markedly elevated CRP levels

- some autoimmune diseases (arthritis and vasculitides), organ tissue necrosis, intense trauma, surgery, and various neoplasias, may also significantly increase the circulating levels of CRP.

- minor acute phase responses with slightly elevated CRP levels may also occur in association with low-grade inflammatory states.

- CRP levels are associated with prognosis in acute myocardial infarction and in acute coronary syndromes.

- Recently, it has been demonstrated that there is an association between minor elevated plasma concentrations and the risk of developing cardiovascular disease that may represent a subclinical state of low-grade chronic inflammation, which may reflect vascular inflammation. It seems that CRP is not only an inflammatory marker and predictor of cardiovascular disease, but also a mediator of disease because it is involved in the pathogenesis of atherosclerosis and atherogenesis.

causes of elevated CRP [created by Paul Young 02/10/07]

CRP

- A major and common question in clinical practice in the ICU is to differentiate between noninfectious systemic inflammation (such as SIRS) and sepsis.

- Most of these potential laboratory markers are elements (and mediators) of the host inflammatory response to infection

- The most frequently reported as potential markers include C-reactive protein (CRP), procalcitonin (PCT), interleukin (IL)-6, IL-8, and other cytokines, as well as diverse immunologic and endothelial molecules.

- CRP was discovered in 1930 by studying patients with Streptococcus pneumoniae infection, and it was so named for its ability to bind to the somatic C-polysaccharide of such bacteria.

- Belongs to the family of pentraxins, which are calcium-dependent ligand-binding plasma proteins.

- Acute phase responses come from changes in liver gene expression occurring after an inflammatory stimulus (injury, trauma, infection).

 CRP is a positive APP whose plasma concentration increases rapidly, up to 1000-fold from around 1mg/mL, during inflammatory disorders.
 The median plasma concentration of CRP measured in healthy young adults is 0.8 mg/L.

- The 90th and 99th percentiles reported from these studied samples were 3 mg/L and 10 mg/L, respectively.

 Plasma CRP concentrations are determined only by the synthesis rate of CRP, and this rate increases markedly depending on the intensity of inflammatory stimuli.

- When the stimulus is no longer present, CRP levels quickly fall.

- The plasma half-life of CRP appears to be around 19 hours.

- CRP expression and its induction in the hepatocyte is mainly regulated transcriptionally by IL-6 through activation of several transcription factors

General

Normal range