

Acute Phase Reactants (ESR vs CRP)

1. Erythrocyte sedimentation rate (ESR)

- a. rate (expressed in mm/hour) at which erythrocytes suspended in plasma fall when placed in a vertical tube
- b. conditions that increase ESR
 - i. Systemic and localized inflammatory and infectious diseases
 1. ESR values of over 100 mm/hour were most commonly due to infection
 - ii. Malignant neoplasms
 - iii. Tissue injury/ischemia
 - iv. Trauma/surgery
- c. Non-infectious conditions that increase ESR
 - i. increase in the age of the patient
 - ii. Female gender
 - iii. Anemia
 - iv. pregnancy
 - v. End-stage renal disease
 - vi. obesity
- d. Factors that can cause a decrease in ESR
 - i. heart failure
 - ii. Cachexia
 - iii. Severe leukocytosis

1. C-reactive protein (CRP)

- a. protein produced by the liver
- b. units of measurement can vary
 - i. mg/L or mg/dL
- c. normal values < 0.3 mg/dL
- d. 0.3-1.0 mg/dL - low-grade inflammation
 - i. atherosclerosis
 - ii. obesity
 - iii. obstructive sleep apnea
 - iv. insulin resistance (type 2 DM)
 - v. hypertension
- e. 1.0-10 mg/dL - a moderate increase
 - i. systemic inflammation
 1. RA, lupus, autoimmune dz
 2. malignancies
 3. myocardial infarction
- f. > 10 mg/dL - severe increase
 - i. acute bacterial infections
 - ii. major trauma
 - iii. systemic infections

