

C-reactive protein (CRP) Test

»» Infection Disease

Dr. Eman Tariq Ali
(Immunity)

C-reactive protein (CRP)

□: is a special type of protein produced by the liver in response to inflammatory cytokines such as Interleukin-6 (IL-6).

□CRP is classified as an acute phase reactant, which means that its levels will rise within a few hours after tissue injury, the start of an infection, or other cause of inflammation.

□The most important role of CRP is its interaction with the complement system, which is one of the body's immunologic defense mechanisms.

C-Reactive Protein

- Conditions elevated
 - Bacterial infection
 - Viral infection
 - Active rheumatic fever
 - Active rheumatoid arthritis
 - TB infections
 - Malignancies
 - Following surgeries



C-Reactive Protein

- ▶ ESR also used to gauge inflammation.
- ▶ C-RP has the following advantages over the ESR:
 - Rises quickly DURING inflammation.
 - Decreases quickly once inflammation resolved.
 - Not affected by anemia or abnormal serum proteins.

Why CRP test is done???

- C-reactive protein (CRP) test is performed to determine if a person has a problem linked to acute infection or inflammation.
- ▶ The CRP test is not diagnostic of any condition.
- ▶ but it can be used together with signs and symptoms and other tests to evaluate an individual for an acute or chronic inflammatory condition.



CRP Positive



CRP Negative



CRP Negative

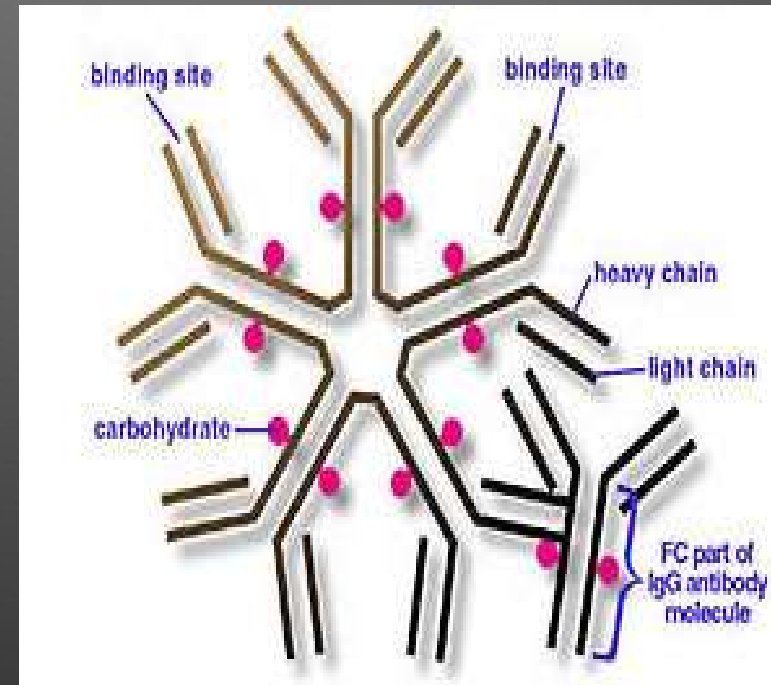
Rheumatoid factor

Rheumatoid factor (RF)

- ▶ **RFs are detected in serum in up to 80% of adult patients with RA.**
- ▶ **RFs are not specific for RA and occur in other autoimmune disease, in chronic infectious diseases, such as infective endocarditis, tuberculosis, and hepatitis B.**
- ▶ **usually at low titer, in up to 20% of overtly normal elderly individuals**

Rheumatoid Factor (RF)

- ▶ this test is done to diagnosed Rheumatoid arthritis, which is one of important autoimmune disease.
- ▶ RF is an antibody (IgM or IgG classes) bind to the Fc portion of other IgG molecules, and form IgG–anti–IgG complexes in the circulation or joint fluid.



Methods used to detect RF

- ▶ **Latex agglutination method.**

mixes the blood being tested with (latex) beads that are covered with human antibodies. If rheumatoid factor (RF) is present, the latex beads clump (agglutinate).

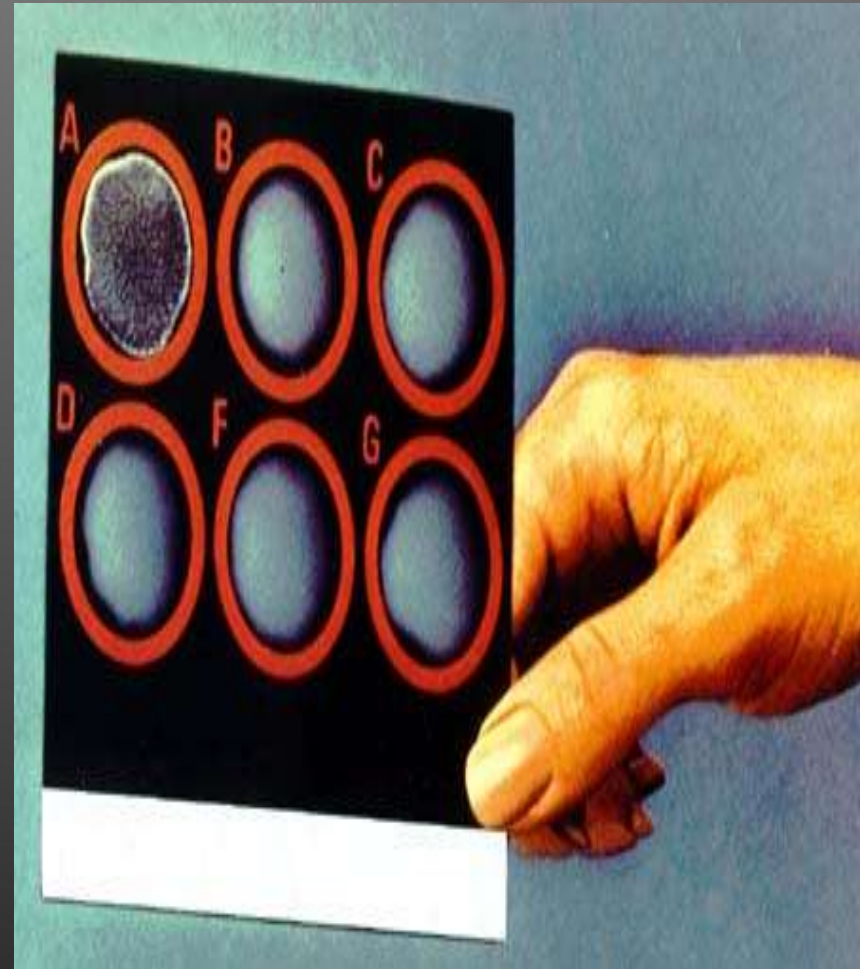
- ▶ **Haemagglutination test.**

mixes the blood being tested with a sheep's red blood cells that have been covered with rabbit antibodies. If RF is present, the red blood cells agglutinate.

- ▶ **Nephelometry test**

Using an automated machine based on laser light scattered.

Latex agglutination test



Interpretation of the test

- ▶ Agglutination test is positive. Do titration and determine the end of titration.
- ▶ Normal range differ from lab to another, but in most lab titration of $>1:20$ consider positive.
- ▶ Positive test in 80% of Rheumatoid Arthritis.
- ▶ It also positive in other autoimmune disease.
- ▶ Positive in viral hepatitis.
- ▶ Positive in TB.

Factors interfere with positive result

- ▶ **Hyperlipedemia. Blood that is very high in fats.**
- ▶ **Age. About 5% to 10% of people over age 65 have an elevated RF level.**

Thank
You

