LA Latex Agglutination

OBJECTIVES

To become familiar the principles and procedures involved in performing a latex agglutination immunoassay.

Passive agglutination assays which utilize latex beads as a substrate are very widely used in diagnostic microbiology due to their flexibility, speed, and ease of use.

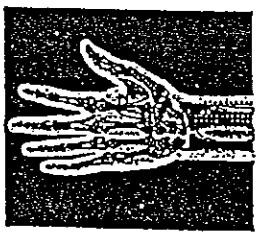
Complement-reactive protein (CRP) is a serum protein that is elevated in inflammatory conditions such as bacterial infections and rheumatoid arthritis. CRP has been shown to be an early indicator of inflammation as CRP levels tend to increase before rises in antibody titer and erythrocyte sedimentation rate (ESR). CRP levels also drop faster than ESR when inflammation subsides.

The assay kit being used here consists of latex particles coated with anti-human CRP. When a serum specimen containing CRP is mixed with the latex reagent, binding will occur, resulting in visible agglutination of the latex beads. If the specimen is negative for CRP, a uniformly turbid suspension will result.

PATIENT SITUATION

The patient, a 61-year-old woman, had a diagnosis of rheumatoid arthritis (RA) of 18 years duration. Three years after diagnosis, she began treatment with intramuscular gold sodium thiomalate and sulindac 200 mg BID. Two years ago she retired and became involved in gardening on her property. She had discontinued her therapy at that time. One year ago, she experienced an exacerbation of her arthritis. Resumption of gold therapy had not helped, but the addition of hydroxychloroquine and enterically coated aspirin seemed to be causing improvement. The patient was evaluated in order to determine if more aggressive drug therapy was needed.

On examination elbows, wrists, and metacarpophalangeal joints showed mild swelling and tenderness. Both knees had effusions and were painful on flexion. She had no subcutaneous nodules (a common symptom of RA) and other general examination was not remarkable. X-rays of the affected joints were ordered. A test for CRP was also ordered to see if significant levels of inflammation were still present.



MATERIALS (per group)

Reagents

IMMUNEX CRP Latex Reagent, Positive control, Negative control, Patient sample

Equipment

Glass slides, stirrers, Gloves, disinfectant beaker, sharps container

PROCEDURE AND OBSERVATIONS

1. Obtain a test slide (it is black with white rings).

2. Place one small drop each of the positive control, negative control, and patient's sample in the appropriate circle on the slide. WEAR GLOVES WHEN HANDLING SERUM SAMPLES.

3. Shake the Latex reagent prior to use. Add one drop of latex reagent to each circle.

4. Using a new stirrer for each ring, mix thoroughly and spread over entire circle.

5. Rock slide evenly and gently during incubation.

6. Observe each circle at 2 minutes for agglutination; make sure that all of the members of the group are present for this. Positive results show visible agglutination. Negative results will appear uniformly turbid.

7. Record Results and dispose of used stirrers and test slides in the sharps container.

Name: _____

Date: _____

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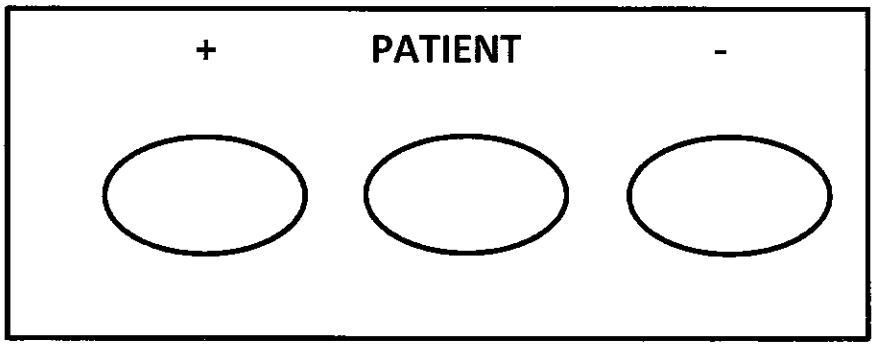
RESULTS AND OBSERVATIONS



Draw your results on the diagram above.

Reaction in Patient sample: [$^{+}$] [$^{-}$]

QUESTIONS:

1. What are some of the advantages of Latex Agglutination assays?

2. Do you think this patient's medications need to be changed? Why?