



AL-Mustaqbal University

College of Medical Technology

Department of Medical Laboratory Technology

Practical Immunology 2023

LAB 7

Stage 3rd

A.Lecture :

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Human Chorionic Gonadotropin (HCG) test

HCG test: is a classic example of agglutination used for early detected of the presence of HCG.

HCG is a glycoprotein hormone secreted by developing placenta shortly after fertilization and reaches detectable levels in urine and serum about 1 week after implantation attachment of the early embryo to the uterine lining.

HCG consists of two subunits, alpha and beta. The β subunit is the most sensitive and specific test for early pregnancy.

1- Latex agglutination test:

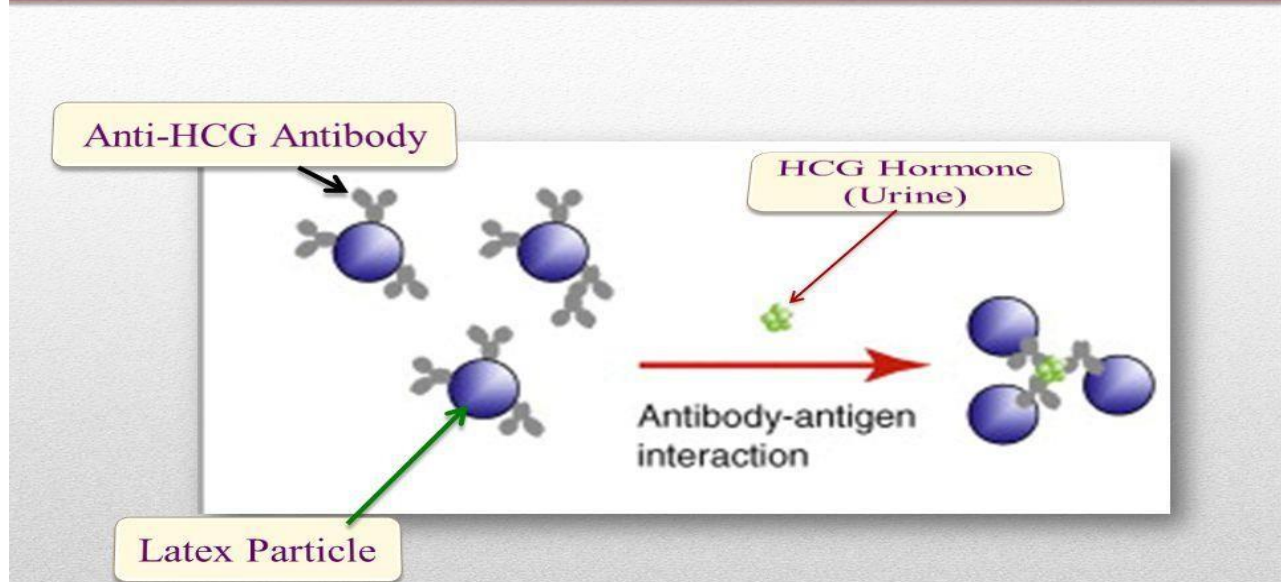
Is one of agglutination test, based on using synthetic particles called **latex beads** (polystyrene material); they act as carrier for soluble antigen in agglutination tests.

Latex particles coated with monoclonal antibodies anti-HCG are agglutinated when mixed with specimen containing HCG.

Principle

The HCG-latex is a slide agglutination test for direct qualitative detection of HCG in urine and serum.

Latex Agglutination Test for Pregnancy



Reagents:

1. Latex particles coated with monoclonal antibodies anti-HCG,
2. Control positive (Red cap).
3. Control negative (Blue cap).



Samples: Urine or fresh serum can be used.

Procedure

- 1-Place one drop of (urine or serum) sample (50 μ L) on to the reaction area of the slide using a disposable pipette.
- 2-Shake the latex reagent, then add one drop and mix using a stirrer.
- 3-Gently and evenly rock and rotate the test slide for 2 minutes and under direct strong light source examine the slide for agglutination.

A **positive result** is indicated by the obvious agglutination of the latex in clear solution

2. Pregnancy Strip Test:

The Pregnancy Test Strip is a rapid, one-step lateral flow immunoassay for the qualitative detection of HCG in urine/serum to detection of pregnancy women.

Principles:

the (HCG) present in urine or serum bind to anti-HCG on strip test and this binding give color product (positive result), but if this binding don't give color (negative result)..

Procedure:

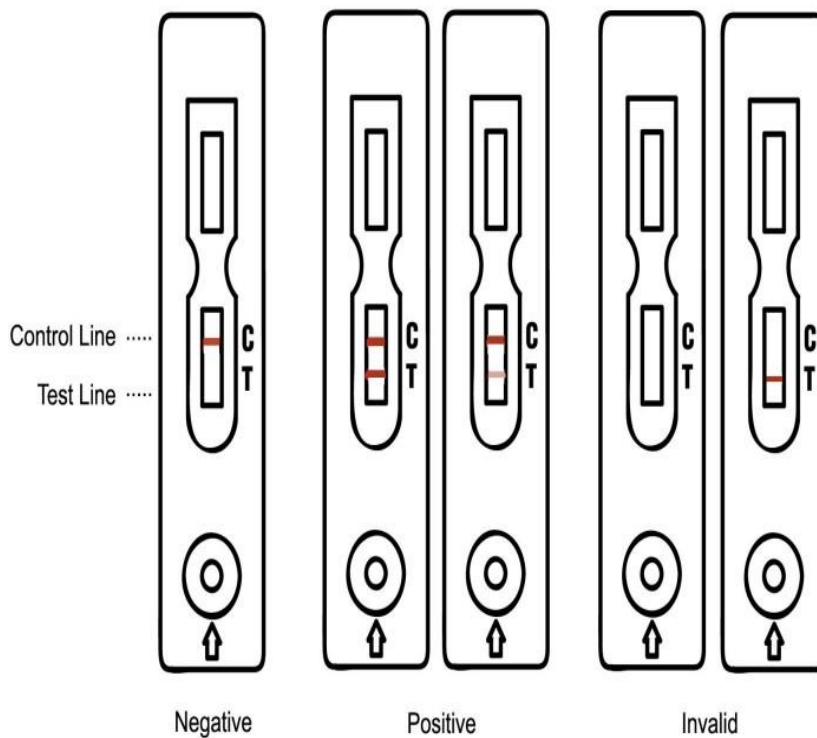
Collection and preparation of specimen:

- **Urine:** Firstly morning urine specimen should be collected in clean container.
- **Serum:** can be obtained by separated it from centrifuged of blood specimen.

Procedure:

1. Remove test strip from its foil pouch.
2. Carefully immerse strip vertically into (urine/serum) specimen.
3. The strip left specimen when full absorbance.
4. Interpret test results at 3-5 min. and do not interpret test results after 5 minutes.

Results Interpretations:



Negative

A pink colored band appears only at the control region.

Positive

A clear pink control band and a detectable test band appear. This indicates pregnancy.

Invalid

No visible band at the control region. Repeat with a new test device. If test still fails, please contact the distributor with the lot number.

Clinical Implications:

1. Positive result: indicates pregnancy

2- False-positive result:

- ectopic pregnancies
- ovarian cysts
- fertility drugs containing HCG
- prostate cancer, breast cancer and lung cancer

3- Negative result: probably not pregnant.

4- False-negative result:

- The test is past its expiration date.
- use the test the wrong way.
- tested too soon.
- the urine sample is too dilute