

كلية المستقبل الجامعة



قسم المختبرات الطبية /التحاليل المرضية

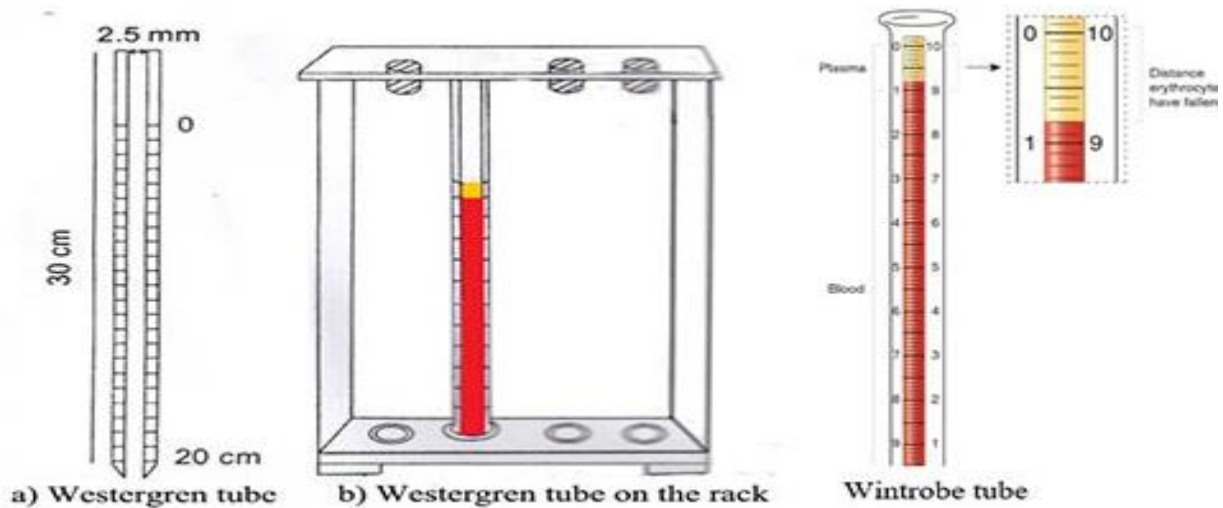
Lecture 1:

erythrocyte sedimentation rate(ESR)

. The erythrocyte sedimentation rate (ESR) is a simple and inexpensive laboratory test. It is commonly used to assess the acute phase response. The International Committee for Standardization in Hematology (ICSH) recommends the use of the Westergren method.^{1,2} While the role of acute phase reactants and cytokines in inflammatory responses is well-established,³ ESR measurement remains the method of choice in evaluating different clinical conditions.⁴ The ESR has also been found to be of clinical significance in the follow-up and prognosis of non-inflammatory conditions such as prostate cancer,⁵ coronary artery disease,⁶ and stroke.⁷ Therefore, the ESR is important in the diagnosis of inflammatory conditions and in the prognosis of non-inflammatory conditions.

Procedure

Westergren method for ESR estimation is widely used method. Wintrobe method is also used for ESR determination. Wintrobe tube is smaller than westergren tube.



Materials required:

1. Westergren tube or wintrobe tube
2. Anticoagulant: 0.1 M sodium citrate
3. in modified westergren method EDTA is used as anticoagulant

Procedure for ESR estimation:

- Withdraw 4 ml of venous blood
- Mix exact 10ml of sodium citrate with 4ml of venous blood in a tube
- Invert the tube 2-3 times to mix the blood thoroughly with anticoagulant
- Fill the westergren tube up to mark 0 and place in the rack at room temperature undisturbed and away from sunlight.
- Take the reading exactly after 1 hour. Record in millimeters from top surface of column to top of RBC sediments.

Result:

- Normal value of ESR
 - Female:
 - under 50 years- 20 mm/hr
 - above 50 years- 30mm/hr
 - Male:
 - Under 50 years- 15mm/hr
 - Above 50 years- 20 mm/hr

Clinical application of ESR estimation:

- ESR test is non-specific test although it is used as indication of presence of disease
- ESR value increase during rheumatoid arthritis, chronic infection, carcinoma, tissue destruction and nephritis
- During pregnancy, ESR increase moderately from 10th or 12th weeks onwards and return to normal after delivery.
- ESR value decreases in sickle cell anemia and congestive heart failure .