Lab 5

Specimen rejection (reasons and how to avoid)

All tests are unique in their testing requirements. To avoid specimen rejection or delayed turnaround times, check specimen requirements to insure appropriate collection criteria is met.

In general, specimens will be rejected for the following reasons:

1- Specimens which are improperly labeled.
2- Specimens in which the quantity is not sufficient for proper processing.
3- Specimens in which there has been a significant time delay between specimen collection and specimen receipt (more than 24 hours), for which a transport tube/medium was not used and/or specimen results would be compromised.
4- Specimens and requisitions which are incompatible (i.e. urine specimen with requisition checked off for sputum).
5- Specimens received with no requisition.
6- Liquid specimens which are not sent in sterile, dry, leak proof containers.
7- Requisitions which have been contaminated with a liquid specimen.
8- Hemolyzed or clotted blood specimens (for many tests).

Anticoagulants

Anticoagulants are chemical substance that prevent or reduce coagulation of blood. They are commonly called blood thinner. There are several different types of anticoagulant. Each type works at a different level on the blood coagulation pathway. Sometimes are used in medical equipment, such as test tubes, blood transfusion bags and dialysis equipment.

Anticoagulant materials in the laboratory Uses:

- Used in certain concentration per each ml of blood.

- They used for obtain plasma.

- Its uses only in vitro (outside of the body).

- They are toxic

Action: their act to stop blood-clotting mechanism in vitro.

Common Anticoagulant Materials

The common anticoagulant materials, which used in the daily lab's work for hematological purposes, some are the following:

1. Sodium Citrate: (Na3C6H507.2H20)
2. EDTA= (Ethtylene diamine tetra-acetic acid)
3. Heparin.

1- Ethylene diamine tetra acetic acid (EDTA)

Is a standard hematology anticoagulant because of its

- Very effective and complete anticoagulation

- Lack of effect on the size (morphology) or number of blood cells in the specimen.

EDTA Chemical action:

This anticoagulant removes free calcium ions, which is essential for coagulation by chelating them.

2- Sodium Citrate Chemical Action:

-The anticoagulant removes the free Calcium ions by binding to them to form calcium citrate complex.

-Calcium is either precipitated as insoluble oxalate (crystals)

-The anticoagulant of choice in coagulation studies. with the concentration of 3.2% for the following tests PT, TT and PTT

Sodium Citrate uses:

1. Acts as both a diluent and an anticoagulant

2. Coagulation studies

3. ESR

3- Heparin

1. An excellent natural anticoagulant

2. Sources extracted from mammalian liver or pancreas.

3. More expensive than the artificial ones and has a temporary effect of only 24/ hours.

4. Prevents clotting by inactivating thrombin, thus preventing conversion of fibrinogen to fibrin.

5. used in the proportion of 0.1-0.2mg of the dry salt for 1ml of blood.

6. Heparin does not alter the size of the red cells.

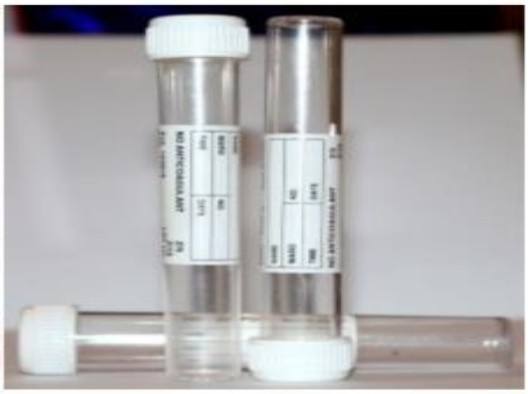
Used for:

- Red cell enzyme estimation

- For blood gases estimation

*Not recommended for cell counting because of its clumping effect on platelets leucocytes.

(Red) plain tube, vacuum
Additive: None
Serum testing



(White) plain tube
Additive: None
Serum testing

(Yellow) plain tube, vacuum
Additive: None
For serum testing

(Yellow) jell tube
Additive: None
For serum testing

ESR tube Orange:
Additive: Sodium Citrate
For ESR test

Light blue (vacuum)
Additive :Sodium Citrate
For P.T test

capillary tube Red

Additive: Heparin
For PCV test

capillary tube Blue

Additive: non
For clotting time test

Pink EDTA tube

Additive: EDTA
for hematology testing

Purple(vacuum)

Additive: EDTA
for hematology testing