

Osmotic

fragility

test

Introduction:

Osmosis = water conc.

Hypotonic = high water+ low salt.

Hypertonic=low water+ high salt.

Cells in the body path in extra cellular fluid which is isotonic in nature(i.e the salt and water inside the cells = to salt and water outside the cells).

The plasma membrane of body cells are semipreamable (i.e preamable to water only).

Objective:

The test is used to diagnosis different type of anemia in which the physical properties of the RBC are altered.

The main factors affecting the osmotic fragility test is the shape of RBC which in turn is depended on the volume, surface area and functional state of RBC membrane.

Material and instrument:

1.test tubes

2.heprinized blood.

3.hypotonic solution (distilled water).

4.hypertonic solution.

5.isotonic solution (physiological normal saline).

6.centrifuge .

Composition of physiological normal saline 0.9%:

1. Nacl 9gm.

2. 1000 ml of distilled water.

Procedure:

- 1. prepare three test tubes: contain distilled water , normal saline, hypertonic.**
- 2. put few drops of heprinized blood in each tube.**
- 3. mixed for few mints. Manually or by stirrer.**
- 4. put the 3 samples in the centrifuge .**

Results:

1.the fluid portion of hypotonic (D.W) will colored because the RBC swelling and finally rupture and hemoglobin release .

2.the fluid portion of normal saline remain clear because the RBC remain in normal condition

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3.the fluid portion of hypertonic will colored because the RBC shrink and finally the plasma membrane destruct and hemoglobin release .