Bleeding and Coagulation Times

HEMOSTASIS

Is the process of forming clots in the wall of damaged blood vessels & preventing blood loss while maintaining blood in a fluid state with in the vascular system. Defects in hemostasis can lead to an increased risk of bleeding (hemorrhage) or clotting inside vessels (thrombosis).

Bleeding Time by Dukes' method:

This test measures the time taken for blood vessel constriction and platelet plug formation to occur. No clot is allowed to form, so that the arrest of bleeding depends exclusively on blood vessel constriction and platelet action.

Procedure:

Clean and sterilize the lobe of the subject's ear with 70% alcohol. Allow the ear to air dry. Then with a dry sterile lancet make wound about 4mm deep. Remove the blood oozing from the wound every 30 seconds on a clean piece of filter paper, using a different area of the paper each time. Continue until the bleeding stops, then count the spots of blood on the filter paper. Their number will if divided by 2 will give the bleeding time in minutes.

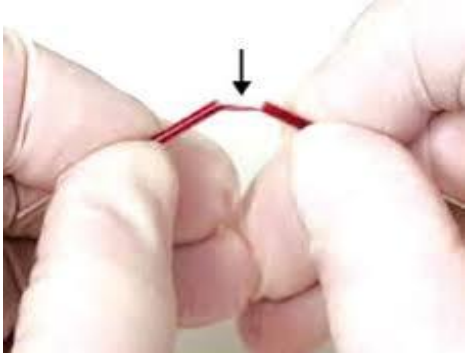
By this method Normal Bleeding time is between 2-5 minutes.

Coagulation (Clotting) Time:

In order for blood to clot, the enzyme thrombin must be generated from the plasma precursor prothrombin. Thrombin then converts soluble fibrinogen into insoluble fibrin. Generation of thrombin involves the sequential activation of a number of other plasma clotting factor, this process is also being assisted by Ca^{++} and by factors released by platelets and damaged tissues . The time taken for blood to clot mainly reflects the time required for the generation of thrombin in this manner. If the plasma concentration of prothrombin or of some of the other factors is low (or if the factor is absent, or functionally inactive), clotting time will be prolonged.

Procedure:

Clean the finger or lobe of the ear, then make a puncture with a dry sterile lancet, noting the time at which the puncture is made. Fill the blue-top capillary pipette with oozing blood.



Now break off small piece of the tip of capillary pipette once every 30 seconds until you notice that the blood has clotted. When this occurs, fine fibrin threads will stick to each of the broken pipette ends. Note the time when clotting first seen.

In the normal case clotting begins in less than 2-7 minutes.