Bleeding Time (BT) and Clotting Time (CT)

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BLEEDING TIME

The bleeding time test is dependent on appropriate functioning of platelets blood vessels and platelets and evaluates earliest hemostasis (platelets components and vascular).

In this test, incision (a surgical cut made in skin) or a superficial skin puncture is made and the time is measured for bleeding to stop.

There are three methods most commonly used to measure bleeding time:

1. Duke’s method
2. Ivy’s method
3. Template method

In Duke’s method, ear lobe is puncture, and the time is measured for bleeding to stop. This method is not recommended and cannot be standardized because it can cause a large local hematoma. In Ivy’s method, on the volar surface of the forearm, three punctures are made with a lancet under normal pulse pressure (between 30-40 mm Hg). A disadvantage of Ivy’s method is closure of puncture wound before stoppage of bleeding. In Template method, a special surgical blade is uses to make a larger cut of about 1 mm deep and 5 mm long. Although Template method is better than other methods, it may produce large scar and even form a keloid (irregular fibrous tissue formed at the site of a scar) in predisposed individuals. Ivy’s method for the measurement of bleeding time is described below.

Ivy’s Method

Principle: On the volar surface of forearm, three normal punctures are made with the help of a lancet under normal pulse pressure (between 30-40 mm Hg). The average time is measured for bleeding to stop from the puncture sites.

Equipment

1. Disposable sterile lancets
2. Sphygmomanometer
3. Filter paper
4. Stopwatch

Method

1. Blood pressure of the patient is measured with the help of sphygmomanometer. The blood pressure of the patient should be normal before going to the further process.
2. The volar surface of the forearm is cleansed with ethanol 70% and allowed to dry.
3. With the help of a lancet, in quick succession, three punctures are made about 5 cm apart. Note that scars and superficial veins should be avoided.
4. Start the stopwatch as soon as puncture made on the volar surface of the forearm.
5. With the help of the filter paper, blood oozing from the puncture wound is gently absorbed with intervals of 15 seconds.

6. The timer is stopped when blood no more mark the filter paper.

7. Time measured for bleeding to stop from all the three puncture wound is recorded. The average time is calculated and reported as the bleeding time.

**Reference Ranges**

- Normal range: 2 -7 minutes.
- The greater numbers of individuals have bleeding time less than 4 minutes. The bleeding time should be reported in minutes or nearest half minute. If the bleeding continues more than twenty minutes, the test is stopped and the bleeding time should be reported as >20 minutes (more than 20 minutes).

**Cause of extend of duration of bleeding time**

1. Disorders of blood vessels

2. Thrombocytopenia: This term is uses when the platelet count is less than its normal value. The bleeding time test should not be performed if the platelet count is less than 1,00,000/ml. It may be difficult to control the bleeding if the platelet count is very low.

3. Von Willebrand disease

4. Disorder of platelet function

5. Afibrinogenemia

**CLOTTING TIME**

In this test, required time is measured for the blood to clot in a glass test tube, kept at 37° C. Extend of duration of clotting time occurs only if severe deficiency of a clotting factor exists and is normal in moderate or mild deficiency.