

room temperature. The tubes do not come in contact with water or ice, affording a more convenient method of refrigerating plasma than the conventional cup or tray of crushed ice.

### BLEEDING TIME

The bleeding time is a measure of hemostasis and coagulation. It is dependent upon the efficiency of tissue fluid in accelerating the coagulation process, on capillary function, and on platelets. It is especially concerned with platelets: the number of blood platelets present and their ability to form a platelet plug. Prolonged bleeding times are generally found when the platelet count is below 50,000 per cu mm, and where there is platelet dysfunction such as in von Willebrand's disease. Three procedures are currently in use for determining the bleeding time: the Duke method, the Ivy method, and the Mielke method. The Duke method is the easiest to perform but probably yields the least accurate results. The procedure of choice is the Mielke method.

#### Duke Method

### REFERENCES

Biggs, R., and MacFarlane, R.G.: *Human Blood Coagulation and its Disorders*, Blackwell Scientific Publications, Oxford, 1962.

Duke, W.W.: The pathogenesis of purpura haemorrhagica with especial reference to the part played by the blood platelets, *Arch. Intern. Med.*, **10**, 445, 1912.

### REAGENTS AND EQUIPMENT

1. Sterile, disposable lancet.
2. Circular filter paper.
3. Stopwatch.
4. Alcohol sponges.

### PRINCIPLE

A standardized puncture of the ear lobe is made, and the length of time required for bleeding to cease is recorded.

### PROCEDURE

1. Cleanse the ear lobe with an alcohol sponge and allow to dry.
2. Make a relatively deep puncture with the sterile blood lancet and start the stopwatch.
3. Using the circular filter paper, blot the blood every 30 seconds. Do not allow the filter paper to touch the wound.
4. When bleeding ceases, stop the watch and record the bleeding time. The normal bleeding time is 1 to 3 minutes, borderline, 3 to 6 minutes.

### DISCUSSION

1. If bleeding continues for more than 10 minutes, discontinue the test and apply pressure to the wound. It is advisable to repeat the procedure or to perform another bleeding time, according to Ivy's method.
2. An alternative procedure requires the holding of a glass slide behind the ear lobe for support. Make a puncture with the sterile blood lancet. Start the stopwatch, discard the glass slide, and proceed with the test as previously described.

#### Ivy Method

### REFERENCES

Dacie, J.V., and Lewis, S.M.: *Practical Hematology*, 5th Edition, Churchill Livingstone, New York, 1975.

Ivy, A.C., Nelson, D., and Beecher, G.: The standardization of certain factors in the cutaneous "venostasis" bleeding time technique, *J. Lab. Clin. Med.*, **26**, 1812, 1940.

### REAGENTS AND EQUIPMENT

1. Blood pressure cuff.
2. Sterile, disposable blood lancet, capable of a wound 1 mm wide and 3 mm deep.
3. Stopwatch.