Apparatus for Obtaining Maximal Blood Volume During Exsanguination of Rabbits

WILLIAM H. BENTON

Gulf Coast Marine Health Sciences Laboratory, Environmental Control Administration, Public Health Service, Dauphin Island, Alabama 36528

Received for publication 3 October 1968

A highly efficient apparatus for the exsanguination of rabbits has been developed in our laboratory. This apparatus is simple to construct with standard laboratory hardware for the most part. The use of this apparatus in our laboratory has routinely yielded 150 to 200 ml of blood.

A "V" shaped table for routine blood drawing and exsanguination was constructed from 1/4-inch (1.9 cm) plywood (Fig. 1). The table dimensions are 32 inches (81.3 cm) high, 15.5 inches (39.4 cm) wide, and 34 inches (86.4 cm) long. The "V" shape is 8 inches (20.3 cm) wide and 4 inches (10.2 cm) deep. The 32-inch (81.3 cm) height was found to be the most convenient for our laboratory staff, but may be varied to suit individual needs. Two support clamps of 3/4-inch (0.95 cm) outside diameter rubber tubing were attached to one side of the table to hold the blood-receiving bottle and the trap bottle (250-ml centrifuge bottles) securely. The animal tie-down arrangement consisted of an eye screw placed in each upper corner of the "V" with a 2-foot (61.0 cm) length of sash cord passed through each one.

An 18-gauge, 1.5-inch (3.8 cm), short bevel needle was inserted into 3/16-inch (0.48 cm) inside diameter tygon tubing, which was connected by way of a bent animal-drinking tube, through a two-hole rubber stopper, into the 250-ml receiving bottle. The receiving bottle was connected with tygon tubing, through a two-hole rubber stopper, to a trap bottle. A screw-type pinchcock was placed between the two bottles. A piece of tubing was then attached to the trap bottle to run from the bottle, when on the drawing table, to a Richards filter pump. The use of the trap prevented an inadvertent backflow of water into the receiving bottle. This entire blood-drawing unit, less the filter pump, was then autoclaved.

After the animal was secured to the drawing table, the sterile blood-drawing unit was attached to the table and the filter pump. When used for exsanguination, the drawing table was tilted to approximately 20 degrees by propping one end up with a footstool. Positioning the animal's head at the lower end of the table gave a more thorough drainage of the animal. During routine bleedings, the drawing table was used in a level position. The rabbit's chest was then thoroughly wet with a disinfectant of choice, e.g., Merthiolate, benzalkonium chloride, iodine, etc. After the rabbit was disinfected, the filter pump was started with the pinchcock closed. The 18-gauge needle was then inserted into the rabbit's heart. As soon as blood was seen rising in the tygon tubing, the pinchcock was opened to provide a gentle suction, and the bleeding was carried out to exsanguination.

In the event of death during a routine bleeding operation, this apparatus can be set up quickly and, by massaging the animal's abdomen toward the heart, a relatively large volume of blood may be salvaged without the attendant hemolysis usually incurred when the chest cavity is opened.

I thank William G. Zirlott for building the blood-drawing table and William F. Hill, Jr., for encouragement and help in preparing this note.