A Simple Technique for Prolonged Arterial Cannulation

ROBERTO LLAMAS, M.D.,* SISIR K. GUPTA, M.D.,†
GEORGE L. BAUM, M.D.‡

The care of critically-ill patients has made arterial blood-gas analysis a routine procedure. Frequently, the physician must resort to repeated arterial punctures or to the difficult technique of arterial cannulation when multiple sampling is necessary. This report describes a simple technique for prolonged percutaneous arterial cannulation. The method allows repeated blood sampling as well as pressure monitoring.

The cannula (fig. 1A) consists of an inner 19-gauge 3½-inch needle and an outer 17-gauge 2½-inch catheter. Flow through the catheter is controlled with the built-in three-way stopcock. After preparation of the skin, the wrist is hyperextended over a towel. One percent xylocaine is infiltrated into the skin and around the radial artery from the crease of the wrist to about 1–1.5 cm. above. A scalpel nick is made in the skin just above the wrist. After the deadspace of the needle is filled with heparin, the cannula is introduced slowly through the nick at a 30° angle in the direction of the arterial pulsation (fig. 1B). As soon as blood issues through the stopcock, the cannula is advanced slightly to ensure its placement within the lumen. The needle is withdrawn, at which point a pulsatile stream of blood should issue through the stopcock. The catheter is then slowly advanced up to the hilt. After the deadspace of the cannula is filled with heparinized saline solution, the stopcock is closed (fig. 1C).

The present authors have used this cannula in over 130 patients in a Medical Intensive Care Unit. There have been no instances of loss of pulse or of ischemic changes distal to the cannula. The cannula has been maintained in situ for approximately three days per patient and for periods as long as ten days without untoward effects.

References


* Assistant Professor of Medicine, University of Miami School of Medicine; Chief, Medical Intensive Care Unit, Veterans Administration Hospital.
† Fellow in Pulmonary Disease, Veterans Administration Hospital.
‡ Associate Professor of Medicine, University of Miami School of Medicine; Chief, Pulmonary Disease Section, Veterans Administration Hospital.