

## CARDIAC SURGICAL PATIENT

adequate renal perfusion and a concomitant drop in urine flow.

**Packed Cells Preferred**

When replacing blood lost during surgery, the use of packed cells should be considered. We should not be slaves to the notion that whole blood lost must be replaced by whole blood. The use of packed cells can lessen the hazard of hepatitis and other adverse transfusion reactions. In my view, packed cells, supplemented with plasma substitutes meet the patient's requirement for blood replacement with minimal risk. Frozen blood is even better if available in your institution.

**Initiating Postop Care**

Anesthesia may cause a very labile blood pressure in the immediate postop period. Sudden motion accentuates any instability that may exist. Hence it is critical that anesthetized patients — especially known cardiacs — be transported as gently as possible to the RR, ICU, etc.

Specific postop care is of course geared to the procedure the patient undergoes but two major therapeutic guidelines must be observed at all times.

First, avoid hypervolemia. The cardiac patient is unable to tolerate fluid overload. Secondly, be wary of pharmacologic support of the heart. While cardiotonic drugs such as dopamine or glucagon have a place in the postop armamentarium, excessive inotropic stimulation of the diseased myocardium is very hazardous.

Many patients will require mechanical ventilatory support. Although many clinicians contend that mechanical ventilation should be discontinued as soon as possible, continued use may be indicated in the individual with marginal pulmonary function and labile blood pressure. These patients tend to do better if their work of breathing is reduced, especially if the postop pharmacologic management involves use of agents that will significantly depress respiratory drive.

Analgesia in the postop phase may be associated with significant complications. It should be mentioned that very young or very old patients tolerate potent analgesics — especially morphine — very poorly. Chronologic age, not apparent clinical condition should be the determining factor in morphine dosage. Once again, a good rule of thumb is: give small doses more often rather than a large dose initially. This provides a wider margin of safety.

**Early Ambulation**

It is advisable to get your cardiac patient on his feet and moving about as soon as he is able. This

prevents venous stagnation and lessens the possibility of pulmonary embolism.

An adjunct to early ambulation is low-dose heparin therapy, i.e., 5000 units two times daily. This low dose doesn't cause full heparinization but does retard the thrombotic process. If one elects this therapy, a profile of the patient's bleeding and clotting factors should be available including prothrombin times and partial thromboplastin times.

**Prophylactic Antibiotics?**

Touching on what continues to be a controversial subject, prophylactic antibiotics, I suggest that the use of antibiotics for this purpose depends entirely on the extent of the procedure, the number of catheters invading the patient and other operative factors. If the potential contamination time for a cardiac patient undergoing a relatively short procedure is minimal, it is probably not necessary to use prophylaxis.

But for longer procedures, prophylactic antibiotics are indicated immediately prior to surgery so that a blood tissue level exists at the time of possible contamination and for three days postoperatively. The drug should be discontinued at this time so that the normal flora are not suppressed and the road to secondary invasion remains closed. If sepsis develops, it should be identified, the organism isolated, the sensitivity determined, and the appropriate antibiotic utilized. □

**Practice Procedures****Steps for Managing Cardiac Surgical Patients**

Obtain baseline levels for cardiac reserve, pulmonary function and blood gases. Optimize electrolyte balance, blood volume and fluid. The preoperative nutritional state of the patient may have a dramatic influence on the surgical outcome; hyperalimment when indicated.

- Perioperatively, a morphine, nitrous oxide technique seems to be the least hazardous anesthetic. Minimal monitoring should include ECG, arterial pressure, central venous pressure, and urine output. A Swan-Ganz is indicated in the unstable surgical cardiac.

- Hypervolemia and undue pharmacologic stimulation of the myocardium are to be avoided postoperatively. Ventilatory support may be necessary to reduce work. Early ambulation is a must; heparin therapy is optional to prevent embolism. If prophylactic antibiotics are used, they should be discontinued on the third postoperative day.