Ventilatory Support

The lung is the organ that is most sensitive to shock. Decreased distribution or redistribution of blood flow to respiratory muscles plus the increased work of breathing can rapidly lead to respiratory failure. Critically ill patients are unable to maintain an adequate airway. To place the lung at rest and improve ventilation, tracheal intubation is initiated early with positive-pressure ventilation. Supplemental oxygen is always given as soon as possible. Blood gases and pH are monitored frequently.

Increased extravascular lung water caused by edema contributes to the development of respiratory complications. Therapy is directed toward maintaining normal arterial blood gas measurements, normal acid-base balance, and circulation. Efforts are made to remove fluid and prevent its accumulation with the use of diuretics.

Cardiovascular Support

In most cases, rapid restoration of blood volume is all that is needed for resuscitation of the child in shock. An isotonic crystalloid solution (normal saline or Ringer lactate) is the fluid of choice; colloids (such as albumin) are also used. Successful resuscitation is reflected by an increase in BP and a reduction in heart rate; increased cardiac output results in improved capillary circulation and skin color. CVP measurements of right atrial pressure help guide fluid therapy, and urinary output measurement is an important indicator of adequacy of circulation. Correction of acidosis, hypoxemia, hypoglycemia, hypothermia, and any metabolic derangements is mandatory.

Temporary pharmacologic support may be required to enhance myocardial contractility, reverse metabolic or respiratory acidosis, and maintain arterial pressure. The principal agents used to improve cardiac output and circulation are catecholamines, such as dopamine (Intropin) and epinephrine (Adrenalin). Vasodilators that are sometimes used include nitroprusside (Nipride) and milrinone.

Quality Patient Outcomes: Shock

- Oxygen content of blood optimized