chest radiograph, and especially an echocardiogram contribute to the diagnosis of cyanotic heart disease.

Therapeutic Management

Newborns generally exhibit cyanosis within the first few days of life as the ductus arteriosus, which provided pulmonary blood flow, begins to close. Prostaglandin E_1, which causes vasodilation and smooth muscle relaxation, thus increasing dilation and patency of the ductus arteriosus, is administered intravenously to reestablish pulmonary blood flow. The use of prostaglandins has been lifesaving for infants with ductus-dependent cardiac defects. The increase in oxygenation allows the infant to be stabilized and have a complete diagnostic evaluation performed before further treatment is needed.

Hypercyanotic spells occur suddenly, and prompt recognition and treatment are essential. In the hospital setting, spells are often seen during blood drawing or IV insertion, when the child is highly agitated, or after cardiac catheterization. Treatment of a hypercyanotic spell is outlined in the Nursing Care Guidelines box. Morphine, administered subcutaneously or through an existing IV line, helps reduce infundibular spasm. A spell indicates the need for prompt surgical treatment if possible. In infants with defects not amenable to surgical repair, a shunt may be created surgically to increase blood flow to the lungs. Several commonly used shunt procedures are described in Table 23-4 and Fig. 23-9.

Nursing Care Guidelines

Treating Hypercyanotic Spells

Place infant in knee/chest position (Fig. 23-10).

Use a calm, comforting approach.

Administer 100% "blow-by" oxygen.

Give morphine subcutaneously or through an existing IV line.

Begin IV fluid replacement and volume expansion if needed.