

sodium lost to traumatized areas and interstitial spaces, (2) reestablish sodium balance, (3) restore circulating volume, (4) provide adequate perfusion, (5) correct acidosis, and (6) improve renal function.

Fluid replacement is required during the first 24 hours because of fluid shifts that occur after the burn. Various formulas are used to calculate fluid needs, and the one adopted depends on practitioner preference. Crystalloid solutions are used during this initial phase of therapy. Parameters (such as vital signs [especially heart rate], urinary output volume, adequacy of capillary filling, and state of sensorium) determine adequacy of fluid resuscitation.

After the initial 24-hour period, theoretically there is a capillary seal, and capillary permeability is restored. Colloid solutions (such as albumin, Plasma-Lyte, or fresh-frozen plasma) are useful in maintaining plasma volume. However, children with burns usually require fluids in excess of their calculated maintenance and replacement volume. Reasons for this may include underestimation of burn size (particularly in pediatric patients), pulmonary injury that sequesters resuscitation fluid in the lung, electrical injury with greater tissue destruction than that which is visible, and a delay in the initiation of fluid resuscitation. Irreversible burn shock that persists despite aggressive fluid resuscitation remains a significant cause of death in the immediate post-burn period. Fluid balance may continue to be a problem throughout the course of treatment, especially during periods in which there may be considerable evaporative loss from the burn.

Nutrition.

The enhanced metabolic requirements and catabolism in severe burns make nutritional needs of paramount importance and often difficult to satisfy. To avoid protein breakdown, the diet must provide sufficient calories to meet the increased metabolic needs and enough protein. Hypoglycemia can result from the stress of the burn because the liver glycogen stores are rapidly depleted.

A high-protein, high-calorie diet is encouraged. Many children have poor appetites and are unable to meet energy requirements solely by oral feeding. Oral feedings are encouraged unless the child is intubated or paralytic ileus persists. Most children with burns in excess of 25% TBSA require supplementation with tube