

hormones.

The initial hydrating solution is 0.9% saline solution. Traditionally, deficits have been replaced at a rate of 50% over the first 8 to 12 hours and the remaining 50% over the next 16 to 24 hours. Current trends suggest more cautious fluid management to reduce the risk of cerebral edema. Therefore the fluid deficit should be replaced evenly over a period of 36 to 48 hours (Cooke and Plotnick, 2008).

Nursing Alert

Potassium must never be given until the serum potassium level is known to be normal or low and urinary voiding is observed. All maintenance IV fluids should include 30 to 40 mEq/L of potassium. Never give potassium as a rapid IV bolus, or cardiac arrest may result.

Serum potassium levels may be normal on admission, but after fluid and insulin administration, the rapid return of potassium to the cells can seriously deplete serum levels, with the attendant risk of cardiac arrhythmias. As soon as the child has established renal function (is voiding at least 25 ml/hr) and insulin has been given, vigorous potassium replacement is implemented. The cardiac monitor is used as a guide to therapy, and configuration of T waves should be observed every 30 to 60 minutes to determine changes that might indicate alterations in potassium concentration (widening of the QT interval and the appearance of a U wave following a flattened T wave indicate hypokalemia; an elevated and spreading T wave and shortening of the QT interval indicate hyperkalemia).

Insulin should not be given until urinary ketones and a blood glucose level have been obtained. Continuous IV regular insulin is given at a dosage of 0.1 units/kg/hr. Insulin therapy should be started after the initial rehydration bolus because serum glucose levels fall rapidly after volume expansion. Blood glucose levels should decrease by 50 to 100 mg/dl/hr. When blood glucose levels fall to 250 to 300 mg/dl, dextrose is added to the IV solution. The goal is to maintain blood glucose levels between 120 and 240 mg/dl by adding 5% to 10% dextrose. Sodium bicarbonate is used