Summary

Body fluids are distributed between the ICF and ECF compartments of the body.
Thirds of body fluids are contained in thebody cells of the ICF compartment, and one third is contained in the vascular compartement, intestinal spaces, and third space areas of the electrolytes, and noncharged particles called nonelectrolytes. Electrolytes and nonelectrolytes move by diffusion across cell membranes that separate the ICF andECF compartments .Water moves by osmosis across semipermeable membranes .The osmotic tension or effect that a solution exerts on cell volume in terms of causing the cell to swell or shrink is called tonicity.

ICF volume is regulated by the large numbers of proteins and other inoraginic solutes that cannot cross the cell s membrane and solutes such as sodium,potassium,and glucose that selectively move between the ICF and ECF on concentration gradients and transport mechanisms .ECF volume,is regulated by the elimination of sodium and water by the kidney.

Disorders of electrolyte homeostasis are known at many diseases and clinical situations.They have serious consequences for the cell.The electrolyte therapy in patients,who have undergo surgery,should begin preoperatively,so that an electrolyte balance without cellular deficits can be presumed at the begining of the operation.It is very important to recognize an electrolyte imbalance in surgical patients and to equalize it.

Mangment of anesthesia considers the likely presence of renal, cardiac, or liver disease as the etiology of excess total body water and hyponatremia. Unexpected hypotension in the presence of cardiac depresant anesthetic drugs may reflect poor mycardial function in the presence of hyponatremia.

Elective surgery should be postponed in patients with significant hypernatremia (>150 mEq/L) until the cause is established and fluid deficits are corrected.
The advisability of proceeding with elective surgery in the presence of chronic serum potassium concentrations below 3.5 mEq/L is controversial, depends weather it is acute or chronic. Anesthetic mangment consists of preventing a further increase in hypokalemia by allaying anxiety, avoiding dextrose solutions, maintaining and the use of anerve stimulator to assess neuromuscular blockade.

Acommon recommendation is that serum potassium concentration should be adjusted before subjecting patients to elective operations that require anesthesia. If this is not possible,it may be important to adjust anesthetic techniques yo facilitate recognition of adverse effects of hyperkalemia intaoperatively and to minimize the likelihood of any additional increases in serum potassium concentrations.

As regard hypocalcemia,it should be corrected preoperatively. Serial ionized calcium levels should be monitored intraoperatively in patients with a history of hypocalcemia.Hypercalcemia is amedical emergency and should be corrected,if possible,prior to administration of Any anesthetic.If surgery must be performed,saline diuresis should be continued intaoperatively with great care to avoid hypovolemia.
Anesthetic managment of patients with hypophosphatemia requires familiarity with its complications.Whilespecific interactions between hyperphosphatemia and anesthesia are generally not described, renal function should be carefully evaluated.
Hypomagnesemia is frequent postoperatively and in the intensive care and needs to be detected and corrected to prevent increased morbidity and mortality.

Acidosis and dehydration must be prevented intraoperatively, as these events lead to increased serum magnesium concentrations.

Hypermagnesemia causes neuromuscular weakness so hypermagnesemia potentiates the actions of muscle relaxants, and cardiac depression produced by anesthetic drugs.
It is important to maintain the electrolytes balance in the postoperative period to avoid more serious complications.