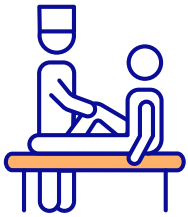
CHAPTER 10



FLUID AND ELECTROLYTE IMBALANCES

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1. Homeostasis (Fluid and Electrolyte Balance)

Total Body Water

In an adult, approximately 50-60% of the total body weight is composed of water. The water content is higher in muscle and solid organs, lower in adipose tissue and bones. Therefore, in males, the water content is around 60%, while in females, with more adipose tissue and less muscle mass, the water content is about 50%. In obese individuals, the water content is approximately 10-20% lower, and in malnourished individuals, it is around 10% higher.

Fluid Compartments

Total body water is distributed among three compartments: Intracellular, interstitial and plasma (the latter two are considered extracellular fluid).

1. Intracellular Fluid: About 2/3 of the total body water, approximately 40% of total body weight, is found in this compartment.
2. Extracellular Fluid constitutes about 20% of total body weight and consists of two parts:

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the lower extremities, due to hypoalbuminemia, may be observed in advanced malnutrition stages.

In nutritional status assessment, some anthropometric measurements are taken. Mid-arm and triceps skinfold thickness measurements are used in diagnosing and monitoring nutritional status.

In recent years, laboratory parameters have also been considered helpful in evaluating nutritional status alongside clinical data:

- Serum albumin levels: This is the most widely used parameter with the longest half-life. Low serum albumin (<2.2 g/dL) indicates negative catabolic status. Surgical stress, burns, infections, and other acute stressors, as well as liver and kidney diseases, can reduce serum albumin levels. It is not affected by the degree of fasting.
- Serum transferrin levels: Reflects the systemic inflammatory response. Transferrin also indicates iron status, so it only reflects nutritional status at normal iron levels.
- Serum prealbumin levels: Has the shortest half-life of two to three days. It is more effective for short-term evaluations as it responds rapidly to catabolism and inflammation.
- Nitrogen balance: One of the most reliable ways to evaluate protein catabolism is measuring urinary nitrogen excretion.
- Serum calcium, magnesium, and phosphorus levels, particularly in cases of poor oral intake or diarrhea, should be periodically evaluated.

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