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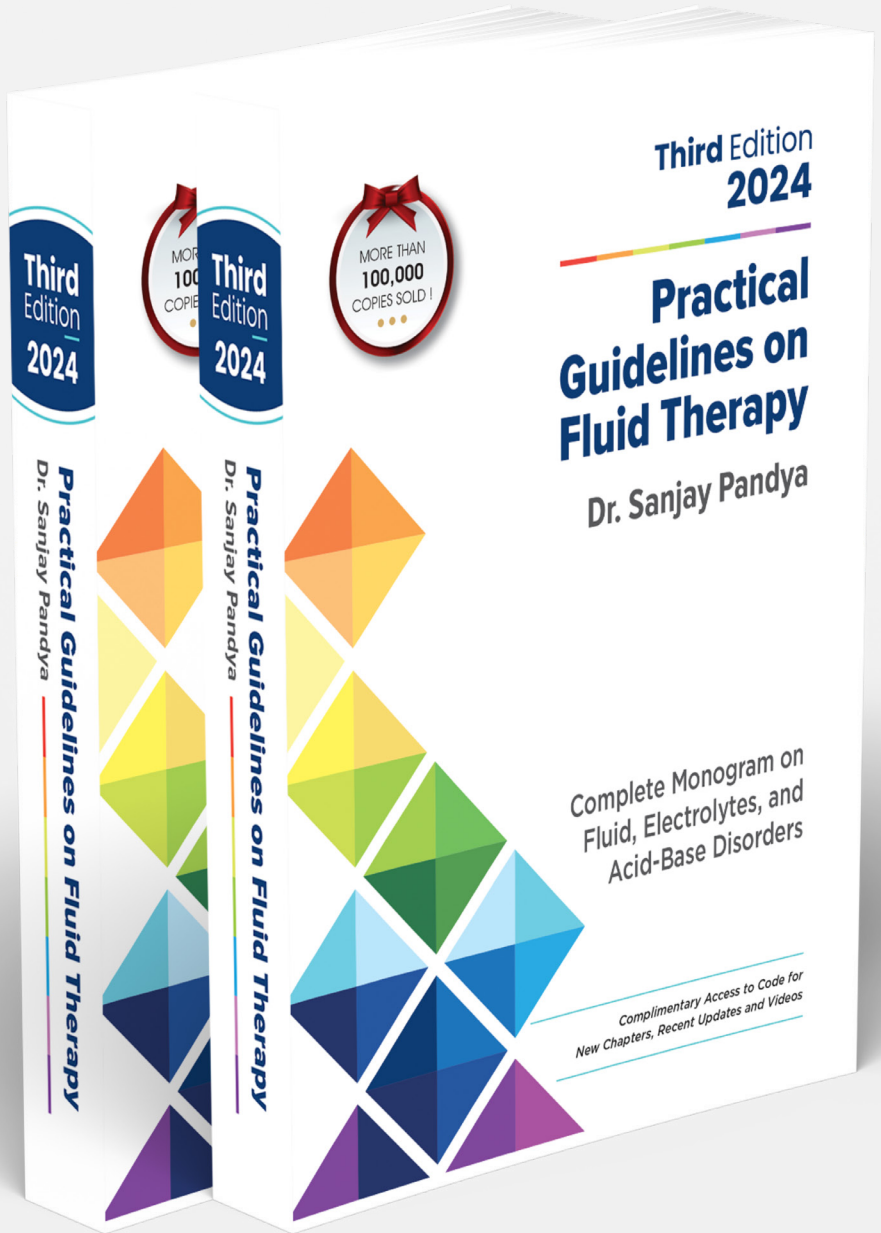
Chapter 41:
Neurological Disorders



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IMPORTANCE OF FLUID REPLACEMENT

Fluid replacement is of utmost importance in patients with traumatic brain injury (TBI) or those undergoing neurosurgery. These patients require the administration of intravenous solutions to achieve three important goals: (1) Achieve hemodynamic stability, (2) Improve cerebral perfusion and ensure adequate cerebral oxygenation to prevent brain damage, and (3) Prevent cerebral edema [1–3].

Aneurysmal subarachnoid hemorrhage (aSAH) patients are prone to volume contraction due to cerebral salt wasting, resulting in increased urine output. Therefore, they require fluid replacement. Furthermore, the combined effect of volume depletion and cerebral vasospasm resulting from aSAH increases the risk of cerebral ischemia and life-threatening ischemic strokes, leading to significant morbidity and mortality [4].

So, patients with aSAH require large volumes of sodium-rich IV fluids to correct hypovolemia, maintain euvolemia and normonatremia [5], and prevent the associated poor outcomes [6, 7].

SELECTION OF FLUIDS

To choose the ideal intravenous solution for neurological disorders, it is essential to understand the benefits and harmful effects associated with the solution's composition, tonicity, and type of buffer [3]. The 2018 ESICM consensus and clinical practice recommendations suggest using crystalloids as first-line resuscitation and preferred maintenance fluids and advise against using colloids in neurointensive care patients [8].

A. Normal saline: Preferred fluid

Isotonic solution normal saline (0.9% sodium chloride) is the most commonly

used and preferred crystalloid for neurological patients [9, 10].

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