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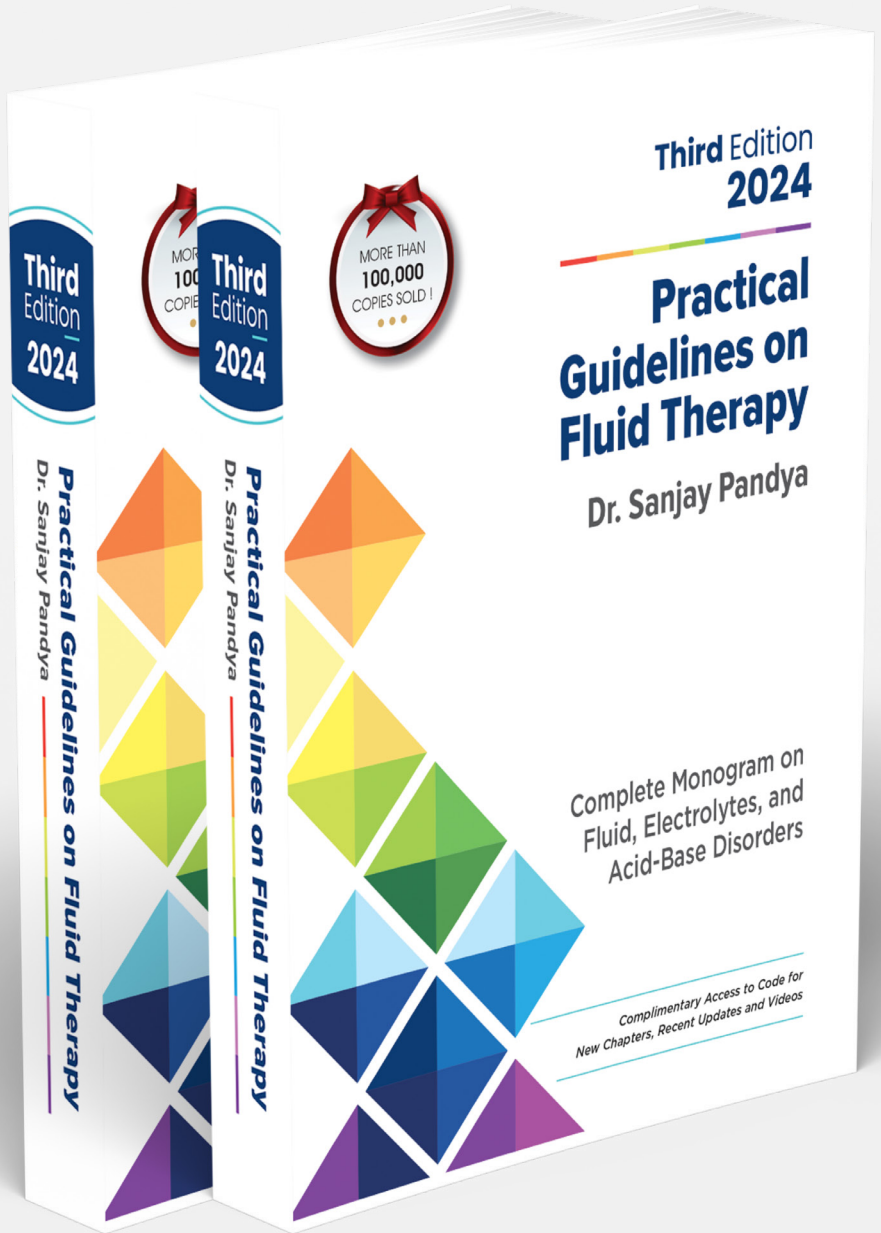
Chapter 5:
Colloid Solutions



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5 Colloid Solutions

Colloids are volume expanders commonly used in clinical practice for fluid resuscitation in hypovolaemic patients. Colloids are electrolyte solutions fortified with large molecular weight molecules that do not pass through semipermeable membranes and therefore are retained within the vascular system. Theoretically, colloids are more effective as plasma volume expanders and improve blood pressure more rapidly than crystalloids because of their intravascular distribution, the property of drawing fluid from extravascular spaces (due to their higher oncotic pressure), and prolonged effect [1, 2].

Compared to crystalloid fluids, colloids are three times more effective in expanding blood volume and increasing cardiac output [3]. So, when plasma or blood is not available immediately, the infusion of colloids to correct circulatory fluid volume is vital and often life-saving in patients with hemorrhagic shock. However, a blood transfusion is subsequently required to maintain the adequate capacity to carry oxygen. The potency of colloid fluids as plasma volume expanders differs with different commercially available colloid fluids, as shown in Table 5.1.

The major advantages and disadvantages of colloids are summarized in Table 5.2 [4]. Colloids vs. crystalloids in resuscitation is a long-standing debate. The colloids were an attractive and preferred choice for resuscitation before a decade [5]. The potential benefits of colloids are greater, rapid, and more prolonged intravascular volume expansion with smaller volume [3, 6–9] and lesser salt and

water overload and edema. The benefit of speedier achievement of hemodynamic goals with colloids is less organ damage and a decreased incidence of organ failure [3].

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