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Preface

Since the 1980s, the clinical practice of plasma volume expansion has changed considerably: fresh frozen plasma has been replaced by colloids. At the beginning of the 1990s, the administration of serum albumin was the most common means of plasma volume expansion, but it was misused in many clinical situations. Because albumin is sometimes in short supply and is currently more costly than artificial colloids, control of its overuse has significant clinical and economic ramifications for hospitals. In an effort to optimize the use of albumin, several societies of anesthesiologists and intensive care physicians have developed guidelines based on the currently available literature, demonstrating therapeutic equivalence between artificial colloids and albumin in many clinical situations. The impact of these guidelines has been a subject of debate since observational studies were conducted to characterize the use of albumin and artificial colloids and to determine the appropriateness of their use in accordance with the indication guidelines. In these studies, albumin is still frequently administered in surgical and critically ill patients, especially in intensive care settings, showing that albumin is often administered instead of artificial colloids. This discrepancy between the guidelines and common practice may reflect a lack of knowledge that albumin and artificial colloids are equally effective or a concern about the safety of artifical colloids, such as the possibility of increased bleeding. An educational effort should be undertaken to disseminate guidelines regarding the appropriate indications for albumin, the therapeutic equivalence between artificial colloids and albumin, and evidence of artificial colloid safety.

Three categories of artificial colloids are available in Europe: dextrans, gelatins, and hydroxyethyl starches. Dextrans have some significant side effects concerning coagulation and renal function, which render their use less suitable in acute hemorrhagic shock. Allergic reactions to dextrans could be overcome by hapten inhibition. Gelatins do not interfere with the coagulation system. Accordingly, can be dosed at maximum effectiveness, which is an advantage in hemorrhagic conditions and especially in trauma. High-molecular-weight hydroxyethyl starches should be distinguished from those of medium molecular weight. The latter category is the most commonly used in European countries and is associated with good tolerance in terms of allegeric reactions and interference with coagulation. However, not all medium-molecular-weight hydroxyethyl starches are the same, especially when repeated infusions are considered. Acute renal failure following colloid administration has been reported with dextrans and hydroxyethyl starches but also with gelatins and 20% albumin. Risk factors and modes of administration have been identified as affecting these adverse events.

In this book, all the properties of artificial and natural colloids are reviewed. Different clinical settings that represent major indications for colloids are discussed extensively. Finally, we look to the future with the use of hemoglobin solutions and fluorocarbons.

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