

1. Ins and outs: making sense of fluid balance

Monitoring fluid ins and outs is a crucial part of managing the critically ill small animal patient. However, it is not always easy to sense of what it means when the ins don't match the outs. This practical, case-based presentation covers how to monitor fluid balance, with practical tips for difficult cases. Possible reasons for ins and outs not matching will be discussed, with a focus on identifying when this is appropriate and when this is inappropriate. This information will be used to formulate a rational plan for the next steps, working towards ideal fluid balance.

2. Coagulation effects of fluid therapy

Coagulation derangements in critically ill patients can be exacerbated by fluid therapy. The ideal type of fluid for shock resuscitation in small animals is controversial. The effects of different fluid types on coagulation, alone or in combination, is discussed. The potential role of monitoring tests in guiding treatment is also discussed, focusing on viscoelastic coagulation tests such as thromboelastography. The aim is to allow clinicians to make rational case-by-case decisions on the best treatment, which is highlighted by worked clinical examples. The author's canine haemorrhagic shock model research data is also provided to highlight the concepts discussed.

3. Renal effects of fluid therapy

Intravenous fluid therapy has the potential to decrease the risk of acute kidney injury (AKI) by restoring perfusion but may also potentiate AKI in several ways. The ideal type of fluid for limiting AKI in small animals is controversial. The potential effects of different fluid types on the kidney are reviewed, with emphasis on pathophysiology and recent experimental and clinical evidence, including the author's own research. There is also discussion on the renal effects of liberal or restrictive fluid volume strategies. Rational treatment approaches to some clinical case examples are discussed, utilising the current body of evidence.

4. Circadian rhythm and management of sleep in critical illness

Sleep patterns have been extensively studied in critically ill humans, but there is little published in small animals. This session reviews the body of human literature, including the nature of sleep disturbances in the critically ill and their pathophysiologic effects including relationship with clinically relevant outcomes. Strategies, both pharmacologic and non-pharmacologic, for improving sleep in critically ill patients are discussed, with emphasis on potential applicability to small animal practice. Future research directions are highlighted.

5. Anxiety in hospitalised patients: recognition and management

Not only is patient anxiety distressing to patients, owners and staff but it also may impact on assessment and treatment of critical illness. This session discusses the relevance of hospital associated anxiety (HAA) from a welfare and medical perspective. Strategies for identification and measurement of HAA are discussed, with focus on the need for a standardised scoring system. Options for management, both pharmacologic and non-pharmacologic, are discussed. Several worked case examples are used to show how these identification and management strategies can be implemented in typical emergency and critical care patients.