Lecture summaries

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Hemodialysis: Dialysis: When? Why? How? Do they live?
This lecture focuses on indications for initiating hemodialysis in dogs and cats with acute kidney injury. Recently, clinical guidelines for the management of acute kidney injury using intermittent hemodialysis and continuous renal replacement therapy have been introduced, providing a more structured framework for decision making. The lecture will emphasize indications for hemodialysis initiation, with particular focus on the degree and progression of azotemia based on the most recent guidelines. Attendees will gain practical tools to guide timely decisions on when to consider extracorporeal therapies, how to select the appropriate platform, and how to assess outcomes in animals managed with hemodialysis.

Learning goals

1. Recognize evidence based indications for hemodialysis initiating in animals with severe acute kidney injury and understand the importance of timely, proactive intervention.
2. Compare intermittent hemodialysis and continuous renal replacement therapy with respect to mechanisms, clinical applications, advantages, and limitations in the management of acute kidney injury.
3. Apply fundamental principles of renal replacement therapy prescription to guide platform selection, treatment modality choice, and safe delivery of extracorporeal therapies in dogs and cats with acute kidney injury.
4. Identify the major prognostic determinants of acute kidney injury, including severity, etiology, reversibility, comorbidities, in animals with acute kidney injury undergoing hemodialysis

CRRT FOR AKI
This lecture focuses on the use of continuous renal replacement therapy for the management of acute kidney injury in the ICU setting. Attendees will acquire practical tools for prescription writing, with emphasis on patient safety, and controlled reduction of uremic toxin concentrations. The lecture will introduce a novel, stepwise approach to prescription design aimed at timely correction of severe azotemia while maintaining safety by reducing the risk of dialysis disequilibrium syndrome, preserving hemodynamic stability, and minimizing treatment related complications.

Learning goals

1. Identify clinical scenarios in which extracorporeal therapies should be considered for animals with acute kidney injury and understand how these therapies extend the window of opportunity for renal recovery.
2. Compare continuous renal replacement therapy and intermittent hemodialysis with respect to indications, practical applications, advantages, and limitations in veterinary patients.

3. Apply principles of solute kinetics to develop safe and effective CRRT prescriptions, including stepwise dose escalation strategies to achieve controlled reduction of azotemia while minimizing the risk of dialysis disequilibrium syndrome.
4. Recognize key safety considerations associated with extracorporeal therapies, including hemodynamic stability, treatment efficiency, and anticoagulation strategies, and integrate these considerations into individualized treatment planning.

EXTRACORPOREAL THERAPIES FOR INTOXICATIONS

This lecture addresses intoxications as a common cause of morbidity and mortality in companion animals and highlights the role of extracorporeal therapies in their management. Attendees will become familiar with the different extracorporeal platforms that may be considered for the treatment of intoxications and the fundamental principles of solute removal underlying these techniques. The lecture will provide practical tools to assess which toxins are amenable to extracorporeal removal and offer guidance on selecting the most appropriate modality and platform based on the characteristics of the intoxicant and the clinical scenario.

Learning goals

1. Describe the role of extracorporeal therapies in the management of severe intoxications in companion animals and identify clinical scenarios in which enhanced toxin removal is indicated.
2. Understand the key toxicokinetic properties of intoxicants, including molecular weight, protein binding, and volume of distribution, that determine suitability for extracorporeal removal.
3. Compare the mechanisms, capabilities, and limitations of extracorporeal modalities used for toxin removal, including intermittent hemodialysis, continuous renal replacement therapy, hemoperfusion, plasma adsorption, and therapeutic plasma exchange.
4. Apply toxicologic and clinical principles to select the most appropriate extracorporeal platform and modality for specific intoxications.
5. Recognize the phenomenon of toxin rebound following extracorporeal therapy and incorporate appropriate monitoring and treatment strategies to achieve sustained detoxification.