

C-VA.3 Critical Care and Analgesia

Credits: 10 (100 hours)

Provider: Veterinary Postgraduate Unit – School of Veterinary Science

RCVS Content Covered

The following outlines the modular content as set out by the RCVS.

This module will explore in greater detail the fundamental physiological and pharmacological tenets that underpin current knowledge and clinical practice of pain prevention and management. This module will also entail a study of the theoretical and practical aspects of the intensive peri-operative care of small animals. This will require a good understanding of the applied physiology of body fluids and electrolytes and acid base balance. The ability to assess and treat appropriately fluid and electrolyte and acid base disturbances as well as and understanding and management of blood transfusion in animals.

Candidates must be able to demonstrate that they have had experience of intensive peri-operative care of critically ill patients in the range of species normally encountered in clinical practice. A general knowledge of current developments in the whole field of critical care will be expected so that relevant aspects of medical peri-operative care may be applied in animals. Candidates should understand the function of apparatus used in intensive care.

At the end of the module, candidates should be able to:

- Provide appropriate care for the sick and or debilitated patient, including support / maintenance of normal homeostasis
- Thoroughly understand the fundamental and applied physiological principles that underpin current knowledge of the cardiovascular, respiratory and renal systems, as they apply to the management of critically ill patients
- Thoroughly understand the fundamental and applied physiological principles that underpin current knowledge of body fluids, electrolytes and acid base balance. Clinical practice of intensive peri-operative care - this will include a thorough understanding of the principles of respiratory and cardiovascular system support.
- Competently assess and treat appropriately fluid and electrolyte and acid base disturbances. Understanding the fluid compartments in the body, factors controlling fluid shifts within the body, the different types of replacement fluids available and how to calculate fluid and electrolyte replacement requirements
- Thoroughly understand the theory and practical aspects of managing blood transfusion in small animals
- Understand the theory and practical aspects of providing nutritional support to critically ill patients, including the use of parenteral and enteral feeding techniques such as PEG tubes, nutritional formulations, calculation of caloric and substrate requirements, and methods of controlling vomiting and ileus
- Thoroughly understand the fundamental physiological and pharmacological tenets that underpin current knowledge and clinical practice of pain prevention and management
- Demonstrate a good general knowledge of current developments in the field of pain perception and analgesia

- Demonstrate practical competence and experience of managing acute peri-operative and more chronic pain in the range of species normally encountered in their clinical practice
- Understand the function of apparatus used in intensive care of small animals, where relevant
- Understand the functional characteristics of anaesthetic breathing systems (“circuits”) and how they may be used for intensive care of unconscious small animal patients
- Appreciate the advantages and disadvantages of intermittent positive pressure ventilation, and how this may be delivered to support critically ill small animal patients
- Demonstrate a good general knowledge of, and experience in the use of, tracheostomys and thoracic drains where relevant to case management
- Appreciate how electronic monitoring systems may be used to monitor vital functions in sick animals, and be able to interpret the information they provide
- Demonstrate familiarity with commonly performed regional nerve blocks as used to provide analgesia pre and postoperatively
- Demonstrate a good general knowledge of current developments in the field of critical care
- Demonstrate a good general knowledge of relevant aspects of medical peri-operative care in small animals
- Demonstrate understanding and experience of the management of sepsis and nosocomial infections in the context of critical care
- Demonstrate a good general knowledge of the principles of physiotherapy: and the nursing care of recumbent and debilitated patients including postural management, rehabilitation techniques and the maintenance of muscle tone
- Demonstrate experience of intensive peri-operative care of critically ill patients in the range of species normally encountered in clinical practice.
- Show thorough familiarity with the practical aspects of intensive peri-operative monitoring, treatment and care of small animals
- Review and constructively criticise current literature on the speciality, to enable them to determine its relevance to their current practice
- Utilise their understanding of Evidence Based Medicine and Decision Analysis to develop practical diagnostic and treatment protocols for their patients
- Use available resources and communicate with owners in such a way as to achieve optimum results in their practice circumstances in relation to pain management and intensive care of patients
- Utilising knowledge to ensure effective communication with referring veterinary colleagues: writing clear, concise patient summaries, communicating suggestions for ongoing therapy, strategies for avoiding misunderstandings
- Using knowledge to develop effective team work: recognising the importance of effective interpersonal communication in perfecting protocols for dealing with emergencies
- Review the outcomes of at least part of their clinical work, using the process of clinical audit to improve performance
- Recognise when a case is truly unusual, and become familiar with the information resources available to enable them to deal with such cases
- Recognise when a case is beyond their personal or practice capabilities, and provide an effective channel for referral

Aim of the Module

The aim of the module is to enable the candidate to extend and consolidate clinical knowledge and skills gained at undergraduate level, and to develop an in-depth

understanding of the application of that knowledge in a practice environment in relation to critical care and analgesia.

Learning Outcomes

Upon completion of this module successful candidates are expected to:

1. demonstrate a comprehensive understanding of the fundamental physiological and pharmacological tenets that underpin current knowledge and clinical practice of veterinary critical care;
2. demonstrate detailed knowledge of the theoretical basis and practical skills relating to supportive care of the critically ill patient;
3. demonstrate a critical awareness of the theoretical basis underpinning the practice of pain management in animals;
4. demonstrate a systematic understanding of the application of the knowledge and practical skills which relate intensive peri-operative care of small animals;
5. critically evaluate research methodologies and develop critiques of them, and propose new hypotheses for the implementation of research results into practice.

Module Structure

The syllabus will be divided into 4 study units:

Study Unit 1 Anatomy and Physiology

This unit will review the relevant anatomy and physiology with specific relevance to the critical care setting.

Study Unit 2 Intravenous and Enteral Fluid Therapy in the Critical Care Setting

This unit will examine the use of intravenous and enteral fluid therapy in the critical care setting. The significance of electrolyte and acid base homeostasis will be discussed. The role of nutritional support and means by which it can be delivered will also be reviewed.

Study Unit 3 Pain Management and Animal Welfare in the Critical Care Setting

This unit will review the area of pain management and animal welfare in the critical care setting. The ethical arguments surrounding critical care will be discussed as will different strategies for assessing and managing pain.

Study Unit 4 Homeostasis

This unit will cover the various means by which homeostasis can be monitored and maintained in the critically ill patient specifically reviewing maintenance of blood pressure, glucose homeostasis, body temperature regulation and support of the respiratory system.

Assessment Strategy

Portfolio of cases (20 case log book), 3 x detailed case reports (1500 words), 1 x short answer question and/or MCQ test at the end of the module and 1 x journal critique/journal club presentation (pass/fail)