Altered States of Consciousness in Small Animals

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KEYWORDS

• Consciousness • Confusion • Stupor • Coma • Intracranial pressure
• Small animals

KEY POINTS

- Consciousness is best represented by both wakefulness and awareness.
- Abnormalities of consciousness indicate a brainstem and/or forebrain localization.
- Any disease that affects intracranial structures can cause abnormalities of consciousness.
- Severely impaired consciousness can represent a medical emergency.
- Immediate fluid therapy and oxygen therapy are the most successful supportive measures for acute impaired states of consciousness.

INTRODUCTION

The terms consciousness, confusion, stupor, unconsciousness, and coma have been endowed with so many different meanings that it is almost impossible to avoid ambiguity in their usage. The word consciousness is the most difficult of all to define. For practical and didactic purposes, consciousness is often described as having 2 main components: awareness and wakefulness. At present, there is no single marker of awareness, but its presence can be clinically deduced from behavioral signs, such as visual pursuit or responses to command. Wakefulness describes the state of arousal, often apparent by opened eyes.

Abnormalities of consciousness usually indicate diseases or intoxications that result in dysfunction of the brainstem and/or the cerebrum. Clinical abnormalities may be acute or chronic in nature and may vary from subtle to profound dysfunction. Assessment of consciousness is based on an animal's responses, either appropriate or inappropriate, to its environment, and stimuli, both normal and abnormal, within that environment. As such, familiarity with the range of normal responses of cats versus

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dogs, young animals versus old animals, and highly active breeds, such as terriers, versus less-active giant breeds is important in the assessment of consciousness.

STATES OF NORMAL AND IMPAIRED CONSCIOUSNESS

The following definitions aim to describe the states of consciousness in terms of awareness and wakefulness so that they can be practically identified and related to underlying disease of the nervous system (Table 1):

A. *Normal consciousness.* This is the condition of the normal animal when awake. In this state, the animal is fully responsive.
B. *Confusion.* The term confusion lacks precision but in general it denotes an inability to think with appropriate speed and clarity. This is obviously open to subjective interpretation in veterinary medicine, but it is proposed here as the term that describes an abnormal state of awareness because of its simplicity and its intuitive implication. Assessing an animal to be either normally aware versus confused relies on an interpretation of an animal's behavior, which itself is defined as the observable response of an animal to environmental or specific stimuli (Fig. 1). Behavior suggestive of confusion includes getting trapped in corners or under furniture, unprovoked vocalization, staring at the floor or wall for protracted periods of time, and loss of house training. The words delirium and dementia have been inappropriately used in the veterinary literature to describe abnormal states of awareness. In human neurology, delirium describes a mental disturbance denoted by excitement, restlessness, and unprovoked vocalization often associated with hallucinations, whereas dementia is defined as impaired intellectual function involving memory and judgment, as well as changes in personality. Accurate assessment of these states in veterinary medicine is not obviously possible; additionally they

Table 1
States of consciousness in animals

State of Consciousness	Wakefulness	Awareness	Interpretation
Normal consciousness	Preserved	Preserved	No evidence of intracranial disease but it cannot be ruled out.
Drowsy	Reduced	Preserved	Possible primary brainstem or forebrain disease but systemic disease, intoxication, and even pain could be responsible. A drowsy and confused state would isolate the disease to the forebrain.
Confused	Preserved	Reduced	Isolates the disease to the forebrain. A drowsy and confused state also can be possible with this lesion localization.
Stupor	Absent	Absent	This indicates severe disease of the brainstem and/or bilateral cerebral hemispheres. The animal can be aroused with noxious stimulation.
Coma	Absent	Absent	As for stupor, this indicates severe disease of the brainstem and or bilateral cerebral hemispheres. The animal cannot be aroused with noxious stimulation but some cranial nerve reflexes may still be present if the brainstem is not involved.