

Survival to Discharge or Transfer in Stuporous or Comatose Dogs & Cats

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In the Literature

Parratt CA, Firth AM, Boag AK, Allison GF, Boysen SR. Retrospective characterization of coma and stupor in dogs and cats presenting to a multicenter out-of-hours service (2012–2015): 386 animals. *J Vet Emerg Crit Care*. 2018;28(6):559-565.

FROM THE PAGE ...

Stupor describes a state in which patients are responsive only to noxious stimuli (eg, pinching of toes with a hemostat), whereas *coma* describes a state in which patients are unresponsive even to noxious stimuli. The aim of this retrospective study was to characterize coma versus stupor in dogs and cats.

Records were evaluated from an after-hours clinic in which patients were transferred to another daytime hospital the following morning or at the beginning of the following week for weekend admission. Patients with an undetermined cause of stupor or coma were excluded. Traumatic brain injury was determined to be the most common cause of stupor or coma. Other common etiologies included hypoglycemia, shock, renal or hepatic dysfunction, intoxication, seizures, and neoplasia.

Because an after-hours clinic was used, only short-term prognoses (often <14 hours before transfer the following morning but up to 60 hours for weekend admissions) were examined. Overall, short-term prognosis was poor, with a high mortality rate for both comatose (dogs, 79.4%; cats, 86.4%) and stuporous (dogs, 62.5%; cats, 78.5%) patients. This mortality rate included a high percentage of patients that were euthanized at or soon after admission (dogs, 43%; cats, 61%). Of patients for which treatment was attempted, 46% of dogs and 41.2% of cats survived to transfer or discharge. Hypoglycemia was the most common etiology in patients that were successfully transferred.

There were 2 significant limitations to this study. First, although a definitive diagnosis was listed for many of the patients, it is possible some were misclassified, as investigators were reviewing medical records retrospectively. For example, etiology was recorded as cerebrovascular accident or brain tumor for several dogs and cats, but there is no indication of advanced imaging having been performed. Chihuahuas ($n = 13$) were also reportedly overrepresented; this breed has a predisposition for brain malformation (eg, congenital hydrocephalus) and noninfectious inflammatory encephalitis, yet neither of these disorders were listed as a possible etiology. Second, only the short-term prognosis could be determined in this study. Additional studies are needed to more accurately characterize the etiology and evaluate long-term prognosis for these patients.

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Key pearls to put into practice:

- 1** The Modified Glasgow Coma Scale is recommended to help establish initial prognosis for comatose and stuporous patients. Serial Modified Glasgow Coma Scale scores may also be used in individual patients to monitor improvement or decline.¹⁻³
- 2** Prognosis for stuporous or comatose patients with traumatic brain injury is guarded to poor; aggressive treatment is crucial to increase the chance for a successful outcome. Treatment measures can include administration of hyperosmolar agents (eg, mannitol, hypertonic saline), intravenous fluid resuscitation and restoration of normal blood pressure, oxygenation, control of blood glucose (hyperglycemia exacerbates neuronal necrosis), pain management, head elevation, anticonvulsants (if indicated), and/or other supportive measures. Corticosteroids are contraindicated in traumatic brain injury patients.⁴⁻⁷
- 3** Acute, nontraumatic stupor or coma is frequently associated with hypoglycemia, renal or liver dysfunction, or electrolyte derangements (eg, hypoadrenocorticism). Point-of-care testing (particularly packed cell volume/total solids, blood glucose, BUN, creatinine, electrolytes), fluid resuscitation, and restoration of normotension are critical.

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