



Audio Summaries: Developments in surgical fluid therapy rates in veterinary medicine

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Hi, I am Kristina Naden a Veterinary Nurse. This Knowledge Summary looks at the question; is there sufficient evidence to show that 2013 recommendations by the American Animal Hospital Association and American Association of Feline Practitioners for surgical fluid therapy delivered at 3 ml's per kilogram, per hour for cats and 5 ml's per kilogram, per hour for dogs lead to a better outcome compared with previous rates of 10 ml's per kilogram, per hour, for both cats and dogs.

Fluid therapy is commonly used during surgical procedures for cats and dogs and is important to help maintain or improve cardiac output and improve oxygen delivery. I was interested to know what veterinary evidence was behind the recommendation to reduce fluid therapy rates for cats and dogs and carried out a literature search to help answer this question. Using the CAB abstracts and Pub Med databases I found five articles that were relevant to this question.

Many of the studies I found were based on human surgical cases that had a strong focus on fluid responsiveness to determine the rate of fluid therapy. Zero balance fluid therapy, and goal-directed fluid therapy were two recurring themes in human surgical cases.

The zero-balance fluid therapy concept means that no more than one kilogram of body weight should be added to humans following surgery with concurrent fluid therapy.

Goal-directed fluid therapy uses measures such as stroke volume, pulse pressure variation, and pleth variability index to assess fluid responsiveness.

These terms have yet to be clearly defined in veterinary medicine. Methods for measuring fluid, responsiveness and animals are not always consistent across veterinary clinics. There is strong evidence that blood pressure is an inaccurate method of assessing fluid responsiveness, and the invasive method of using central venous pressure is also no longer considered to be an adequate measure of fluid responsiveness, pulse pressure variation, or pleth variability index are two methods that are proving to be more accurate. The latter is non-invasive and only requires the use of a pulse oximeter, a piece of equipment that is commonplace in many clinics. The delivery rate of fluid therapy is important to understand and get right.

As we know that over hydration can lead to acute kidney injury in humans, there was a very limited amount of evidence in the area of fluid rates in veterinary practice with the 2000 recommendations, even stating this. This suggests further research is needed to develop an evidence-based for rates of fluid therapy, and also to study the concepts of goal-directed fluid therapy for animals.

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