

Preanesthetic Testing in Private Practice

You have asked...

>>What are the current recommendations in regard to preanesthetic testing of patients?

The expert says...

One of the most challenging aspects of being a veterinarian is the inability to question our patients. We rely on observations of pet owners, which can vary greatly in both detail and accuracy. Lack of an ideal medical history has led us to perform more objective diagnostic testing to ensure our patients' safety.

Such investigation is especially important when evaluating the preanesthetic patient. Because our patients cannot tell us if they've been feeling nauseated or fatigued, we must be vigilant and uncover any hidden illnesses that may escape the watchful eyes of an owner. Preanesthetic testing provides us with important physiologic information if we understand proper test procedures, interpretation of results, and test limitations.

This article will focus on preanesthetic laboratory analyses. See the **Box** for additional diagnostic studies that should be considered in preanesthetic testing.

FRESH IS BEST

When interpreting a complete blood count, fresh samples are always better.^{1,2} Ideally, blood samples

should be obtained from a fasting patient on the same day that anesthesia is administered. This protocol allows the clinician to accurately analyze the current physiologic status of the patient—an important consideration in veterinary practice because many illnesses develop suddenly and without obvious signs. Practitioners should be wary of relying on diagnostic test results obtained weeks or even months earlier.

Even with advanced hematology analyzers, evaluating a blood smear is an important part of assessing a patient's hemogram. Cellular morphology and platelet estimations are often best interpreted by direct visualization. Busy practices should invest in training that will allow veterinary technicians to quickly and accurately assess a patient's blood film. Blood films should be evaluated as quickly as possible because artifacts are more likely to form in blood that remains in contact with an anticoagulant for extended periods of time (particularly in cases of pseudothrombocytopenia).^{3,4}

TEST CHOICES

Deciding on a minimum data base for preanesthetic testing can be confusing. Veterinary anesthesiologists hold conflicting views on what tests,

Other Studies That Should Be Considered

In addition to preanesthetic blood tests, consider the following diagnostic tests for patients undergoing anesthesia:

- Complete urinalysis
- Blood pressure analysis
- Electrocardiogram
- Radiographs
- Ultrasound

CONTINUES

if any, should be a part of a preanesthetic test protocol. Briefly, the clinician should evaluate red and white blood cell counts, platelet counts, liver and kidney function, and serum concentrations of glucose, protein, and electrolytes. Some practitioners include urinalysis as part of routine preanesthetic testing, whereas others will perform this study only if blood results, physical examination, or history suggest the presence of kidney disease. Veterinarians should avoid basing the inclusion or exclusion of certain tests on cost alone. Pet owners expect their veterinarian to be as thorough and safe as possible, with cost being secondary.⁵

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Over 99% of these abnormalities were not the result of significant disease, nor did they lead to cancellation of the anesthetic procedure; however, they did alert the practitioner to a possible problem that had been previously undetected. Some of these cases were later found to have life-threatening disease that anesthesia may have worsened or complicated. The most common abnormalities reported were elevated liver enzymes alanine aminotransferase and aspartate aminotransferase (4.7% cats, 3.6% dogs), abnormal kidney enzyme creatinine (1.8% cats, 1.6% dogs), and changes in white blood cell (2% cats, 2% dogs) and platelet counts (1.6% cats, 1.7% dogs).

ABNORMAL RESULTS

Occasionally, preanesthetic test results will vary slightly from normal values, causing a potential diagnostic dilemma. The question of whether to postpone or alter a patient's procedure should be based on the patient's complete clinical picture, not on a single test result. For example, an otherwise healthy 6-month old dog with an unremarkable medical history that is found to have an alkaline phosphatase level 20% above normal may not require any adjustment to the anesthetic protocol or procedure. Conversely, that same patient with serum alanine aminotransferase activity that is 4 times what it should be should have anesthesia postponed until the cause is determined. Each patient should be evaluated individually on the basis of medical history, examination findings, and the type of procedure scheduled before pursuing anesthesia.

In a study of 1537 dogs undergoing surgery at the University of Leipzig, researchers found that preanesthetic testing resulted in few changes to anesthesia.⁷ The authors also noted that routine preanesthetic blood tests are not performed in human surgery patients. The points I would make to counter their arguments are (1) our patient's medical history is arguably less accurate than humans, (2) animals tend to conceal disease until fulminate, and (3) we rely on our clients' interpretation and ability to effectively communicate their pets' clinical signs whereas human surgery patients have the ability to describe their symptoms.⁸ These



SHOULD WE TEST?

Although the number of lives saved or problems avoided because of preanesthetic testing is unknown, clients expect every precaution to be taken with their pets. A 2006 Banfield study of almost 1 million patients (254,530 cats with an average age of 8 months and 738,276 dogs averaging 10 months of age) undergoing preanesthetic profiling, found 9% of patients (or nearly 90,000 animals) had one or more laboratory parameters outside of the normal reference range.⁶ Preanesthetic testing included a complete blood count, serum biochemical profile, and urinalysis.

3 key differences between human and animal surgery patients make obtaining objective diagnostic test results vitally important in the veterinary setting. Additionally, preanesthetic blood and urine analyses serve as valuable benchmarks for future comparison should disease develop.

MAKING YOUR DECISION

The decision to perform preanesthetic testing is a personal choice that should be carefully considered by each clinician based on a patient's unique needs independent of financial concerns or potential gains. Although the client has the ultimate say, many veterinary anesthesiologists believe that they would be remiss if they proceeded without having the results of a basic assessment (eg, packed cell volume, serum protein, blood urea nitrogen, serum creatinine).

The responsibility of veterinarians to maximize patient safety continues to grow. While we can never eliminate risk from anesthesia, we can take steps to ensure that we don't blatantly miss an avoidable health threat—not knowing is far different than not asking. Preanesthetic tests, combined with a complete medical history and thorough physical examination, represent the current standard for mitigating these risks.

Regardless of your opinion on the value of preanesthetic tests, consider your response to a client's question of "Could we have known?" when confronted with an anesthetic complication. As doctors, our goal should be able to confidently answer that question. Preanesthetic testing is a vital component of that answer.

See Aids & Resources, back page, for references, suggested reading, and resources.

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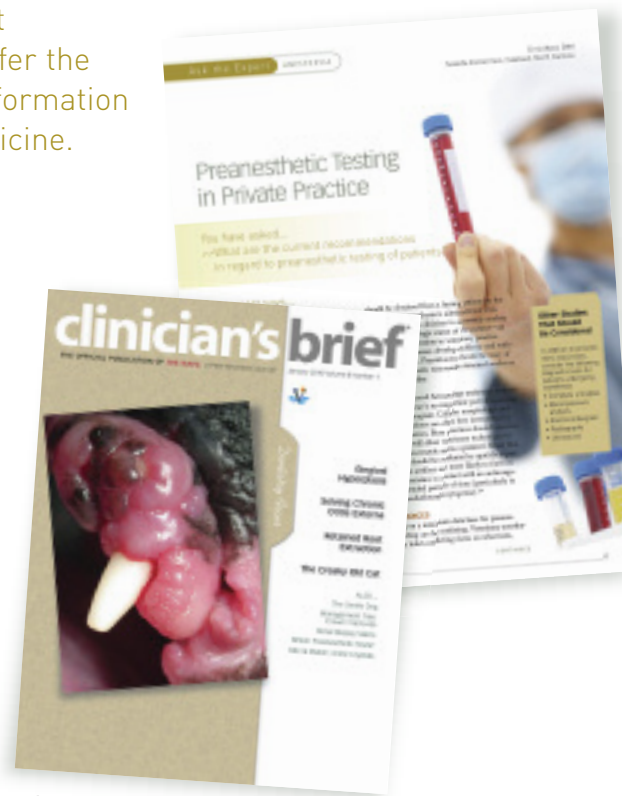
Dear Readers,

I hope you notice something distinctive about this issue of *Clinician's Brief*—yes, we've redesigned the journal's pages. While our look may be a bit different, we continue to offer the most valuable, practical information available in veterinary medicine.

In addition, in a world where many journals and magazines are transitioning to strictly digital publications, we will continue to offer a monthly print journal that you can settle down to read after a long day...without the need for a computer in order to do so. Of course, I like to add a cup of hot cocoa to the mix—it's the perfect time of year for it!

This past fall we relaunched the *Clinician's Brief* website, cliniciansbrief.com, and we not only offer the monthly journal in digital form and an extensive archive of past issues, but also breaking news, client handouts, in-clinic forms, ecards, videos, and continuing education...just to name a few things. Sign up for our weekly newsletter that highlights the newest web offerings at cliniciansbrief.com/newsletter/signup.

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Best regards,

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