

Preanesthetic Blood Testing: When Is It Needed?

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The value of preanesthetic blood testing has always been a matter of debate, both in human and in veterinary medicine. Arguments against testing are that these blood tests add to the cost of the procedure, and that elevations of values above “normal” do not always indicate organ dysfunction in that animal, because normal ranges may vary from individual to individual.

On the contrary, the argument for preanesthetic testing is that blood tests can provide evidence of organ dysfunction that was previously unknown, which may affect how the patient responds to anesthesia. And, because normal ranges do vary from individual to individual, doing preanesthetic testing has future value because it establishes a baseline. It is also argued that the decision to test should be made by the client, and the role of the veterinarian is to educate clients and to at least offer them the option of preanesthetic testing. This is also an invalid argument in that the veterinary professional should be placed in the medical decision-making role—which is what the client is expecting. However, educating the client about the importance of blood work makes it easy for the client to partner with the veterinarian and share in the ownership of the decision to provide the best care possible.

Veterinary texts do not agree on the subject, although they do agree that blood testing should be based on information gained from the patient’s history and physical exam. Yet, in a busy practice, collecting a history and performing a physical exam may be abbreviated, clients may provide poor historical detail, or a patient may be in the early stage of an illness that has not yet manifested itself externally. And of course, the patient is unable to provide information to help develop the history.

While preanesthetic blood work should never substitute for the history and physical exam, it can provide supplemental information. Certainly most practitioners have experienced the nightmare scenario of assuming an animal is healthy, then seeing cardiac arrest or acute renal failure during or following anesthesia and surgery.

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Would preanesthetic testing have prevented this? Maybe not, but the veterinarian and client would know that they hadn’t overlooked something. It is up to the individual veterinarian to decide what routine testing should be done in practice and it may help to examine what is known and what other practicing veterinarians are doing.

ROUNDTABLE REPORT

A past roundtable discussion on preanesthetic testing was held with five practitioners and three board-certified anesthesiologists in university positions. What follows is a summary of the issues and opinions discussed, as I interpreted them.



VALUE OF TESTING

Every practitioner involved in the roundtable reported that they do preanesthetic testing on a routine basis. All agreed that the guidelines they use are the ones they were taught in veterinary school, which were probably extrapolated from human literature.

These practitioners also agreed that while they believe it's the right thing to do, it is not always easy to observe in practice that preanesthetic testing is linked to greater patient safety. Ironically, this may be the case because it is effective. If preanesthetic testing gives abnormal values, the anesthetic protocol is usually adjusted, whether by changing the dosage of drugs or the anesthetic regimen, or through added supportive care such as the use of intravenous fluids or more intensive monitoring. Because these adjustments are generally quite effective in preventing complications from anesthesia, the percentage of problems drops. While this is the desired result, it is difficult to know what would have happened without the adjustments.

THE ARGUMENT FOR TESTING

I think all of the roundtable participants believe there are several strong, compelling reasons to do preanesthetic testing. Participants agree that a practitioner could be considered negligent if they fail to offer preanesthetic diagnostic testing as part of the presurgical exam and went on to state that if the client declines, that it should be noted in the record. You should simply require the blood work as part of your preanesthetic workup.

BASELINE

Another argument given for routine preanesthetic testing was that it serves as a baseline for that animal. The anesthesiologist participants were surprised at how adamant the practitioners were about the value of getting a baseline. This may be because the anesthesiologists tended to have less client contact and less

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ability to follow a patient through its life. Preanesthetic testing and baselines become more important for the older animal, and breed has some impact on the definition of “older” due to differences in aging between breeds. Everyone in the discussion agreed that preanesthetic testing was important for the geriatric patient and that a 6-year-old Great Dane was relatively older than a 6-year-old miniature poodle.

PEACE OF MIND

Participants of the roundtable agreed they did not want to feel pressured to conduct preanesthetic blood testing to protect themselves legally. However, they did agree that preanesthetic blood work could reassure an owner that there were no unforeseen risks, and that they were providing the best possible care for their pet.

Practitioners also said that while they may only occasionally pick up something significant in preanesthetic blood work, they believe in the need to do it. They said that it gives them peace of mind and confidence that they're practicing quality medicine. Practitioners felt that in certain cases, doing preanesthetic testing could

jeopardize client trust if clients felt they were being charged for an unnecessary service. However, this could be avoided by educating clients about the value of the testing and by possibly adjusting your charges for a well-patient workup versus a sick patient in order to further support the need for the information.

COMPARISON TO HUMAN MEDICINE

It was discussed that in human medicine it used to be routine to do a comprehensive health screen before any anesthetic event. This has changed greatly in the past decade, driven by efforts to control cost through managed care. However, two factors were discussed that may indicate the validity of offering comprehensive screening in veterinary medicine.

First, because the reason for doing it less often in human medicine is the substantial cost, it should be noted that a veterinary blood screen is a remarkable bargain in comparison. Therefore, cost is less of an obstacle in pet care. Second, it should be remembered that in human medicine it is possible to get a thorough history, which makes testing less necessary.

A veterinary patient is unable to offer information on its bodily functions and how it feels. The history therefore relies on secondhand information from the owner, who may or may not pay close attention to the pet's habits and behavior.

RELEVANT RESEARCH

A survey was discussed during the roundtable that showed that in 9% of cases, abnormal preanesthetic testing values led to an alteration in anesthetic approach, and that for 35% of patients with abnormal test results (or 3% of all patients observed), anesthesia and surgery were postponed.¹ While participating practitioners felt it was difficult to determine what would have happened if the anesthetic approach was not altered, they felt that the study results did confirm that they should continue to do preanesthetic testing.

ECONOMICS AND CLIENT COMPLIANCE

One of the biggest issues raised about preanesthetic testing was economics. Clients must believe that preanesthetic testing is worth the cost, and it was said that this generally depends on how the service is presented. Most participants agreed that 90% of clients with older animals agreed to preanesthetic lab work. Estimates for younger animals ranged from 50–70% compliance. Another issue that was discussed was that “turn-around time” was important to clients' acceptance of preanesthetic testing. The client was more willing to agree if lab work could be done without requiring an extra trip to the veterinary hospital.

GUIDELINES

What tests are necessary for preanesthetic testing? It was discussed whether guidelines should be developed by an organization such as the American College of Veterinary Anesthesiologists, and practitioners felt this was a difficult question. A reasonable set of guidelines might be useful in helping to convince clients to accept recommendations to do preanesthetic testing.

CONCLUSION

Overall, participants of the roundtable expressed a belief in the value of preanesthetic testing. This practice allows them to establish a baseline for future comparison, and gives both client and practitioner peace of mind when proceeding with anesthesia. In addition, participants claimed that it helps make veterinary practice fun by enhancing their ability to truly understand the health status of each patient and by making it more likely that they will identify the “rare case.” They believe that testing broadens their education and makes their practice more exciting, which are certainly worthwhile benefits.

¹ Smith Julie et al. Preanesthetic Laboratory Testing—A Survey of Client Compliance Rate and Incidence of Abnormal Test Results: Preliminary Results. *Veterinary Surgery*. 1998;27:169.

Considerations in deciding whether to offer Preanesthetic testing:

1. The practitioner must be comfortable to interpreting the values. For example, how significant is an elevated blood glucose in the cat? How significant is a slightly elevated value? Doing testing on a routine basis can help build the practitioner's ability to interpret results on a particular patient.
2. Would abnormalities in preanesthetic lab results change your anesthetic protocol or management of the patient? If you would make changes, lab work would clearly appear to be indicated.
3. Will preanesthetic blood work provide a baseline for this patient that may affect future management?
4. Morbidity vs. mortality: Veterinary medicine has definitely progressed to the point where we are not just interested in whether the patient lives or dies, but in the quality of life and rapid return to normal function. Is preanesthetic lab work useful in allowing management changes that help ensure quicker recovery?
5. Is it fair to clients to make decisions for them? Do we sometimes hesitate to provide services that cost additional money, when in fact the client would gladly consent to the cost?

CASE STUDY 1—MIKA

Paul D. Clary III, DVM • Balboa Pet Hospital,
San Francisco, California

Signalment: 1.5-year-old spayed female Abyssinian cat

Previous History: None—new client

Presenting Complaint: The client complained that the cat had foul breath.

Physical Examination: Red runny eyes and nose indicating upper respiratory infection and gingivitis. Tested negative for FeLV and FIV. Dentistry was recommended, along with preanesthetic testing.

Lab Results: BUN was greater than 130 mg/dL and CREA was 10.01 mg/dl. HCT = 23.7%

Diagnosis: Renal amyloidosis

Treatment Plan: Needless to say, dental work was not done. Mika was treated for severe kidney failure with fluids, antibiotics, and the injectable anabolic steroid, nandrolone decanoate, to stimulate red cell production and appetite.

Outcome: The cat survived about 1 year with this disease.

Comments: Because of this case, we devised a preanesthetic release form and we now routinely recommend a mini-panel with CBC for all pets under 8 years of age and a full panel for older pets. Acceptance of this program is high, with 80–90% of clients consenting to the screening. It is likely that Mika would not have survived dental surgery and explaining the situation to the client would have been difficult. Having an in-house lab makes it easier to offer preanesthetic testing because the screen can be done the morning of the surgery.

CASE STUDY 2—ROSIE

Fred L. Metzger, DVM, DABVP • Metzger Animal Hospital,
State College, Pennsylvania

Signalment: 9-year-old spayed domestic short hair

Previous History: Unremarkable. Rosie is a typical cat in her early geriatric years. She appeared healthy, except for periodontal disease, was up-to-date on her vaccines, and the owner reported that Rosie had a good appetite.

Presenting Complaint: Rosie was in for a dental cleaning.

Physical Examination: Moderate periodontal disease, temperature and respiration normal, heart rate elevated. Although Rosie appeared to be healthy, preanesthetic testing was advised as it is for all patients, particularly those 8 years of age and older.

Lab Results: Elevated ALKP, ALT and T_4

Diagnosis: Feline hyperthyroidism, which can be easily confused with hepatic disease if T_4 isn't performed, because most hyperthyroid cats will have liver enzyme elevations.

Treatment Plan: Anesthesia and dental prophylaxis were delayed. Methimazole was initiated until the T_4 was normalized, and the dental cleaning was successfully performed. Rosie is medicated with methimazole twice daily; CBC and thyroid are rechecked regularly.

Outcome: Rosie remains euthyroid with clean teeth.

Comments: Hyperthyroidism can result in serious cardiac arrhythmias and hypertension, among other problems, which can lead to death under anesthesia. Performing preanesthetic testing enabled us to diagnose and treat Rosie's hyperthyroidism, which decreased the risk of an anesthetic problem.



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