

ABORTION SUBMISSIONS

Unfortunately rising disposal costs have forced NZVP to charge for fetal post mortems on the basis of weight. From 1 April, if an aborted fetus is submitted, the post mortem will be charged on a weight basis, and ancillary tests will be charged separately. Please see our new price list for pricing details.

We are happy to provide support to veterinarians performing fetal necropsies on the farm or at the clinic. A bovine and ovine abortion information sheet is available in the large animals section of our website www.nzvp.co.nz which details the appropriate samples to take. Please give us a call if you have any questions.

BULK TANK MILK BVD PCR INTERPRETATION

The BVD PCR test is designed to detect strands of viral RNA. It does not distinguish between virus shed by persistently infected (PI) and transiently infected (TI) cows. Persistently infected (PI) cows shed large amounts of virus. Transiently infected cows generally excrete smaller amounts of virus, but this is dependent on the stage of infection.

Formerly it was considered that the chances of detecting a transiently infected animal in a bulk tank milk sample were very small, mainly because in large New Zealand herds, the relatively small amounts of virus excreted by TI cows would be diluted out by milk from the uninfected animals in the herd.

However, improved RNA extraction techniques have increased the sensitivity of the assay, and the BVD PCR test is able to detect even smaller amounts of viral RNA in the milk. Not surprisingly, we have found that TI animals may be detected by the bulk tank milk PCR.

The chances of a positive BVD bulk milk tank PCR occurring in response to the presence of a TI animal within the herd are increased if:

- 1) The herd is relatively small (for example, fewer than 200 animals)
- 2) There are multiple TI animals

It is impossible to know for certain whether a single bulk tank milk BVD PCR positive result is due to the presence of transiently or persistently infected animals. If these two conditions are or may be present, it is wise to consider the possibility that a positive BVD bulk tank milk PCR may be due to the presence of TI animal(s), before embarking on an expensive test and cull exercise to eliminate PIs.

If a subsequent (more than two weeks after the first one

– but the longer time between tests, the better) bulk tank milk BVD PCR is negative, it demonstrates that the infection was transient (provided all the original cows remained in the milking herd). If a subsequent test is positive, it is more likely that a PI is present but does not rule out transient infection, as the infection may be passed from cow to cow within a single herd for many months.

Monitoring bulk tank milk antibody levels at the same time as PCR testing does give a better idea of what is going on in the herd. Low bulk tank milk antibody levels indicate herd-level susceptibility to acute infection and thus an increased chance that any positive BVD PCR test is due to transient infection. If bulk tank milk antibodies are high, most cows have seroconverted due to transient infection, suggesting that they have previously been exposed to other TI or PI animals. Nevertheless, some animals will remain susceptible to transient infection.

Bulk tank milk BVD PCR remains a valuable tool to determine whether active BVD infection is present in a herd. However, its role in the detection and identification of PI animals is less well defined. This test may be at its most valuable in ruling out the presence of circulating BVD virus within the milking herd.

NZVP

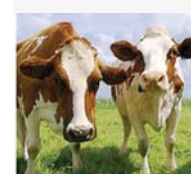
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SYNAPSE



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.....making connections

ISSUE 39

IDEXX LABORATORIES PARTNERSHIP DELIVERS IMMEDIATE BENEFITS

The conversion of any commonly requested referral diagnostic test from a New Zealand 'overseas-sendaway' test, to a locally performed test, will immediately result in medical and financial benefits for the veterinarian, pet owner, and most importantly, for the sick pet being assessed, diagnosed and undergoing treatment.

IDEXX Spec cPL® (canine pancreas-specific lipase) and Spec fPL® (feline pancreas-specific lipase) are currently marketed by IDEXX Laboratories in Australia. Up until now New Zealand veterinarians have only been able to gain remote access to these IDEXX proprietary tests at a cost of \$130, with results delivered in approximately 1 week. Canine and feline pancreatitis are currently underdiagnosed diseases in New Zealand, in part due to the lack of access to the quantitative results that these unique tests offer, and, the profession have long desired local access to both Spec cPL and Spec fPL.

In response to your valued client feedback, NZVP has proactively established a collaborative partnership with IDEXX, and is delighted to announce that NZVP can now offer Spec cPL and Spec fPL tests to New Zealand clients for around \$50 each, with results delivered within 3 working days.

To learn more about these new tests and their application in practice please visit www.idexx.com.au/specfpl and www.idexx.com.au/speccpl

IDEXX Laboratories are the global market leader in diagnostics and information technology solutions for animal health and water and milk quality. Each year IDEXX invests heavily in research and development spending over \$120 million NZD globally to drive innovative diagnostic solutions and as such will provide a robust platform for a valuable and dynamic partnership with NZVP in the New Zealand

market place. NZVP will now be able to access a global network of proprietary tests and intellectual property via its partnership with IDEXX Laboratories. Our Technical Manager, Cameron Walker, deserves tremendous credit for initiating this partnership.

NZVP and IDEXX Laboratories are both dedicated veterinary diagnostic companies, NZVP being the only such company operating in the New Zealand marketplace. Our shared values regarding technical integrity is something we take great comfort in. At NZVP we go to great lengths to ensure that our diagnostic services are adequately validated to ensure the provision of an accurate and reliable service.

Furthermore, NZVP is very proud to be the first laboratory in the world to partner with IDEXX Laboratories, and, this high level of trust is demonstrated through the provision of their proprietary tests to be locally run in our laboratories. IDEXX Laboratories have audited the quality of our facilities, systems and procedures in validating the provision of Spec cPL and Spec fPL, and, will be providing ongoing support to ensure that we meet and exceed client expectations.

As our partnership with IDEXX Laboratories evolves, we look forward to bringing more innovative diagnostic solutions to the New Zealand veterinary industry.

PANCREATITIS

USE OF THE SPEC cPL™ AND fPL™

Pancreatic inflammation may be acute or chronic, produce mild discomfort or be life threatening and may resolve rapidly or take weeks to settle. It is thought to develop when there is activation of digestive enzymes (zymogens) within the pancreas causing autodigestion and local inflammation that can extend to nearby organs such as the stomach, duodenum, colon and liver. In addition, the systemic release of vasoactive substances from autolysing cells can potentially cause havoc in the lungs, kidney, cardiac muscle, vascular system and with coagulation factors, inducing DIC.

Because pancreatitis is often not as simple as just a belly ache it is extremely useful to know whether your patient has the condition or not.

Causes of Pancreatitis

In most cases of acute pancreatic disease the underlying cause remains unknown. However, there are factors that seem to be associated with the condition including obesity, a high fat-low protein diet and a history of a recent fatty meal. Other less conclusive associations include hyperlipidaemia, drug administration (eg corticosteroids, some antibiotics, KBr and immune modulators), abdominal trauma, endocrinopathies and breed associations (Miniature Schnauzer, terriers).

In cats, in addition to the above there also appears to be an association (very loose at times) with *Toxoplasma gondii*, feline infectious peritonitis and panleukopenia infections.

Clinical Signs

Dogs

Typically dogs with acute pancreatic disease present with anorexia, vomiting, lethargy, and abdominal pain. In addition, fever, diarrhoea and occasionally haematemesis, malaena or a cranial abdominal mass may be noted. On examination almost all dogs are dehydrated, and about 25% also show icterus and/or fever. More severe signs can include respiratory distress, disseminated intravascular coagulation and cardiac arrhythmias.

Cats

Cats would make great poker players as they give nothing away and tend to show vague non-specific signs such as anorexia, lethargy and dehydration. They rarely exhibit vomiting or abdominal pain, the two signs that often provide clues in dogs. Occasionally they may be hypothermic or show respiratory embarrassment, diarrhoea and weight loss. Because pancreatitis often occurs in conjunction with cholangitis and inflammatory GI disease ("triaditis"), clinical features of these diseases complicate the clinical and laboratory picture.

Laboratory Tests

If only we could see what was happening in the pancreas, diagnosis would be so much easier. Acute pancreatitis is characterised by infiltration with neutrophils, moderate to severe pancreatic necrosis, oedema and/or haemorrhage whereas chronic pancreatitis is a long term smouldering disease with irreversible damage and fibrosis occurring.

Although ultrasonography can be extremely useful it requires a considerable degree of operator skill and high quality equipment to reach a reliable diagnosis.

So, instead we generally rely on indirect methods such as laboratory testing to help us make a diagnosis.

The CBC

Alterations in the haemogram aren't always seen but dogs may show an inflammatory leukogram whereas cats rarely do.

An elevated Hct due to dehydration or hypovolaemia may be seen in both species but platelet count is usually adequate unless DIC is present.

Routine Biochemistry

In dogs, the serum may be lipaemic. Routine biochemistry may show non specific changes such as liver enzyme elevations which reflect hepatic ischaemia due to hypovolaemia or exposure to toxic products from the pancreas, and hyperbilirubinaemia may be seen in cats with concurrent hepatic lipidosis or cholangitis. Azotaemia is a common finding and may be secondary to dehydration, hypovolaemia or renal injury.

Pancreatic Enzymes in Dogs

Amylase is elevated in only about 60% of dogs with acute pancreatitis and because tissues other than the pancreas produce the enzyme (liver and small intestine) and it can be elevated when there is decreased renal excretion, it isn't terribly specific either. On the other hand, lipase is elevated in 70-75% of dogs with pancreatitis and because of its limited distribution, elevations in enzyme activity should be more specific too. Depending upon which particular journal article that you read, it is, or is not fairly specific for acute pancreatic disease.

Pancreatic Enzymes in Cats

Assessing amylase and lipase activities in the cat is considered by many to be a complete waste of time because they rarely show any change. However, although sensitivity and specificity of the individual tests may not be high, an increase in activity of one or the other and hopefully both, of more than about 3 times normal is unlikely to occur with diseases other than acute pancreatic disease, provided that renal failure has been discounted.

Pancreatic Specific Lipase

Lipases from various organs are slightly different in structure which provides the basis for an immunoassay developed by Dr Jörg Steiner and Dr David Williams at the GI lab at Texas University to detect pancreatic specific lipase in cats and dogs. The tests were then refined by IDEXX into quantitative reference laboratory tests (the Spec tests) and the qualitative SNAP test. The assay detects pancreatic lipase only, making it a more sensitive and specific test compared to total lipase activity.

SNAP cPL™ The SNAP test for detecting canine pancreatic lipase has been available in NZ since mid 2008 and provides a qualitative "normal" or "abnormal" result using a cut-off of 200 ug/l. Dogs with a "normal" result rarely have pancreatitis and many dogs with an "abnormal" result do. However, there are some dogs with an "abnormal" lipase concentration, typically falling between 200 and 400 ug/l that don't actually have pancreatitis. The main use of the SNAP test is therefore to rule out pancreatitis when the test returns a "normal" result. With an "abnormal" lipase concentration, the test results must be interpreted with the clinical signs.

The Spec cPL™ is a quantitative test and provides a numerical result that detects those patients that have a high result (>400 ug/l) which are likely to have pancreatitis and those which fall in the equivocal area (200 – 400 ug/l) and which might need further monitoring. Because Spec cPL™ is relatively new there is little independent information on the sensitivity and specificity of the test but the original work done at Texas suggests a sensitivity of 82% and specificity of 95%.

Spec fPL™ Cats with pancreatitis have remained in a diagnostic void for years because there has been no readily available test that accurately detects the condition. However, recently the assay for feline pancreatic lipase has been developed and validated. Reports to date show it is extremely sensitive (100%) in cats with the moderate to severe form of the disease, falling to about 54% in animals with the mild disease. The specificity was 67% for 3 cats with clinical signs of pancreatitis but a normal pancreas on biopsy, and was 100% specific for the healthy group. The specificity for all cats without histological evidence of pancreatitis was 91%. For cats with mild or low-grade chronic pancreatitis there is currently no laboratory test to detect this.

Summary

With the development of new tests, such as the pancreatic specific lipase, we are getting closer to obtaining a fool-proof method for detecting pancreatitis in cats and dogs. Information is emerging all the time regarding the performance of these tests in different scenarios and we will endeavour to keep you up to date with these. It is going to be interesting to see what we find in NZ once we start using them as there are some differences in diseases between NZ and North America, especially in cats.

Sandra Forsyth & Jenni Donald

TEST OPTIONS WHAT'S AVAILABLE & HOW MUCH DOES IT COST?

We have put together panels which combine the Spec cPL (dogs) and Spec fPL (cats) with either a full Sick Animal panel or in a mini version, with a Geriatric panel

By using the panels there is a significant reduction in cost. The Spec cPL and Spec fPL are also available as individual tests. .

OUT OF SORTS PANEL – DOG OR CAT	Excl GST	Inc GST
Spec cPL™/fPL™ + Sick Animal Panel CK, AST, ALT, ALP, TBil, TP, Alb, Glob, Urea, Creat, PO ⁴ , Chol, Ca, Cl, Na, K (Amylase in dogs)	\$90.00	\$101.25
Spec cPL™/fPL™ + Mini Panel ALT, ALP, TP, Alb, Glob, Urea, Creat, PO ⁴ , Ca, Cl, Na, K	\$75.00	\$84.38
Plus CBC A CBC can be added to either	\$25.79	\$29.01
As individual tests Spec cPL™/fPL™	\$50.00	\$56.25

OTHER RESOURCES

There are many additional resources available about pancreatitis in general and more specifically, these tests. These include

Roundtable Discussions:

- Diagnosing & Treating Pancreatitis www.idexxlearningcenter.com go to Learning resources, then reference materials
- Diagnosing & Managing Feline Pancreatitis www.dvm360.com/c60

Also available on the IDEXX website in the Learning Resource section are:

- Case Study on the use of the cPL test
- Treatment Options for Canine Pancreatitis (White Paper)