

EPI

Exocrine Pancreatic Insufficiency

Untreated or misdiagnosed dogs with EPI, will either die a painful death by starvation or organ failure.

Pandy, courtesy of rescue mom, Janis



The Disease

EPI is an exocrine pancreatic insufficiency disease. The pancreas has two major functions (1) endocrine: to secrete hormones/insulin (2) exocrine: to secrete digestive enzymes.

Exocrine pancreatic insufficiency (EPI) is the inability of the pancreas to secrete the necessary digestive enzymes, amylase to digest starches, lipases to digest fats, and trypsin and proteases to digest protein. When these enzymes are not available to help digest nutrients, the nutrients cannot be used by the body. The body in essence starts to starve. In addition, due to the lack of proper digestion of nutrients, exocrine pancreatic insufficiency is usually accompanied by structural and functional changes in the tissue lining of the small intestine that further impairs nutrient absorption called small intestinal bacterial overgrowth (SIBO).

Symptoms

- Gradual wasting away despite a voracious appetite
- Eliminating more frequently with voluminous yellowish cow-plops (sometimes grayish)
- Eating their own stools, or other inappropriate substances
- Increased rumbling sounds from the abdomen
- Increased passing amounts of flatulence
- Some dogs do not show any typical signs
- Some experience intermittent watery diarrhea or vomiting

These symptoms are not exhibited until 85% -90% of the pancreas is destroyed.

Testing

A trypsin-like immunoreactivity (cTLI) blood test (Texas A & M University labs are most widely used) will show the dog's ability to produce digestive enzymes (lipase, protease, amylase). The normal range is between 5.0 – 35.0. The dog must fast 12 hours prior to blood test. cTLI tests range approximately \$100.

Treatment

Treatment of exocrine pancreatic insufficiency may be regulated after some trial and error with enzyme replacement. It is usually necessary for life. Most dogs with EPI respond well to pancreatic enzyme replacement with every meal, antibiotics to reduce the SIBO (small intestinal bacterial overgrowth) condition and a change in diet to a low fat, low-fiber diet. Raw diets are also being met with success. All grains need to be avoided. Sadly, not every vet recognizes the symptoms, misdiagnose these dogs who then eventually die a painful death - - or are put down because the enzyme treatment is so expensive.

Wayde from GSRNE (German Shepherd Rescue NE)

Photo, courtesy of rescue dad, Peter

<http://www.gsrne.org/wayde.htm>



Where does EPI come from???

EPI is suspected to be caused by autosomal recessive genes, but it is unclear if it is by one gene or multiple loci, possibly a polygenic inheritance (traits vary in degrees of severity of the disease). To be affected, the animal must inherit 2 copies of the gene, 1 from each parent. Dogs with the genotype PP (normal) or Pp (carrier) will be clinically normal but the carrier will pass the affected gene to approximately half the offspring. As long as carriers (Pp) are mated to normal animals (PP), the offspring will be unaffected but some will remain carriers. If 2 carriers are mated, some of the offspring (approximately 25%) will be affected. BUT even then, one may not know that the dog has the disease. Symptoms may be exacerbated by physical or emotional stress.

What we can do!

There are most likely unidentified carriers everywhere and in every breed. Since at this point in time we can only test to confirm an EPI diagnosis, it is imperative that we identify the genetic markers and eliminate this horrible disease.

Nola, courtesy of her rescue mom, Shannon



Research is now underway at Texas A&M Medical University to identify the genetic markers. They are working with the latest technology, SNP, to handle the complexities of working with EPI. The following scientists, known for their expertise in EPI is conducting a breed-specific study with the German Shepherd Dog since EPI is most prevalent in GSDs hence, more data is available for testing. Once the GSD markers are identified, other breed markers will be easily noted. EPI is surfacing everywhere - - if we don't get a handle on this, all of our dogs will be at risk.

Please Help!

The Researchers

- Keith Murphy, Professor of Genetics, Pathobiology & Biotechnology Dept of Pathobiology, Texas A&M University, College of Veterinary Medicine
2004-2005 Grant for PAA from the CHF:
Murphy, K.E. and L.A. Clark (Co-Is). Analysis of a candidate gene for pancreatic acinar atrophy in the German Shepherd Dog. Canine Health Foundation.
- Leigh Ann Clark, PhD in EPI
Research Ass't Professor, Dept of Pathobiology
Dr. Clark studied under Dr. Murphy for her PhD and continues to work with him. She received the Texas A&M University College of Veterinary Medicine Fisher Institute Medical Research Award, 2004, for her dissertation, titled: *Transmission genetics of pancreatic acinar atrophy in the German Shepherd Dog.*
- Kate Tsai, Ph.D.,
Assistant Research Scientist in the Dept of Pathobiology
Texas A&M University, College of Veterinary Medicine and Biomedical Sciences
- Jörg M. Steiner, Med.Vet., Dr.Med.Vet., PhD, DACVIM, DECVIM-CA
Associate Professor with the Department of Small Animal Medicine and Surgery
Texas A&M University, College of Veterinary Medicine and Biomedical Sciences
- *And with special collaboration of:*
David A. Williams MA VetMB PhD
Diplomate ACVIM, ECVIM-CA
honored developer of the cTLI test

EPI

Exocrine Pancreatic Insufficiency

Help remove this suffering from all our canine friends.

Help our breeders positively identify the EPI carriers so as not to perpetuate this disease.

Help maintain quality breeding programs.

Help prevent the heartache that families have to endure when faced with this disease.

Wayde from GSRNE (German Shepherd Rescue NE)
Photo is a courtesy of rescue dad, Peter



<http://www.gsrne.org/wayde.htm>

Please consider a tax-deductible contribution to "TAMU" Texas A&M Medical University for EPI RESEARCH:

mail to: Keith E. Murphy, Ph.D.
Professor, Department of Pathobiology
Veterinary Medicine and Biomedical Sciences
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Or visit <http://EPI-Research-Fund.com>
for further information about this devastating disease and how you can help.