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 often accompanied by structural and functional changes in the tissue lining of the small intestine that further impairs nutrient absorption. SIBO (small intestinal bacterial overgrowth)and/or B12 deficiency (low cobalamin and high folate).

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 immunoreativity (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 EPI 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, some need b12 shots, and some need antibiotics to reduce the SIBO condition along with a change in diet to a low fiber and some cases also a low-fat diet. Raw diets are also being met with success. Grains should be avoided. Not every vet recognizes the symptoms or realizes that breeds other than GSD can have EPI. Misdiagnosed, these dogs eventually die a painful death. Many are surrendered out of frustration or euthanized because of enzyme expense. But there are other reasonable alternatives!

For EPI Management, Resources & Updates please visit: http://www.epi4dogs.com/

Wayde from GSRNE (German Shepherd Rescue NE)
Photo is a courtesy of rescue dad, Peter
http://www.gsrne.org/wayde.htm

Where does EPI come from???

Previously EPI was suspected to be caused by autosomal recessive genes. In preliminary data from November 2008 research at Texas A&M and Clemson University it is now strongly suspected that EPI is not autosomal recessive but rather more complex, having multiple genetic and environmental factors. A larger study is currently underway at these universities. With EPI traits may vary in degrees of severity and symptoms may be exacerbated by physical or emotional stress.

What we can do!

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

Hope, courtesy of her rescue mom, Jodi

Dr. Leigh Anne Clark, along with Dr. Keith Murphy, both formerly from Texas A&M University, currently at Clemson University in SC are heading up the EPI genetic research in an effort to identify the genetic markers. They are working with the latest SNP technology to handle the complexities of multi-loci genes. The following scientists, known for their expertise in EPI, are involved in this research, and at this time conducting a German Shepherd Dog (GSD) breed-specific study 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 do not get a handle on this, all of our dogs will be at risk.

For additional information on this study, please contact Dr. Leigh Anne Clark at:
lclark4@clemson.edu

For more information about EPI:

Visit: http://www.epi4dogs.com/ or
http://EPI-Research-Fund.com
for further information about this devastating disease and how you can help.

The Researchers

- Keith Murphy, PhD, Prof & Chair of Genetics, Dept of Genetics & Biochemistry, Clemson University, Clemson SC. TAMU 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
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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.

" Minky "

Photo is courtesy of Minky's mom, Debra