

FOOD MEDIATED DISORDERS

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Today's food, designed for today's pet, is becoming more inadequate daily. Unfortunately, the theme of today's pet food market is not what food is best to feed, but rather what food will cause less problems. A few years ago, to feed your pet from the family table was considered to be absolutely wrong, but today in comparison to available manufactured pet foods, it might not be a bad idea!

The role of food as a causative agent of disease is becoming more important daily in clinical veterinary medicine and can be more easily diagnosed through proper food elimination diets and through better understanding of the disease processes.

Various prepared pet foods may cause a variety of disorders which may range from a very subtle behavioral change to a severe epileptic seizure. Food mediated diseases, like other hypersensitivity disorders, often have chronicity as a common denominator. You might ask yourself then, what kinds of foods may act as allergens, and which food allergens might occur most frequently in prepared pet foods. The following is a list of common, major, offending food allergens: beef, wheat, wheat germ, wheat germ oil, corn, corn oil, peas, beans, nuts, eggs, milk and milk products, shellfish, fish, processed fish, fish oils, chocolate, fresh fruit, tomatoes, grapes, pineapple, mushrooms, yeast, yeast containing foods, B vitamins, spices, and additives used in food preparations. Certain foods may also contain non-specific histamine releasing substances as crustaceans and drugs. All of the above allergens, when moldy, contaminated, and inundated with preservatives, etc. can also elicit disease.

It is very important to recognize different forms of a food allergen, as with beef. The actual beef allergen may be found as raw meat, kibble, biscuits, raw or cooked bones, rawhide chew sticks, meat powders, meat sauce, bone meal, etc. Included in this sequence is the consideration of replacement therapy medications, i.e. trypsin replacement may be from pork pancreas which may be an allergen for a particular patient. In a dog with a food allergy to pork products, if also diabetic, pork insulin might be disastrous. Likewise, with a diabetic dog with a beef allergy, beef insulin may be totally ineffective and be blocked or neutralized by anti-beef insulin IgG. Thyroid replacement therapy may also fall into the same category. Often coat additives and vitamin supple-

ments use allergens to fulfill their nutritional requirements, i.e. lecithin. Therefore, if the patient is allergic to beef, and the lecithin is refined from a beef product, therefore the product may elicit an allergic reaction. With food allergies you must force yourself to think in a different parameter and not ask yourself how much of the product is present, but rather where did this product originate. Thyroid compound might be measured in milligrams and originate from beef or pork. Even though the compound may have a short lived shelf life for T₃T₄ replacement, its allergenic effect may last for years.

Most present day pet foods have enlisted sales gimmicks to insure successful merchandising. The product may contain only U.S.D.A. inspected porkfat. The food may claim a 29% protein content. This does not mean that the pet needs high pork fat diets or high amounts of protein. These are fad type claims. Believe me, there is 29% protein allergen present but far less useable protein than 29%. Therefore, in most instances, the kidney is used to detoxify and excrete this less than satisfactory protein. I believe that soon, high protein diets for dogs and cats will become a thing of the past!

Most modern day pet foods have been derived from feeds and feeding studies and complex extrapolations from the late 1930's and early 1940's. Today's modern inbred pets' nutritional needs have far outdistanced these antiquated pet food formulas. I think this holds true not only for present day pets but also for modern day man. How then, may a veterinarian routinely diagnose food allergy?

As always, a careful history plus an open mind is essential. You must remember that a food allergy may occur within a few weeks of age or as late as 10-12 years of age. There are certainly those cases that develop the disease so early in life that a genetic intolerance of certain foods has been directly passed from parents to offspring. There are those pets that acquire a food allergy after a number of years of exposure. I think you also must consider not exposing predisposed food allergy breeds to heavy food allergens because the chance of acquired disease may be far greater. It is important to remember then, that it is usually not a new food that causes problems, but rather the old food. A new food with an improper formulation can mimick a food allergy. It is often thought that by introducing a new diet slowly,

there is less tendency for developing a gastroenteritis. If a pet food is non-allergenic, non-offensive and of proper formulation, a transient gastroenteritis should not happen. Why should your pet be any different than yourself as far as varying the diet?

Often, your careful history may indicate a state of chronicity. Your next step is to diagnostically delineate those systems involved in the disorder; i.e. integument, respiratory, circulatory, etc. Note: If the eosinophil level is elevated, an allergic reaction must certainly be considered in your differential diagnosis.

We are now actively comparing blood histamine levels in the peripheral circulation with the percent eosinophils. I think we all may be surprised to find that an eosinophil level from 4% to 8% may be significant.

If your patient has a chronic disorder and has an eosinophil percentage over 4%, then the pet may be placed upon a non-allergenic diet for 7-10 days with bottled water. The eosinophil count should be determined a 7 days post diet. If then, no other segment of the allergy environment has been changed except for food, and the clinical signs of the disorder regress and the eosinophil count drops, there is reasonable evidence that the pet has a food mediated disease. If the eosinophil count remains elevated, then peripheral blood histamine release continues. Therefore, other allergens are probably involved, i.e., inhalant pollens, parasites, etc.

I use Naturally Yours by Breeders Choice for a food elimination diet. The food comes in a one pound frozen container pre-cooked. As of June 1978 the formulation will be available in a dry form (kibble) biscuit and meal. The protein requirements of the diet are met by the soybean and rice and the remainder of the ingredients are designed for better flavor, improved nutritional balance, yet is non-allergenic. Fresh lamb may be added to the diet for extra palatability only when absolutely necessary. Naturally Yours may also be used as an obesity diet for controlling overweight pets, but if weight gain is desired, 1 tablespoon of soybean oil may be added to each loaf for increased calories.

Therefore, place your patient on the non-meat food elimination diet for 7-10 days plus bottled water. If the clinical signs of disease disappear then a food allergy is a reasonable diagnosis.

What diseases qualify for food mediated diseases? Nearly any disease process in the

body may primarily or secondarily relate to a food ingestion disease. You must fully realize that not only are food allergens to be considered, but also those additives and contaminates which so often appear in requisitioned protein for pet foods, i.e., molds, chemicals, additives, hormones, contaminants, dyes, etc.

It is a common misconception that food allergens manifest themselves mainly through a gastroenteritis or dermatological disease. Any disease that is chronic and has an increased peripheral eosinophil count, should bring into consideration a food disorder.

Food induced epilepsy is a definite segment of the idiopathic epilepsy classification. Check the eosinophils, do the food elimination, and if the eosinophil count drops, then strongly consider food mediated epilepsy. Strange personality and behavioral changes must also be considered.

I personally believe that most trypsin deficiencies are secondary to a food allergy. If you can diagnose the deficiency early in its history, trypsin production often returns. Also chronic pancreatitis and/or acute pancreatic necrosis can definitely be attributed to a food ingestion disease.

A further opinion is that with chronic hepatitis, food ingestants must always be considered in your differential diagnosis.

Check the peripheral eosinophil count, SGPT, SGOT, Alkaline phosphate, begin your food elimination diet, and compare the resultant clinical pathology. If blood chemistry levels return to normal, and signs of the disease subside, a diagnosis of food mediated hepatitis is reasonable. The offending allergens may be reintroduced into the diet, and disease process reinitiated!

I have listed some typical food mediated disease cases that show multiple system involvement. These cases also demonstrate an acquired intolerance even to lamb, the least allergenic of all meats, after a given time of exposure. Cases like these were the motivation for developing a non-meat, less allergenic diet that a pet with food allergies will tolerate yet also receive proper daily nutrition.

Case No. 1:

A male six-year-old Afghan was referred to the hospital for a chronic liver, chronic kidney disorder and chronic dermatitis. Over the past three years the patient suffered from CHD (Chronic Hepatic Disease), sporadic proteinuria and sporadic hematuria. Lab tests were performed with the following results: eosinophil count - 19%, white blood cell count - 8.800, SGPT level - 780 I.U., SGOT level - 102 I.U. and an alkaline phosphatase level of 1015 I.U. All other tests were normal. The patient had a history of flatulence and hyperperistalsis. At this time the patient was placed on bottled water and non-meat diet. The first week the hyperperistalsis and flatulence disappeared. One month later the patient's blood levels were normal.

Lamb and chicken were each added daily for 7 day periods without recurrence of the clinical disease. Beef, wheat and corn antigens all elicited exacerbation of the chronic hepatic disease.

Case No. 2:

A three-year-old, female red Doberman Pinscher was referred to the hospital with chronic dermatitis, otitis and weight loss. A total body function was performed at that time; the SGPT level was 246 I.U. All other results were normal. The patient was then placed on a diet of lamb, rice and bottled water. After two weeks on this diet the SGPT level returned to normal. Within this same period of time the patient gained four pounds and the dermatitis and otitis were greatly diminished. Interestingly enough, eleven months later an exacerbation of the original clinical signs occurred. Blood levels indicated that the patient was now reactant to lamb, with a consequential increase in the SGPT level. The patient was then placed on a non-meat diet and the SGPT level returned to normal within two weeks.

Case No. 3:

A 2-1/2-year-old, male Springer Spaniel entered the hospital with a tense abdomen, gastro-enteritis and general malaise. Total body function reflected SGOT

level of 102 I.U. and a SGPT level of 143 I.U. All other tests were normal. The patient was placed on lamb, rice and bottled water. Within two weeks all blood levels returned to normal. The patient, however, was losing weight on a proportional amount of this new diet. Increasing the volume of food did nothing to arrest this weight loss. Further tests, including fecal trypsin and parasites, revealed no abnormalities. The patient was taken off lamb and rice and placed on non-meat diet. Within one week the patient gained two pounds and has proceeded to normal weight maintenance.

Case No. 4:

I examined a female eleven-year-old Standard Poodle with a history of chronic diarrhea and vomiting. The patient's blood tests revealed no abnormalities. Fecal analysis also revealed no abnormalities. The patient was placed on I/D at this time, and clinical disease disappeared. Upon re-exposure to beef antigen in the form of fresh meat, canned beef and/or kibble, exacerbation of clinical signs occurred. The patient remained normal on I/D for three years. At the end of this period chronic gastroenteritis occurred. Blood and fecal analysis revealed no abnormalities. The patient was then placed on a less allergenic diet. The new diet, lamb and rice, brought about remission of the clinical disease.

This normal state remained for four months, at which time the clinical disease again recurred. At this time blood analysis revealed a SGOT level of 102 I.U., a SGPT level of 780 I.U. and an alkaline phosphatase level of 399 I.U. The patient was switched to non-meat diet and blood levels returned to normal, with no reactivation of clinical disease.

SUMMARY

It is very important to consider the effects of present day pet food on modern day pets. Food mediated disorders are a definite part of our clinical veterinary practice and must be considered each and every day. Even though food mediated diseases are not well accepted or well documented as yet, they will become more important as time passes.

I have developed a less allergenic diet as a means of incriminating food in food mediated disease. This non-meat diet tends to be a more dependable diet than lamb and rice, and it appears to decrease the possibility of acquiring future food mediated disease.

Hopefully, this article will stimulate some interest and further investigation of this extremely interesting and important segment of all of our clinical veterinary practices.