

The immune system is responsible for protecting the animal from invaders of many types. Whether it's bacteria, viruses, parasites, fungi, tumor cells, or a pesky foxtail, the immune system recognizes these foreign cells or substances and initiates steps to control and/or eliminate them. On the surface the immune system appears to be the great and benevolent protector. Usually it faithfully earns that title, but occasionally the immune system can cause severe, even life threatening harm, to the very animal it's supposed to protect.

The mammalian immune system is one powerful system. This may not always be obvious because when functioning normally it goes about its job quietly keeping the animal free of infection. But if we think about it, the world we (and our pets) live in is not a gentle world. There are bacteria, viruses and who knows what out there that can cause harm to body. In order to protect, the immune system must have an immense array of potent weapons to engage these foreign or abnormal cells in battle. As long as these weapons are directed at the right targets all is well. If the immune system begins targeting normal cells or entire systems of the body then we have a problem.

When the immune system does go array and attacks healthy, normal tissue we call it Immune Mediated or Autoimmune disease. Many different systems can be adversely affected. Cells of the blood (especially red blood cells and platelet cells) are common targets in immune mediated disease. The skin, kidney, musculoskeletal, gastrointestinal and nervous systems can also be affected with sometimes devastating results.

What causes the immune system to turn on tissues of its own body? Good question. Unfortunately we often don't have an answer. Sometimes we're able to identify a trigger such as a recently administered medication or past infection. Occasionally underlying cancer can be the cause for these untoward immune reactions. If the initiating cause is found and removed the immune system will usually return to its normal function. Sadly, it's rare that we find the inciting cause. These cases are called idiopathic-meaning "no known cause", and make up the vast majority of immune mediated disease cases.

Immune mediated disease has no characteristic symptoms. The symptoms that do appear are related to the system that is affected (blood, skin, kidney, etc.) and range from non-existent to life threatening. Initial testing of blood and urine samples may reveal that one system is not functioning normally, but to diagnose immune mediated causes for the problem a biopsy (organ/tissue sample) of the affected tissue is usually needed.

Our first effort in designing a therapy for immune mediated disease is to identify and remove the cause. Because most cases of immune mediated disease have no known cause, our only option is to medically suppress the over-active immune system to limit the damage it is causing. This can be a bit risky. If we over-suppress the immune system we can render the patient susceptible to otherwise harmless infections. If we under-suppress the immune system the immune mediated disease may not be controlled and the patient continues to deteriorate. Fortunately, we are usually able to effectively control the disease without too many adverse side effects of the immune suppression. This immunosuppressive therapy can last for weeks in some animals, or may be life-long for others.

It's sometimes hard to believe the very system that protects one day can turn and cause such severe harm the next. Our only hope is to diagnose the immune dysfunction early and initiate treatment before too much damage is done.

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