Just the mention of the acronym for Immune Mediated Hemolytic Anemia (IMHA) can be enough to send a shiver through veterinary professionals. IMHA is a complex and sometimes complicated disease to treat, so the apprehension is well supported. A good understanding of the disease process, as well as ways to support the patient, is required in order to try and secure the brightest outcome for the patient. The best way to understand IMHA is to start at the very beginning.

As with many other diseases of companion animals, the signalment of the patient should be one of the first observations noted as part of the diagnostic process. While IMHA can occur in both canine and feline patients, genetic predisposition tends to occur in canines. Poodles, Old English sheepdogs, Irish setters, collies, and cocker spaniels are some of the most common breeds afflicted. Predilection also seems to point to canines between the ages of two and eight years, with female dogs being affected three to four times more frequently than males (Birchard and Sherding 1994). It is important to note that in regards to feline patients, 50% or more of felines affected are also Feline Leukemia Virus (FELV) positive.

The two basic components needed to set IMHA in motion are the presence of red blood cells and an immune system. Normally the communication between the red blood cells and immune system would be adequate in identifying the red blood cells as “self.” However, in the case of IMHA, the autoantibodies that are present on the surface of the red blood cells trigger the immune system to start the destruction process. Once the destruction process has begun, the cells are eliminated from the body in one of two ways. The first is destruction of the cells via extra vascular phagocytosis, with second being intravascular hemolysis. IgG and IgM as well as the liver and spleen are the components that are most active in this process (Birchard and Sherding 1994).

The obvious anemia that is caused by the red blood cell destruction is one of just a few problems that complicate the treatment of this disease. It is the redirection of the red blood cells to organs for destruction, as well as the byproducts of the red blood cell destruction, that circulate throughout the body and cause many of the other symptoms present. The symptoms that are present are associated with the type of destruction that is occurring.

Hepatomegaly as well as splenomegaly, weakness, and fever are most often observed in cases of extravascular hemolysis. For those patients suffering from intravascular hemolysis, symptoms can be far more devastating and include the onset of severe anemia, hemoglobinuria, sudden weakness, collapse, and even shock (Battaglia 2007).

The acquisition of laboratory values is vital in establishing a baseline understanding of the severity of the disease, and, thus, formulating the best course of treatment. The tests most often utilized include: a complete blood count (CBC), serum chemistry profiles, urinalysis, and direct agglutination or saline agglutination test.
Laboratory Test | Results
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**CBC** | • Decreased: PCV, RBC Count
• Increased: Hemoglobin, MCHC (falsely)
• Cell Morphology: Spherocytosis, Reticulocytes (Regeneration)
• Leukogram: Inflammatory, mature neutrophilia, increased bands, monocytosis

**Chemistries** | • Azotemia: Pre-renal or renal
• Hemoglobinemia
• Hyperbilirubinemia

**Urinalysis** | • Hemoglobinuria
• Bilirubinuria
• Proteinuria

**Agglutination** | • Macroscopic
• Microscopic

Treatment of IMHA doesn’t always commence after the laboratory data has been collected. For many patients, the devastating effects of the anemia are the presenting complaint and, thus, have to be corrected. Oxygen supplementation and ongoing support are crucial. Intravascular volume replacement and control of hemorrhage in an effort to try and avoid cardiovascular collapse is frequently necessary. Many times this will be done with intravenous fluids and/or blood component therapy. Administration of gastrointestinal protections, antiemetics, and promotility medications are common (Shaw and Harrell 2008).

Nursing care and support for other systems should also be initiated; these frequently include heat support, minimal patient movement/handling, nutritional support, and good phlebotomy techniques. It is also important to note that patients suffering from IMHA have an increased risk of thromboembolus, as well as renal failure. Diligent patient observation and monitoring is essential to try and detect the early warning signs of these complications.

Further treatment of the disease now involves the administration of immunosuppressive drugs. Most commonly, these drugs include corticosteroids and varied other immunosuppressive agents. Dexamethasone, prednisone, and azothioprine are some of the most common and cost effective drugs to use. Increased use of cyclophosphamide has also shown some promising results (Shaw and Harrell 2008). The specific drugs that are chosen will largely be determined by the type and severity of disease present. Occasionally, surgical intervention by means of splenectomy will be necessary for treatment. Due to the fragile nature of the patient, this process should be undertaken with extreme caution to prevent further complications.

It is important to note that, beside familial predisposition for this disease, ingestion of specific materials (usually by canines) can also result in IMHA. Most commonly these agents contain large amounts of Zinc and n-propyl disulfide. Venomous encounters, such as snakebites and bee stings, and the administration of certain pharmaceuticals, including modified live virus vaccinations and antibiotics such as penicillins and cephalosporins, have also been associated with immune-mediated disorders. The presences of neoplasia, specifically hemagioscarcoma and metastatic tumors, have also shown significant association with IMHA (Thrall 2006).
References

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