Equine Allergies: Diagnosis and Treatment
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Most horses will exhibit some sort of health issue throughout their life, either minor or major, but when horse owners think of horse health problems, equine allergies are probably not on their list. Allergic reactions in horses are not uncommon and many reactions resolve on their own. However, when a horse frequently or chronically reacts to a stimulus, things become complicated very quickly. Symptoms from their reactions can affect their comfort and ability to perform. The horse must first be tested to determine what exactly it is allergic to. Then the veterinarian and the owner must work together to find a unique, long-term, and effective treatment for the horse.

Very little research has been conducted on equine allergies compared to other equine health problems. Most of what is known about this issue has come from studies done on humans, mice and dogs (Fadok, 2013). According to Fodak (2013), what we do know is that allergies are associated with the potential inheritance of a large number of polymorphic genes as well as the function and structure of the skin barrier. Abnormalities in the skin barrier allow allergenic proteins to be absorbed through the skin which are then taken up by dendritic cells and carried to the lymph node. This causes a chain reaction of events which lead to the production and release of IgE, an immunoglobulin, and IL-31, an interleukin. IL-31 is responsible for stimulating the itching response because it binds to receptors on neurons. IgE is the basis of intradermal skin testing and immunotherapy (Fodak, 2013).

According to Marsella (2013), the management of allergic cases requires the process of elimination of possible causes. She also states that allergies are multifactorial and additive, which means most horses with allergies have multiple allergies and can only tolerate a certain amount of pruritic stimuli (allergens) before reaching their pruritic threshold and developing clinical symptoms. The concept of pruritic threshold is depicted in Figure 1 to the right. She believes the most important way to manage horses with allergies is to identify the horse’s pruritic threshold and remove or correct as many problematic factors in its environment to prevent the horse from reaching its threshold and exhibiting uncomfortable symptoms.

The area that has been studied the most is equine insect bite hypersensitivity, in particular reactions to Culicoides also known as biting midges. Flies, mosquitoes, and tabanids are also possible irritants, however they are less studied. The allergic reaction is caused by proteins in the salivary glands of these insects (Kachhawa and others, 2013). Usual insect hypersensitivity symptoms are itching or hives and possible secondary effects such as hair loss, lesions, and crusting caused by rubbing or biting at the irritated area. According to Fodak (2013), diagnosis of equine hypersensitivity is determined by the horses history (time of year in which past reactions occur), symptoms, response to insect control, and intradermal or serum testing. Stalling a horse from dusk to dawn when the insects are usually feeding, fans, and application of insect repellent are all ways to help prevent this type of reaction (Fodak, 2013). Marsella (2013) suggests a three step approach to managing Culicoide hypersensitivity: control the itch and prevent self-trauma, resolve secondary infections, and prevent additional
bites. Topical and systemic glucocorticoids can be used to relieve the horse’s itchiness. Topical glucocorticoids can be in the form of a spray, leave-on hydrocortisone conditioner, shampoos, or lotions. Prednisolone can be used systemically in severe cases as well as Dexamethasone, but they are not recommended for long-term management (Marsella, 2013).

The second area of study in equine allergies is the effect of environmental stimuli. This includes pollen, mold, dust, dander, mites, or bedding and can also have a combined effect with insect hypersensitivity. Horses with environmental allergies show signs of itching, recurrent hives, lesions, reactive airway disease or chronic obstructive pulmonary disease, as well as head tossing and laminitis. Diagnosis can be done by intradermal or serum testing (Fodak, 2013). Figures 2 and 3 below are photographs of my own horse that has environmental allergies and at this time had severe hives and lesions from rubbing them.

**Figure 2**

**Figure 3**

Intradermal testing is conducted by shaving a square, about six inches in width, on the horse’s neck. An equine dermatologist will then subcutaneously inject small amounts of possible allergens in rows on the horse’s skin along with the controls, histamine and antihistamine. The horse’s response is recorded after 15 minutes, 30 minutes, one hour, and four hours to determine which stimuli affect it the most. Reactions are rated on a scale of 1 to 4, with four being the most prominent. Some allergens may cause an initial response but then wear off later on while others remain steady for the duration of the test. This test gives the owner a better idea of what the horse is allergic to but can leave them with a wide variety of possible causes. Fodak (2013) states that there is more support for intradermal testing but the tests are not standardized so it is difficult to compare data. Marsella (2013) adds to this point by saying intradermal skin testing only detects cutaneous allergen-specific IgE; it does not necessarily mean that the horse is allergic to it. She also states that different companies use different sources of allergens. Serum testing measures the circulating allergen-specific IgE and allows horses who do not have access to a vet clinic that offers intradermal testing to still be able to get tested. Some vets
think the serum results are less accurate but Marsella (2013) emphasizes that regardless of which test is chosen it is important to consider seasonal and relevant environmental possibilities when evaluating results to determine their significance.

The area of feed allergies in horses is the most difficult to determine the cause of and usually relies on trial and error as its testing method. The symptoms of feed allergies are the same as other allergies (hives, itchiness of the skin, etc.) except some horses may exhibit anal pruritis, or itchiness, as well because of irritation of the intestinal tract. Fodak’s article (2013) listed sweet feed, oats, corn, dry garlic and alfalfa as common feeds that have been possible allergens in some cases. A diet trial can be conducted to observe the horse’s response to a change in feed, but it is difficult to determine the length of time a trial should be conducted and whether or not the feed change was the only variable in the study.

Once the known allergens are determined, there are a number of different treatments that can be provided to the horse. Removal or avoidance of the stimulus is the easiest way to prevent reactions but if the horse has a wide variety of allergies that may not be easily avoided then immuno-hypersensitivity injections are usually recommended by a veterinarian. Long-term use of cortisone steroids are effective in treating allergies but can be detrimental to the horse’s health, whereas immuno-hypersensitivity injections help build the horse’s antibodies to the invading allergens without harm. Veterinarians use the results from the allergy test to develop a serum formulated for each individual horse. The serum is subcutaneously injected into the horse for at least a year, beginning with small amounts daily then gradually increasing the amount of serum and the time interval between injections. After introducing the serum for about two months, injections are given once or twice a month, depending on the horse, for at least a year to observe its progress. Some horses, like humans, must remain on the serum injections for the duration of their lives to prevent outbreaks. Few studies have been done on the success rate of immuno-hypersensitivity injections but the article by Marsella (2013) showed that success rates vary from 60-80%. In a recent study that documented owners’ impression of success from this treatment, 84% of owners reported a good response. Ninety-three percent of these owners reported having to use glucocorticoids before initiating the injection treatment, and after one year of therapy 59% of cases were managed with immunotherapy alone (Marsella, 2013).

Other medication options besides cortisone steroids like Dexamethasone are antihistamines or prednisone. In the article by Marsella (2013), it states that antihistamines such as Hydroxyzine or Chlorpheniramine work best when given before the beginning of the allergy season. They can be given in powder or pill form and have been successful in preventing reactions in some cases. However, depending on the use of the horse, they might not be a feasible option. Many breed associations and organizations do not allow the use of antihistamines while showing and enforce drug testing. Antihistamines are regulated because they can be used to cover up the presence of other drugs in a drug test. The American Quarter Horse Association disqualifies and bans competitors from showing if caught using drugs inappropriately (AQHA, 2012). Prednisolone is another option but it is also regulated by many associations and organizations.

A more natural form of treatment can provided through acupuncture and herbal remedies. The acupuncture process involves influencing precise points on the skin’s surface in conjunction with certain internal organs and body functions. Figure 4 to the right shows the numerous points on the horse’s body and what organs they interact with.

Figure 4: www.heavensgateequine.com
Hulea and Cristina (2012) describe it as a treatment based on the horse’s reflex action due to the skin’s stimulation with needles which aims to strengthen and stimulate the horse’s own homeostatic mechanisms. Figure 5 to the right shows a veterinarian performing acupuncture on a horse. Acupuncture should be performed by a certified practitioner who is trained and knowledgeable. They may suggest the use of an herbal remedy to be given on a daily basis. According to Dr. Keith Wagner (2013), a certified equine acupuncturist and chiropractor, Chinese herbs such as Jing Jie, Fang Feng, Chan Tui, and Xanthium have been found to boost the horse’s immunity and prevent outbreaks. Marsella (2013) also suggested the use of a fatty acid supplement containing sunflower oil, vitamins, amino acids, peptides, and flax seed to decrease inflammation.

Equine allergies are overlooked by most horse owners as something they will never have to deal with, but a horse can develop allergies at any time in their life, just like humans can. The most important thing is to determine the cause of the allergic reaction. From there, an appropriate treatment plan can be developed to improve the comfort and longevity of the horse for its unique situation and purpose. Although some developments have occurred throughout the last few years in regards to research of equine allergies, there is still a long way to go until we fully understand this issue.

References


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