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Mini Review

Benefits of Functional Medicine for Mold Toxicity and Mixed Mold Mycotoxicosis

Howard F Robins*

Private Practice, New York, USA

***Corresponding author:** Howard F Robins, DPM Private practice, New York, USA.

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Abstract

This article briefly reviews the symptoms of mixed mold mycotoxicosis, also referred to as mold toxicity and the current treatment strategies for this condition including natural medicine. It also presents a case of a patient with documented symptoms of mixed mold mycotoxicosis who was successfully treated with Robins' Method of Direct Intravenous ozone Therapy (RMDIV) and protocols established and pioneered by Dr. Howard Robins. The article proposes that natural medicine and medical ozone are both complimentary to pharmaceuticals and an important adjunctive therapy or a stand-alone treatment for mold toxicity.

Keywords: Mold; Mold toxicity; Ozone; Mixed mold mycotoxicosis; Intravenous ozone therapy

Introduction

It is generally recognized that we are facing a world-wide crisis with increasing numbers of people suffering from compromised immune systems. Autoimmune disease is on the rise and in some cases are three times more common now than they were several decades ago [1]. This increase may be related to an increasing burden of toxins, poor diet with inadequate nutrition, and electromagnetic field (EMF) radiation. Klinghardt cited an unpublished study in which 600 times more mold bio-toxins were formed in a petri dish exposed to EMF than in one protected by a faraday cage [2].

Impaired immune function leads to a greater susceptibility to infections from a growing number of mutated strains of microorganisms, including mold. Modern construction methods also are more susceptible to contamination with mold, which contributes to the rising numbers of individuals with mold mycotoxicosis. Pharmaceuticals alone are not always adequate to treat this condition, nor are they always well-tolerated [3-5]. The most effective pharmaceuticals are also intravenously administered in a hospital. Furthermore, resistant strains can develop. Patients suffering from mixed mold mycotoxicosis are in dire need more numerous, well-tolerated, and effective treatment options. They should have the right to the full spectrum of treatment options, the "Right to Try" [6].

Mold toxicity is a layman's term for mixed mold mycotoxicosis, which has been increasingly studied for the past two decades.

While it is estimated that as many as 300,000 species of mold exist word-wide, some of the common indoor species that may become pathogenic are Aspergillus, Alternaria, Acremonium, Cladosporum, Dreschslera, Epicoccum, Penicillium, Stachybotrys, and Trichoderma [7]. The term may also include species of systemic Candida.

Clinically we find that exposure to mold and mold toxins (mycotoxins) can adversely affect the sinuses, lungs, heart, liver, immune system, skin, kidney, endocrine system, and brain resulting in a diverse range of symptoms, including "brain fog'" depression, memory problems, fatigue, headaches, anxiety, insomnia, irritability, peripheral neuropathy, respiratory symptoms, chronic rhinosinusitis, immune dysregulation, chronic fatigue syndrome, fibromyalgia, inflammation, vasculitis, hypothyroidism, hypogonadism, sexual dysfunction, rashes/hives, gastrointestinal distress, dysbiosis, candida overgrowth, weight gain, cancer, and more [7-12].

Diagnostic tests such as a skin prick test, to check for reactions to common allergens, and blood tests to measure the immune

system's response to mold and to check for allergies to specific types of mold have been inconclusive as to the cause of the presenting symptoms. Still, many doctors and researchers have associated these pathogens with disease symptoms in humans [9-12].

Mycotoxins can be measured in the urine but, to improve yield, the patient should first receive provocation with oral glutathione 250 mg twice daily for 6 days prior to the test [13]. This will enhance phases 1 and 2 of liver detoxification and give a better picture of the quantity of mold toxins in the system. However, patients with the cystathionine Beta synthase (CBS) mutation and/or heavy metal toxicity often have difficulty tolerating glutathione and other sulfur containing nutrients and foods. The problem still remains as to what can be used to treat mold toxicity. Triazoles (voriconazole, posaconazole), Isavuconazole, and B amphotericin are used, but hepatotoxicity and pharmacological interactions limit their use [14].

Clinical practice has shown that a wide variety of natural supplements and compounds can help in the treatment and lead to positive outcomes. Activated charcoal, bentonite clay, and glucomannan are examples of binders taken orally to absorb mycotoxins and aid their elimination through the digestive tract. Far infra-red saunas several times a week promote the elimination of mycotoxins and heavy metals through sweating. It also is helpful to receive intravenous phosphatidyl choline and other nutrients to aid liver detoxification prior to undergoing sauna. Taurine in dosages up to 12 grams a day is given to increase the production of bile acids needed to move mycotoxins out of the liver and into the bowel. However, oral taurine should be started at low dosages of 500 mg orally, twice daily and gradually increased to reduce the possibility of diarrhea, which can occur if a deficiency in taurine is the rate limiting step in bile production.

In addition, a host of oral nutrients to activate cytochrome p450 enzymes and aid liver detoxification can be helpful, such as, milk thistle, N-acetylcysteine, phosphatidyl choline, alpha lipoic acid, and dandelion root, as well as others, when taken orally. Mold toxicity is associated with deficiencies in magnesium, co Q10, vitamin D3, B vitamins, and zinc (C), so these are important nutrients to supplement. All these treatments can be used concurrently and are generally complimentary to pharmaceuticals. It is important to recognize that pharmaceuticals may also be necessary in acute, life saving situations.

We, among others have noted in our patients a link between Lyme disease and mold toxicity, in that individuals frequently present suffering from both. Mold can trigger the release of histamine and cytokines from mast cells, leading to inflammation. Patients with mast cell activation syndrome (MCAS) frequently have problems with mold [15,16].

A key strategy in the treatment of mold toxicity is to limit exposure. The home or office should be tested for mold and, if present, mold remediation needs to be undertaken. For extensive problems which can be expensive to remediate, relocation may be necessary. It also is necessary to avoid substances that contribute to the burden of toxins processed by the liver, such as alcohol, caffeine, pesticides, herbicides, heavy metals, plastics, vinyl, and toxic ingredients in foods, cosmetics, and cleansers. Coffee is known to be high in mycotoxins and pesticides [17-19].

Medical ozone therapy was used medically to treat disease in the USA as early as 1885.The Florida Medical Association published Ozone by Charles Kenworthy MD. Its modern medical applications and intense study of its effects and benefits began after World war II. The disinfectant properties of ozone have been known for more than a century. As the popularity of pharmaceuticals increased in the latter half of the 20th Century, the medical use of ozone fell out of favor in the United States but, has been maintained in Europe and Asia due to its low cost and ease and variety of application. Ozone therapy has virtually no known toxic or adverse effects when performed by trained medical professionals. It can be easily be performed in any medical office avoiding the need for hospitalization.

It has been increasing in popularity here in the USA due to its versatility in killing pathogenic microorganisms and due to its safety established by Jacobs in Germany in 1982. The results of her study showed that over two-year period in 644 clinics which treated over 384,000 patients with upwards 2.5 million intravenous ozone treatments, yielded an adverse reaction rate of 0007% and no fatalities [20].

Rowen writes "Progress in this field is hampered by unwillingness of physicians to look/consider "outside the box" of conventional drug- based medicine, along with possible unjustifiable medicolegal concerns."

Today ozone is also used worldwide as a disinfectant in swimming pools, by the hotel industry, by food handlers and in hospitals to destroy pathogens. It is also used as a method of cleaning continuous pulmonary air pressure (CPAP) machines, which frequently harbor mold, yeast, and bacteria.

When ozone enters the body, it dissolves instantly in the plasma and creates short lived reactive oxygen species (ROS) and lipid oxidation products (LOPs), that have the ability to destroy all pathogens inclusive of fungi and mold. Ozone is an electron deficient molecule which steals an electron form these pathogens, thus oxidizing and destroying them [22]. These organisms do not possess the antioxidants needed to repair the damage inflicted by ozone, a super form of oxygen. Fungi and mold are vulnerable to ozone's oxidative effects and cannot mutate into resistant strains. Healthy cells produce large amounts of antioxidant enzymes including superoxide dismutase, glutathione peroxidase, glutathione reductase and a catalase which protect them from oxidation [22].

In fact, Scripps Research Institute discovered that the human body produces ozone that will act as an immune system modulator and systemic anti-infective [23,24]. Also, Rowen and Robins have

shown that ozone has been able to eradicate other pathogens thought to be untouchable such as the Ebola virus [25]. Currently, medical ozone is made from medical grade oxygen by use of a medical ozone generator. It is not a patentable medicine, so conducting costly scientific clinical studies is not profitable for pharmaceutical companies.

While several hundred papers, some of them double blind studies, have been published (many available at NCBI, PubMed) showing the benefits of ozone for various diseases and medical conditions, more studies are needed here in the USA before this treatment can become standard of care. In lieu of that, a $1.25 million study is currently being funded by the Global Lyme alliance to prove ozone's benefits in destroying Lyme disease [26].

Case study

A 59-year-old male, captain of a small charter fishing boat, presented for ozone therapy with multiple documented symptoms of mold toxicity and Lyme disease, stating that he had been diagnosed by another physician as having both of these conditions. He experienced numerous aches and pains, headaches, memory loss, wheezing, and severe anxiety, depression, mood swings, and fatigue. He also had lost a significant amount of weight and went from 190 to 168 lbs. in the past year. He slept on his boat, which was made of wood. It had been tested and was found have high levels of mold spore counts of several varieties.

He began a course of intravenous ozone therapy using the Robins Method of Direct Intravenous (RMDIV) and protocols established and pioneered by Dr. Robins. This consisted of 55cc of oxygen and ozone gas mixture, at a 55mcg/cc concentration of ozone. It was given intravenously in an antecubital vein initially five times a week for the first two months, then three times a week for the next nine months.

After approximately two months the patient stabilized, and his symptoms began to improve. After 11 months of treatment he regained most of his weight (180lb), his symptoms were completely gone, and he was able to return to full-time work. He resumed work on a different non-wood boat, which did not have a mold problem. His case is one of many that ozone therapy has successfully treated in Dr. Robins' practice.

Discussion

Mold toxicity is a growing problem in this country due to multiple factors, including modern construction methods, electromagnetic field (EMF) radiation, environmental toxicity, poor diet with inadequate nutrition, and weakened immune systems. Pharmaceutical medicine is not fully effective, nor is it well-tolerated, and it can be associated with serious adverse effects.

Though the patient presented in this report responded well to ozone therapy alone, without adverse effects, some patients may need additional support to address mold infections and mycotoxins and to counteract the detoxifying effect of ozone. They may need liver support, binders, taurine, saunas, and intravenous or oral nutrients. These interventions may need to be introduced gradually, so as to not overwhelm the patient. These patients often have compromised immune systems and may have mast cell activation syndrome. It is important also to consider obtaining expert consultation from an infectious disease specialist, when indicated, as mixed mold mycotoxicosis can be serious, even life threatening, and pharmaceuticals may be necessary in addition to natural medicine.

Conclusion

Medical ozone therapy has shown its versatility and its ability to destroy numerous pathogens including mold. Better methods of testing are needed to prove mold as the cause of the presenting medical complaints, and further studies are needed to prove ozone's benefits as a stand-alone treatment for treating this condition.

Acknowledgement

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Conflicts of Interest

No conflict of interest.

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