Enzyme Therapy

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Enzymes are a type of protein that carries out specific chemical reactions. Enzyme treatment has been proposed as a beneficial therapy for many diseases, including MS.

Multiple incarnations of enzyme therapy have been tried over the course of its lengthy history. In Central and South America, people traditionally use tropical fruits and leaves for treating inflammatory conditions. In 1902, enzyme therapy was first used to treat cancer. Dr. Edward Howell made claims in the 1920s that consuming large quantities of enzymes was protective against depletion of one's own enzyme supply. During the 1960s and 70s, German Drs. Max Wolf and Karl Ransberger began promoting enzyme therapy for cancer, viral infections, and MS and other inflammatory conditions. In the 1980s, enzyme therapy came under the scrutiny of the U.S. Food and Drug administration (FDA). One company, Enzyme Therapy, Inc., was ordered to discontinue its research bulletins due to false and exaggerated claims. After several additional years of monitoring, a court order in 1992 banned the company from making these claims.

Two major types of enzyme therapy exist: *digestive enzyme therapy* and *systemic enzyme therapy.* In the former, advocates claim supplementing with digestive enzymes improves the breakdown of food and the absorption of nutrients, while also decreasing the buildup of toxins. It is believed to be both a treatment for hundreds of diseases and a preventive measure for maintaining good health. Systemic enzyme therapy involves an unproven method of preparing enzymes so they pass through the stomach to be absorbed into the bloodstream from the intestines.

Treatment Approach

Enzyme therapy usually involves ingesting supplements that contain enzymes derived from plants or animals. Animal-derived enzymes include amylases, proteases (trypsin and chymotrypsin), and lipases. Digestive enzymes from plants include ficin from figs, bromelain from pineapples, and papain from papaya. In Europe, enzymes are sometimes administered intravenously or via enema.

Conventional medicine rarely makes use of enzyme therapy. Cystic fibrosis, pancreatitis, and Gaucher disease are among the more serious conditions treated with enzyme therapy. Lactose-intolerance and excessive gas can also be treated with lactase and alpha-galactosidase, respectively.

Evaluation in MS and Other Conditions

Many different enzyme, vitamin, and mineral regimens have been suggested for the treatment of MS. Some of these treatments are immune-stimulating actions, which is an effect that is typically avoided when treating immune diseases, such as MS. No available clinical research supports enzyme therapy for treating MS.

One large-scale, placebo-controlled, double-blind, randomized clinical trial of oral *hydrolytic enzyme therapy* was conducted at 22 MS clinics in Europe. This research was conducted because suggestive beneficial results were seen in the animal model of MS. The study examined the number of attacks, the progression of disability and multiple MRI criteria in more than 300 people with MS. Unfortunately, therapeutic effects were not seen in any of these measures. No major adverse reactions were reported.

Adverse Effects

Oral enzyme therapy is relatively low risk. Changes in stool consistency, color, and odor may occur when beginning treatment. Other digestive disturbances may occur, including nausea, diarrhea, and excessive gas. Some people may experience minor allergic reactions. Those with a hypersensitivity to pork should avoid pork-derived pancreatic enzyme. People with ulcers should be aware that ulcers may be worsened by proteases. Women who are pregnant or breast-feeding should avoid enzyme therapy, as should people who have recently undergone surgery. Enzyme therapy should not be used by people who take blood-thinning medication or by those with protein allergies or blood-clotting disorders. Long-term safety has not been investigated, but chronic use may affect the ability of the digestive system to produce its own enzymes. Intravenous enzyme therapy carries a rare risk of serious adverse reactions, including severe allergic reactions and infection.

Summary

Claims of enzyme therapy appear to be exaggerated. A well-designed clinical trial in Europe showed no therapeutic benefit of enzyme therapy for MS. No long-term safety data are available for enzyme therapy, and, although it is generally well tolerated, certain people may be at increased risk for adverse reactions. Intravenously administered enzyme therapy may produce rare, but serious, adverse reactions.

References and Additional Reading

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