

## Pharmaceutical Options in the Treatment of Lymphedema

The use of drugs in the treatment of lymphedema in the Western Hemisphere is generally limited to antibiotics, which are used to prevent and treat infections commonly associated with lymphedema. As stated in the [Position Paper](#) of the National Lymphedema Network, lymphedema should not be treated exclusively with drugs or dietary supplements. Following is a list of medications, which are mentioned for possible use in the treatment of lymphedema.

### Diuretics

These drugs promote excess fluid in the body to be excreted. Although diuretics may be beneficial in the short-term, and may be indicated in those cases when lymphedema is associated with systemic conditions (ascites, hydrothorax, protein-losing enteropathy), they may be harmful and contribute to the worsening of lymphedema-related symptoms if used long-term.

Here is why: Lymphedema is an abnormal accumulation of water and protein molecules in the body's soft tissues, which is caused by a dysfunction of the lymphatic system. Swelling (edema) other than lymphedema may be caused by a variety of conditions, such as congestive heart failure, renal diseases, or venous insufficiencies. These swellings do not contain a higher level of proteins in the accumulated fluid, and are defined as edemas.

Diuretics used for lymphedema are limited to remove the water content of the swelling, while the protein molecules remain in the soft tissues. The dehydration effect of diuretics causes a higher concentration of the protein mass in the edema fluid, which may cause the tissues to become more fibrotic and increase the potential for secondary inflammations. In addition, the remaining proteins characteristically draw more water to the swollen areas as soon as the diuretic loses its effectiveness and may cause the volume of the lymphedema to increase.

The 2009 [Consensus Document](#) of the International Society of Lymphology states: "Diuretic agents are occasionally useful during the initial treatment phase of complete decongestive therapy (CDT). Long-term administration, however, is discouraged for its marginal benefits in treatment of peripheral lymphedema and potentially may induce fluid and electrolyte imbalance"

### Benzopyrones

These drugs include Coumarin, Hydroxyethylrutin and flavonoids (Diosmin) and have been shown to promote the breakdown of proteins present in lymphedema. Research has shown that their practical usefulness in the treatment of lymphedema is questionable. The United States and Australia abandoned the use of Coumarin due to liver toxicity and lack of effectiveness.

### Diethylcarbamazine (DEC) and Albendazole

These medications are used in the treatment of lymphatic filariasis, which is very rare in the United States, but endemic in more than 80 countries in the tropics and subtropics. Filariasis is caused by threadlike, parasitic filarial worms that live almost exclusively in humans. It is estimated that over 120 million individuals are affected by this disease, which is transmitted when a mosquito bites an infected person and then goes on to bite others, thus infecting them with the parasites. During the worms' lifetimes inside the host's lymphatic system they produce

dilation and damage to the lymphatics, restricting the normal flow of lymph, causing swelling, fibrosis and infections to lymph vessels and nodes (lymphangitis, lymphadenitis), leading to often extreme swellings. The goal of these drugs is to eliminate the parasitic worms, so the transmission of the disease by mosquitoes can be interrupted.



Lymphatic Filariasis



Endemic Countries for Filariasis

### **Antibiotics and Antimycotics**

Bacterial (dermato-lymphangio-adenitis [DLA]) and fungal infections of the skin and nails are common in patients with lymphedema. These complications can be treated effectively with broad spectrum antibiotics and antimycotic drugs. In cases where cellulitis is a frequent complication, prophylactic antibiotic treatment may be indicated.