

Chronic Rhinosinusitis

Amphotericin B Nasal Irrigation in Chronic Rhinosinusitis

What is Chronic Rhinosinusitis?

Chronic Rhinosinusitis (CRS) is an inflammatory disease of the nasal mucosa that is present for more than 3 months. It is believed to affect 14.2% of the U.S. population. Symptoms include facial pain or pressure, nasal drainage, nasal congestion, postnasal drip, altered sense of smell, headache, dental pain, cough, and ear pressure.

What causes Chronic Rhinosinusitis?

Currently there is no single known cause of CRS. Historically CRS was believed to be associated with bacterial infections. Currently there is no antibiotic shown to be effective in the long-term outcome of CRS. Recently there has been data to support the theory that CRS is caused by a fungal presence in the nasal mucosa. It is common to find fungal spores in the upper respiratory tract due largely to the presence of fungal spores in the air. The fungal spores have the potential to colonize and produce a local inflammatory response. This fungal colonization causes an immune response that leads to the chronic nasal symptoms.

What is Amphotericin B?

Amphotericin B belongs to a class known as polyene antifungal agents, binding to ergosterol, a component of the cell wall of most fungi. This binding to ergosterol leads to the breakdown of the cell wall of the fungi which ultimately cause the fungi to die.

Why Intranasal?

Amphotericin B is very poorly absorbed if taken orally. Intravenous administration is very costly and requires placement of an i.v. line and administration by trained personnel. It is difficult to achieve high concentrations of Amphotericin B specifically in the nasal mucosa when administered i.v. or orally. There are also more side effects when the drug circulates through out the entire body not to mention the possibility of interactions with other medications. Intranasal administration achieves high concentrations where the drug is needed. The poor oral absorption leads to less side effects because the drug is not absorbed. This lessens the concern for possible drug-drug interactions with medications you may already be taking.

How is Amphotericin B administered Intranasally?

Amphotericin B is administered via the Nasaline[®] nasal irrigation system. It consists of a 2 oz. syringe with a silicone tip designed to fit most noses. This tip seals the nasal opening and forces Amphotericin B up through the nasal passage way and sometimes out the other nostril.

Side effects?

Before initiating any new therapy it is always important to consult with both your physician and pharmacist. People who have a known allergic reaction to Amphotericin B should not use it. It is possible to develop some wheezing or cough, a rash if an allergic reaction occurs, nausea, vomiting, etc. Any current medications and current disease states should be discussed with your doctor and pharmacist before use. Be sure to contact your pharmacist and physician if any side effects should occur.

Nasaline[®]

Step 1



Draw the Amphotericin B directly into the Nasaline[®] syringe.

Step 2



Stand or sit slightly bent over a sink. Press the Nasaline[®] syringe into one of the nostrils. Gently depress the syringe allowing the solution to fill the nasal passageway.

Step 3



It is possible to have some of the solution rinse out of the other nostril.

Step 4



Once the nasal rinse is complete allow the drug solution to rinse out of the nasal passage way and into the sink. Be sure to gently blow your nose to clear any remaining drug. It is possible to have a small amount of the solution to remain in the nasal passage way and drain out later.

References:

- 1) "Intranasal antifungal treatment in 51 patients with chronic rhinosinusitis.", Ponikau JU, Sherris DA, Kita H, Kern EB. *J. Allergy Clin Immunol.* 2002, Dec;110 (6):862-6
- 2) "Diagnosis and treatment of chronic rhinosinusitis: focus on intranasal Amphotericin B.", Kern EB, Sherris D, Stergiou AM, Katx LM, Rosenblatt LC, Ponikau J., *Ther Clin Risk Mang.* 2007, Jun; 3 (2):319-25.
- 3) "Nasal amhoterican irrigation in chronic rhinosinusitis." Stankiewicz JA, Musgrave BK, Scianna JM., *Curr Opin Otolaryngol Head Neck Surg.*2008, Feb;16(1):44-6.
- 4) <http://nasaline.com>