

## Patient Management Considerations for NasoNeb® Nasal Nebulizer Patients

The considerations for managing NasoNeb® Nasal Nebulizer patients are different from most pulmonary nebulizer patients.

For instance, most of the patients that you will encounter have a long-term chronic disease. This means that they have had multiple exposures to systemic antibiotics and other drugs, which can lead to drug allergies or sensitivities. The pharmacist should have a series of formulations for these patients to ensure that they can address drug allergies as well as changes in payer formularies.

In cases where the patient has a fungal infection, they may often feel worse before they feel better as a result of the fungal die-off, much like you may have experienced with patients who have fungal infections of the gut, and therefore they will need support along the first 7-10 days.

Training patients is critical to success with the NasoNeb Nasal Nebulizer. Consider recruiting a therapy champion in the physician office to help you train the patient, then provide training when the patient picks up the prescription. Keys are 1) to keep the back of the throat open so that the air has somewhere to exit; ensure they understand the therapy will take 1-2 minutes and 2) to stop at 5 minutes regardless of how much drug is left in the cup. Should they experience irritation, pink in the cup, etc. they should call you to discuss so that you can help them determine if the irritation is due to drug sensitivity or the mechanical debridement action of the NasoNeb-generated aerosol. The NasoNeb Nasal Nebulizer can have a light debridement effect, so loosening of crusts may lead to light bleeding early in the course of treatment. Drugs such as corticosteroids and suspensions may also create irritation, particularly early in the therapy where the mucosa is still friable and has not healed. Never exceeding 5 minute delivery times, backing off on the therapy for a few days and titrating back up to a full therapeutic regimen, as well as light, gentle cleaning of the nares after delivery of a suspension are strategies to use to help reduce irritation in your patients.

In many of these patients, inflammation underlies their chronic illness. In these instances, their physicians may determine that they require an anti-inflammatory maintenance therapy, analogous to current treatment regimens for asthmatics. This is a change in medical practice for many ENTs, who have often used a maintenance regimen of saline irrigation, at times with a low-dose antibiotic or bacteriostatic agent to keep infections at bay. They may have even tried and failed corticosteroid therapy using MDIs. There is evidence that the distribution of drug using an MDI is limited to the antrum of the nose<sup>2</sup>, and therefore MDI-delivered corticosteroids may not have reached the inflamed tissue that needed treatment. The NasoNeb Nasal Nebulizer has been shown to reach these areas and to deliver a high concentration of drug in a low volume of saline so that the drug does not simply run out the nose as it does in irrigation<sup>1,3</sup>.

Some physicians are reporting success with NasoNeb-delivered corticosteroid maintenance therapy for their chronic patients. If the physician determines that a patient may benefit from such therapy, the patient will most likely keep the NasoNeb™ System.

## Bibliography

1. Yuri M. Gelfand, MD; Samer Fakhri, MD; Amber Luong, MD, PhD; Seth J. Isaacs, MD & Martin J. Citardi, MD: "A Comparative Study of the Distribution of Normal Saline Delivered by Large Particle Nebulizer vs. Large Volume/Low Pressure Squeeze Bottle" 56<sup>th</sup> Annual Meeting of the American Rhinologic Society, September 25, 2010, page 38
2. Laube, Beth, Ph.D.: "Devices for Aerosol Delivery to treat Sinusitis"; Journal of Aerosol Medicine, 2007, Supplement 1, 2007 pp. s5-s18
3. Manes RP, Tong L, Batra PS. "Prospective evaluation of aerosol delivery by a powered nasal nebulizer in the cadaver model" Int Forum Allergy Rhinol, 2011; 1:366–371
4. Manes, MD, R. Peter; Batra, MD, Pete S: "Prospective Evaluation of a Novel Powered Nasal Irrigator Device in the Post-FESS Cadaver Model" 56<sup>th</sup> Annual Meeting of the American Rhinologic Society, September 25, 2010, page 119