



Inhalers or Nebulizers

"Which is best for me?"

Inhaled medications have been used as the frontline treatment of respiratory disease for many years. The two most common medications used by inhalation to treat COPD are albuterol (Proventil®, Ventolin®) and ipratropium (Atrovent®). By delivering the medication directly to the airways, the dosage is much lower than would be required if the same medication were delivered by pill. Thus, the concerns about side effects are reduced as less of the drug travels to the rest of the body.



Metered dose inhalers and nebulizers are the most common delivery methods for inhaled medications:

- **Metered dose inhaler** - Also referred to as MDI's, puffers, or inhalers, these small canisters are the most commonly used system for delivering inhaled medications. The patient places the device in or in front of the mouth and activates the inhaler while taking a slow, deep breath and then holding the breath for up to 10 seconds. MDI's may be used in conjunction with a "spacer" or "chamber." These attachments may increase the effectiveness of inhalers by cutting down on the amount of medication that deposits in the mouth.
- **Nebulizers** - A nebulizer is a device which takes a small amount of a liquid medication and turns it into a mist that the patient inhales. Nebulizers produce very small particles that travel into the lungs and deposit on the airway lining. A normal treatment takes 5-8 minutes.

When used appropriately, both devices do an equally effective job of delivering medication to the patient's airways. The problem often lies in the statement "when used appropriately." Many studies have been conducted which monitored patient's ability to use their inhalers properly. These studies have repeatedly demonstrated that most patients are not using their inhalers correctly which may substantially reduce the medication's effectiveness. One such study found that only one in every four patients was able to use an inhaler correctly.

Using an inhaler correctly requires that the patient be able to properly coordinate up to 10 steps including shaking the canister, taking a slow deep breath, activating the inhaler during the first part of the inhalation, and holding the breath. Most people have trouble performing these steps correctly. In clinical studies, factors associated with poor inhaler use included the following: over 65 years of age, decreased mental status, and decreased hand strength or dexterity. Women were at a greater risk for poor technique than men.

Recent information has also indicated that for some medications delivered by inhaler, it may take 2-4 times the normal dose per use to reach maximum effectiveness. To do this with an inhaler would become very expensive and time consuming. A nebulizer is able to deliver this amount with a single treatment.

Another factor associated with improper use of metered dose inhalers is the cost. Inhalers are generally paid for “out-of-pocket,” especially by Medicare patients. Studies have shown that when medications are not covered by insurance, usage typically decreases. Some patients may try to ration their medication to save money. One study measuring how many patients were taking medication revealed that only 15% of patients used their inhalers as ordered.

Studies have demonstrated that as few as one in four patients using inhalers use them correctly. This often leads to decreased delivery and effectiveness of the medication.



Nebulizers are much less dependent upon technique. The patient simply places the nebulizer mouthpiece in his mouth and breathes. Anyone who can't use a mouthpiece may use a mask that covers the nose and mouth. Nebulizers and the medications used with them are covered by Medicare.

With these factors in mind, those currently using MDI's should be closely evaluated to determine whether they have risk factors for improper use of their inhalers. If any patient is found to be at risk for improper inhaler use, a trial with a nebulizer should be considered. During the use of the nebulizer, the patient may be monitored for improvements. Improvements such as increased lung function (measured at home with a small, inexpensive device called a peak flow meter or in the physician's office), decrease in symptoms (cough, wheeze, shortness of breath), increased medication compliance, or decreased hospitalizations are good indications that the nebulizer is performing more effectively.

Studies have found the following to put patients at increased risk for poor inhaler use:

- Age 65 years or older
- Weakness or poor dexterity in hands
- Reduced mental status (memory, concentration)
- Female

If you are currently using inhalers and feel you may not be getting the maximum benefit from your medication, contact your physician and discuss the possibility of a trial with a nebulizer.

Call us if you have any questions, and our respiratory therapists will be glad to discuss it with you.