MEDICATION INFORMATION: BETA-ADRENERGIC AGENTS

Quick-Relief or Rescue Medications
(Short-acting beta-adrenergic agents):
albuterol, levalbuterol, and pirbuterol,

Controller Medications
(Long-acting beta-adrenergic agents):
formoterol and salmeterol

Short-acting beta-adrenergic agents
Beta-adrenergic agents may be classified as either rescue/reliever medications or controller medications. The rescue/reliever medications are quick acting and provide transient relief of symptoms. These include (albuterol) products marketed as ProAir HFA, Proventil HFA, and Ventolin HFA, as well as (levalbuterol) Xopenex HFA. Another short-acting agent is Maxair (pirbuterol). These quick-acting medications help to relieve wheezing, difficulty breathing, and shortness of breath by increasing the size of the air passages in your lungs. They are available as inhalers, liquid preparations for administration of the nebulizer, and oral preparations (either liquid or tablet). Because inhaled medications are more rapidly effective and because they have fewer systemic effects, we rarely prescribe the oral forms.

These medications may relieve or decrease symptoms in a short time. Beta-adrenergic agents are the most effective treatment for acute or sudden onset of asthma symptoms. Because of this, these medications are considered "rescue" medications.

When taken prior to exercise, they may minimize asthma which occurs in many individuals who experience exercise-associated asthma symptoms. In general, we would recommend taking the inhaler preventatively 15-20 minutes before beginning exercise.

Care must be taken, however, to avoid abuse or excess use. Current guidelines suggest that asthma controller therapy should be reviewed if quick relief or rescue medications are required more than twice weekly except when taken prophylactically for exercise asthma. In some individuals, asthma control may decrease when short-acting beta agonists are used excessively.

Long-acting beta-adrenergic agents
A second type of beta-adrenergic agent is long acting. These long-acting beta-adrenergic agents, or "LABA" (formoterol and salmeterol), should be used only together with an inhaled steroid as controller treatment. In this form, they are best used in previously prepared combination medications, such as Advair or Symbicort. Serevent (salmeterol) has a slow onset of action and
should never be relied on for acute treatment of asthma symptoms. Foradil (formoterol) is more rapid-acting, and, although not recommended for use as a reliever, could be taken for immediate relief if a short-acting beta agonist, such as albuterol, is not available.

Recent data suggest that routine or regular use of beta-adrenergic agents may, in some cases, actually worsen asthma symptoms. Because of this, beta-adrenergic agents should be reserved for as-needed rather than regular use except as noted above.

In the case of the LABA, an FDA "black box" warning has been issued. This unusual precaution was taken because a subgroup of individuals may have acute deterioration of asthma control when these medications are used. Rarely, deaths have occurred in this setting and have been attributed to the use of a LABA, even when combined with inhaled steroid controller medication. Deterioration in asthma control, as indicated by increasing symptoms and increasing use of "rescue/reliever" medications, should alert you to the fact that your asthma is not well controlled and that a change in your medication may be necessary. If you are concerned because of this "black box" warning, please let us know, and we can discuss use of a substitute medication. Even when combination medications, such as Advair and Symbicort, have proven effective, current recommendations suggest that after a period of good asthma control treatment should be transitioned to monotherapy with an inhaled steroid alone to minimize any potential risk.

Tell your doctor if you are taking any other medication or if you have any other condition (especially diabetes, heart disease, high blood pressure, or thyroid disease). Before beginning the medication, please read these important instructions.

1) Notify your doctor if you notice chest pains or persistent rapid or irregular heartbeat. Stop the medication immediately!

2) There are several side effects which may occur when you first begin this medication. They most often disappear or decrease when you become accustomed to the medication. These side effects include: jitteriness or tremor, bad taste in the mouth, dizziness, headache, nausea, vomiting, transient palpitations, increased perspiration, or weakness. Check with your doctor if any of these side effects are either bothersome or continue to occur. In some cases, substituting Xopenex HFA or Xopenex nebulizer solution may reduce these side effects.

3) Use only the prescribed medications. Do not take extra doses of the medication unless you have been instructed to do so.

4) Store the medicine away from children’s reach.

5) If taking the inhaled form, review the proper use of the inhaler with our office nurse or doctor. Poor response to inhaled medication is most often related to incorrect use of these devices.

6) Side effects may be increased when these medications are used together with other asthma medications. If you are prescribed either Advair or Symbicort, it is important to minimize the use of short-acting beta-adrenergic agents (rescue) because of the additive effect that these may have with the LABA already in the combination medication.
Proper use includes the following steps:

* Inhalers are best taken using an extension device 6-8” long (e.g., AeroChamber or Vortex). These devices must be cleaned periodically after use, depending on the frequency with which they are taken.

* A canister should be used only with the plastic actuator with which it is dispensed. These plastic actuators are not interchangeable.

* Shake canister before use.

* A new canister or one which has not been used for more than two weeks or has been dropped must be primed by dispensing 3-4 actuations before use. The dose dispensed may be inadequate without doing this.

* Begin a **slow** inhalation, **then depress** canister.

* Inhale **slowly** over 5-6 seconds. This step may be difficult if you are acutely wheezing, but it will be easier in general with the second inhalation.

* Hold breath for a count of 10.

* Breathe normally.

* Repeat sequence for the second inhalation. If you are acutely wheezing, waiting several minutes between inhalations may increase the effectiveness of the second dose. In fact, an inhalation may be partially lost because of coughing, and, if so, this dose may be repeated.

* The plastic actuator device should be cleaned by rinsing with warm water at least on a weekly schedule. This prevents plugging of the small hole needed for the medication to be dispensed. Shake the plastic actuator and allow it to thoroughly dry before the canister is inserted again.

7) For very young children or for patients with more severe asthma, or those finding use of metered-dose inhalers difficult, an electronic home nebulizer unit is a useful alternative. There are many different devices available, including some portable units. Specifics should be discussed with our office nurses.

8) **Albuterol should always be readily available for immediate administration in the event of an acute episode of asthma.** Severe asthma episodes may occur quite unexpectedly, even in those who have mild, intermittent symptoms. Acute episodes may occur during sports and exercise activities even when these have been well tolerated previously.
9) When is your asthma inhaler empty? It is difficult to judge when an inhaler is no longer providing the dose of medication expected. These inhalers are designed to provide accurate doses only for the number of actuations listed on the label. Floating the inhaler, as suggested in some package inserts, will not give a reliable estimate of how much medication is left. Furthermore, the seals may be damaged and the canister no longer effective. The only accurate method is to either count the number of doses used or rely on dose counters present on some of these devices. Hopefully, the counters will be incorporated into all of these devices, as it is critical for our patients to know how many doses are left in their "rescue" medication!

*Please remember that the short-acting or quick-relief medications are to be used only for relief of symptoms. If you find that these medications are being used with increasing frequency or for more than 3-4 times weekly on a regular basis, be certain to discuss this with us for adjustment in your controller treatment.*

These are general guidelines. Other side effects may occasionally occur. Always notify your doctor if you are experiencing adverse effects which seem to correlate with taking a medication or if you have not responded well to the treatment prescribed. Use of these medications should be discussed if you become pregnant, are breastfeeding, or develop any new medical condition after they have been prescribed. We are always available for discussion if you experience any difficulties or concerns.