The Annual Direct Care of Asthma

The annual direct health care cost of asthma in the United States is approximately $11.5 billion; indirect costs (e.g. lost productivity) add another $4.6 billion for a total of $16.1 billion. Prescription drugs represented the largest single indirect cost, at $5 billion. The value of lost productivity due to death represented the largest single indirect cost at $1.7 billion.[1]

INHALED BRONCHODILATOR MEDICATIONS

Inhaled bronchodilator medications are highly effective in opening airways narrowed by asthma. In addition, they have few severe side effects when used in the recommended dose and frequency. They are available by both metered dose inhaler and nebulizer.

Inhaled bronchodilator medication produces much fewer side effects than theophylline and is preferred over theophylline for routine use, for severe episodes and for prevention of exercise-induced asthma. In certain cases both may be used.

For children with mild asthma this is often the only medication they will need. Inhaled bronchodilators are highly effective, and they have also proven to be the bronchodilator medicine of choice for moderate and severe asthma when used with other medications.

Because inhaled bronchodilator medications are very effective with few or no side effects, some patients tend to overuse them, which can be very dangerous. Overuse of these medications can delay proper evaluation and treatment of severe asthma episodes.

Some studies suggest that overuse of these medications may worsen the asthmatic condition and increase the possibility of death from asthma. It should be remembered that under-medication is far more likely to cause severe asthma and death than over medication.

There are now long acting inhaled bronchodilators which are prescribed for use in the morning and evening. It is now recommended that these be used as add-on medication for a person who is taking inhaled corticosteroids. REMEMBER:

1. If you need to use inhaled bronchodilator medication more often than prescribed, this is a sign that your asthma is not in control and you should consult your doctor.

2. When medications fail to control asthma and it becomes more severe, immediately call your doctor or emergency room, day or night.

ANTI-INFLAMMATORY MEDICATIONS

Anti-inflammatory medications are recommended by the National Heart, Lung and Blood Institute expert panel for children with mild persistent, moderate and severe asthma as the cornerstone for daily routine medical management. This panel recommends that one of these medications be given daily to control airway inflammation. They are considered safe and effective for long-term use.

Cromolyn (Intal) has been used for 30 years and has very few side effects. An inhaled anti-inflammatory, nedocromil, may also be prescribed. Inhaled corticosteroids are the most used medication. They are very effective and safe but should always be given with a spacer device in the recommended dose to prevent side effects, primarily throat irritation due to yeast infection.

Both of these anti-inflammatory medications must be taken regularly to be effective. These medications frequently fail because they are not taken consistently. These medications do not have an immediate effect and therefore are mistakenly discontinued. Their beneficial effects occur gradually over weeks and months of consistent use. Therefore, it is important for children to take these medications regularly.

Note: NEVER take more medication than your physician prescribes and always notify him/her of possible side effects.

SYSTEMIC BRONCHODILATOR MEDICATIONS

Systemic bronchodilator medications, prinicipally theophylline, are effective but have more associated side effects that can be unpleasant although rarely life threatening. These medications are available in slow release tablets or capsules that are effective for 12 to 24 hours. These are especially helpful for nocturnal or night-time asthma. They are also used for daily control of asthma symptoms.

Side effects can be a problem and should be brought to the attention of your doctor. When taking theophylline, blood levels are monitored periodically to help reduce side effects and ensure proper dose.

SYSTEMIC CORTICOSTEROID MEDICATIONS

Systemic corticosteroid medications are highly effective in controlling asthma and reversing severe episodes. Unfortunately they can cause serious side effects when used for prolonged periods, and their use is therefore limited to severe episodes or chronic severe asthma which cannot be controlled with the first three groups of medication listed above.

Corticosteroid is a class of normal hormone of the human body and is produced by the adrenal gland. It is very effective in the control of allergies, asthma and many other diseases. It is not like performance enhancing "steroids."

When your child is having a severe allergy or asthma episode, his or her adrenal gland responds by producing more corticosteroids (up to ten times more). In this way, the body can help control asthma.

When asthma is not controlled, despite maximal therapeutic doses of bronchodilator medication, additional corticosteroids must be given. A short course of systemic corticosteroids for less than two weeks is rarely associated with significant side effects. For most children, 5 days of use is adequate.

It must be remembered that severe uncontrolled asthma is potentially fatal, and therefore a much greater risk than 1 to 2 weeks of systemic corticosteroid. If the asthma is severe, your child may also require hospitalization so that more intensive therapy can be given. Whenever possible, long-term use of corticosteroids should be avoided. However, severe uncontrolled asthma might require corticosteroids on a regular basis for months or even years. In this case, the risks of chronic uncontrolled asthma are greater than the possible side effects of systemic corticosteroids.

Corticosteroids may be given every other day in the morning, greatly reducing some of the long-term side effects.

INHALED MEDICATION DELIVERY SYSTEMS

Inhalers must be used properly to be effective. Studies demonstrate that inhaled bronchodilator medication is very efficiently delivered by the hand-held metered dose inhaler; however, this requires that the instructions be followed carefully.

Approximately half of asthma patients do not properly use their inhaler and this problem is overcome by the use of a spacer device.

Spacer devices or "spacers" allow the metered dose inhaler to first be sprayed into this container (usually 6 to 16 ounces in size) and then the patient breathes in the inhaled medication from the spacer. This is almost foolproof, thus improving proper use of inhalers from 50 percent to almost 100 percent.

Some authorities recommend spacers for all children. Spacers should be used with inhaled corticosteroids if sore throat or yeast overgrowth (thrush) is a problem.

Pulmonary nebulizer machines or "nebulizers" are also very helpful. They are used to give routine medication treatments of inhaled bronchodilators and/or cromolyn to very young children or any adult who have difficulty using metered dose inhalers and spacers.

Nebulizer machines may also be recommended for anyone with asthma with a severe asthma episode to ensure maximal delivery of bronchodilator medication.

Proper selection and use of inhaled medication, metered dose inhaler, spacer and nebulizer will be provided by your physician and his or her nursing staff. Be sure to carefully follow their instruction for use and cleaning.

NEW MEDICATIONS

Leukotriene modifiers are a new class of oral anti-inflammatory asthma drugs recently approved by the Food and Drug Administration. Sold under the names Accolate, Singulair and Zyflo, these are also available by prescription.

In July of 2003, the FDA approved a new drug for patients with serious asthma. Xolair is the first in a new class of therapies that are bioengineered to target IgE, the antibody behind allergic asthma, in the treatment of allergic disease.

If your child is not on one of these medications, you should ask your physician if this should be added.

Q & A: KIDS' ASTHMA MEDICINES:

HOW ARE ASTHMA MEDICINES PRESCRIBED?

Check with your doctor about your child's medicine needs. Each child has special needs. For instance, if your child has mild asthma and very few episodes, he/she may take a bronchodilator medicine at the first sign of symptoms (such as wheezing or coughing) to keep the symptoms from getting worse.

Your child may take the medicine for about a week after the symptoms end. If your child has more severe asthma and many episodes, he/she may need to take medicines every day, including one or more anti-inflammatory medicines.

HOW LONG DOES IT TAKE FOR BRONCHODILATOR MEDICINES TO WORK DURING AN EPISODE OF ASTHMA?

For bronchodilator sprays prescribed by your doctor, you can tell they are working within 5 to 10 minutes. At that point, your child should begin to feel better. There are some sprays that are preventive and are prescribed by the doctor even when a child has no symptoms that you can "see." These are anti-inflammatory sprays and they help to prevent asthma episodes from starting.

For liquids, it usually takes one hour for the medicines to work. For pills and capsules, the time varies, so check with your doctor or pharmacist.

ARE ASTHMA MEDICINES SAFE?

The medicines, including corticosteroids, are safe and highly effective if taken in the recommended doses. No drugs are without some risk or side effect. This is important. All

medicines can be harmful if they are not taken properly. Children do not become addicted to asthma medicine.

IF SIDE EFFECTS OCCUR FROM MEDICINES, HOW CAN THEY BE CONTROLLED?

Call your doctor. If your doctor cannot be reached, reduce the dose by half or skip the next dose. Do not stop the medicine completely. This may cause the asthma to get worse.

For asthma medicine taken by mouth, never have your child take this medicine on an empty stomach. If your child gets nauseous or vomits, try to give the medicine with some milk or food. Be sure to tell your doctor you are doing this because giving the medicine with food or milk can change its effectiveness.

If the side effects, such as vomiting, do not go away, talk to your doctor about changing the dose or the type of medicine. Vomiting is an urgent danger sign.

TO CONTROL ASTHMA SYMPTOMS

Asthma medicine needs to be adjusted if your child has symptoms (such as wheezing or coughing) with exercise, at rest, at night or early in the morning. According to the NAEPP Expert Panel Report, peak flow meters may be most helpful for people with moderate or severe asthma. A meter reading will tell you your peak flow zones, which are based on the colors of a traffic light. The green zone signals that your asthma is in good control, the yellow zone signals caution and is a sign to use quick-relief medicine to relieve symptoms, and the red zone signals a medical alert that means you should contact your doctor about changing the dose or type of medicine.

TO MANAGE A BAD EPISODE

At the first sign that your asthma is out of control, you will need to take action right away. It is important to know the warning signs that tell you when emergency medical care is needed:

- Monitor throughout the day if you feel any discomfort from taking your medicine. If there in no sign of some relief and it is becoming harder to breathe seek emergency assistance.
- Stay calm, refer to your asthma management plan, take your medicines as prescribed.
- If your symptoms get worse, call 911 and get help right away.

TIPS FOR CORRECT USE OF "AS NEEDED" MEDICINE

For "as needed" medicines, give them within five minutes after symptoms begin. It takes less medicine to stop an episode in the early phases of asthma rather than later on.

If your doctor agrees, give the medicine at the first sign of a cold or influenza even if you don't hear wheezing or coughing. Continue giving medicine until all signs of the cold or influenza are gone.

TIPS FOR CORRECT USE OF PREVENTIVE MEDICINE

For medicines taken daily to prevent asthma, these should be given even if your child does not have symptoms. The medicines reduce airway swelling and make it less likely that another episode will occur.

Sources:

1. National Heart, Lung and Blood Institute Chartbook, U.S. Department of Health and Human Services, National Institute of Health, 2004.