A New Drug For Asthma: Too Good To Be True?

By Josh Bloom — August 8, 2016

Despite the introduction of inhaled powder disks for prophylaxis of asthma, the disease remains a serious problem for many people. In the US alone, more than 24 million Americans suffer from asthma, and about 3600 people will die [1] from it every year.

There hasn't been a novel asthma pill in two decades (1). That may be about to change.

Advair, the first dry powder inhaler, which contains a combination of an anti-inflammatory steroid and a long acting beta agonist (LABA) (2), was a wonder drug for many people. In addition to cutting ED visits by children (graph below), the annual death rate of older asthmatics dropped by half [2] between 1999 and 2011.

![Graph showing numbers of asthma-related ED visits per 10,000 children 0 to 17 years of age in the United States in 1992–2006.](image)

**Source:** CDC National Center for Health Statistics

But, Advair, and the similar drugs that followed it, are far from perfect. Not only do some asthmatics fail to respond, but the long-term use of inhaled steroids is known to cause a number of side effects. Additionally, the utility and safety of the LABA component has been questioned. LABAs have been associated, in some cases, with a paradoxical worsening of bronchoconstriction, and even death (3).

Also, these sprays cannot be used as rescue inhalers (4); the onset of action is far too slow. And when they fail, oral corticosteroids, which carry with them a number of hideous side effects, are
commonly used. These are bad news.

Now, here is some good news. Maybe even very good.

Although Phase II trials in Britain contained only 61 subjects, a drug called Fevipiprant, is showing a big effect. Over the course of 12 weeks, lung function improved, inflammation of the lungs was reduced, and even repair of the lining of airways was noted. Some people reported instant relief. Should these results hold up in larger trials, it will represent an unprecedented advance against a disease which is caused by bronchial and lung inflammation.

It is the inflammation component that makes the results of Fevipiprant so intriguing. Prostaglandins are a group of extremely potent hormones, which are responsible for a wide variety of biological responses, such as induction of labor, pain, stomach acid secretion, and inflammation. This is why aspirin and other NSAIDs work. They block the formation of certain prostaglandins that are responsible for inflammation, pain and fever.

Another prostaglandin called D2 (PGD2) is responsible for a different response—the constriction of bronchial airways. People with allergies and asthma have an excess of PGD2, which is produced by mast cells (4). Fevipiprant blocks the PGD2 receptor, and causes the constricted tissues to relax.

Thousands of asthmatics will be watching subsequent results very carefully, including yours truly.

We would love to breathe easy. In the meantime, I'll be holding my breath.

Notes:

(1) Xolair, a novel therapy for certain types of severe asthma, was approved in 2003. It is an injectable antibody, not a pill.

(2) Rescue inhalers contain short-acting beta agonists. These cause relaxation of the airways, but also can increase heart rate.

(3) LABAs cannot be used without the accompanying steroid. They increase the risk of death when taken alone.

(4) Rescue inhalers are traditional asthma puffers. They contain drugs like albuterol-- short-acting beta agonists. They provide relief in seconds, but don't work well enough or long enough to manage severe asthma.

(5) Antihistamines, such as Zyrtec and Claritin act by stabilizing mast cells and preventing the release of histamine. These drugs are not useful for treating asthma.