



THE FAMILY PHARMACIST

A QUICK READ FOR YOUR OTC NEED!

VOLUME 1, ISSUE 5

MAY 15, 2020

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OVER-THE-COUNTER PAIN RELIEVERS

For serious or chronic pain, which is disabling, most people will consult their physician, and rightly so. This discussion is about over-the-counter (OTC) pain relievers taken by mouth that are made available to consumers to treat mild to moderate pain. Of course, the first thing that might come to mind is aspirin, but the current uses for OTC aspirin are so varied and complicated that I will not discuss them in this issue. Aspirin is now more appropriately used for heart disease and rheumatic disorders (muscle and skeletal diseases). While the FDA still allows aspirin to be labeled as safe and effective for “the temporary relief of minor aches and pains” for numerous medical conditions, other OTC drugs have become more popular for the treatment of mild to moderate discomfort and fever.

This newsletter is about *acetaminophen*, found in Tylenol™ and many store brands, and the class of drugs known as *non-steroidal anti-inflammatory drugs* (NSAIDs) which are available in brand names like Motrin™ and Aleve.™ All of these pain relievers are called *analgesics*.

OTC analgesics accounted for almost 4.5 billion dollars in retail sales in the US in 2018. We have a lot of pain. At first glance, pharmacy shelves make it look like you have dozens of choices when picking the right pain reliever. That’s because all of the brand names and fancy packages are competing for your attention. But as far as the ingredients in these drugs are concerned, you have few choices. Let’s discuss what they are and the differences.

ACETAMINOPHEN is the generic name for a *non-aspirin drug* used to reduce pain and fever that is found in many prescription and over-the-counter drug products. It is available alone in single-ingredient products and also in combination with many other medicines, including those used to treat colds, coughs, allergy, and sleeplessness. Tylenol,™ Tempra,™ and Anacin Aspirin-Free™ are just a few of the many brand names available. Acetaminophen is effective

for pain in muscle and bone. It also reduces fever in about one hour after it is taken. In low doses acetaminophen does not reduce inflammation. This is the big difference between it and NSAIDs. However, some brands do promote acetaminophen for arthritis, for example Tylenol 8 Hr Arthritis Pain Extended-release tablets. The amount of drug in each tablet is a little higher than the standard dose of acetaminophen. Arthritis doses are 650 mg per tablet or capsule and two are taken at each dose.

Because it seems to lack many of the side effects of NSAIDs and aspirin, acetaminophen has become the most commonly used pain reliever and fever reducer in the United States. As many as 23% of American adults use acetaminophen in any given week. While acetaminophen has received bad press due to its ability to cause liver toxicity, it still appears to be one of the safest drugs we have at our disposal to treat pain and fever. The National Institutes of Health states that while acetaminophen is “harmless at low doses” it can cause liver damage and death when taken in overdose. However, the margin of safety is wide and, according to the FDA, “the overwhelming majority – more than 80 percent of fatalities – involve intentional overdoses (suicide).” Almost two-thirds of pregnant women use acetaminophen at some time during their pregnancy, but researchers have begun to question the safety of this widespread use in pregnancy. Acetaminophen is the drug most commonly used to safely treat pain and fever in patients with COVID-19.

A safe *maximum* daily dose of acetaminophen in adults is 3000 mg. That’s six 500 mg capsules or tablets in 24 hours. But doses over 4000 mg a day can adversely affect the liver. People at greatest risk of poisoning even with low doses are alcoholics and those with existing liver disease. Since acetaminophen is added to so many OTC products you have to be careful that you are not double-dosing. For example, if you take a couple of 500 mg plain acetaminophen tablets and then take Vicks Formula 44 Night Time Cough and Cold you may not know that you’re getting another 650 mg of acetaminophen. So read ingredient labels carefully.

NSAID is an acronym for *non-steroidal anti-inflammatory drug*. What does that mean? Powerful oral steroids used to treat inflammation, like prednisone and cortisone, are available only on prescription because of their many and severe side effects. So to distinguish steroid drugs from other anti-inflammatory drugs that are **not** steroids it was necessary to describe them differently, thus NSAID. NSAIDs started out as prescription drugs but were eventually approved by the FDA beginning in 1983 with the approval of *ibuprofen* (Advil,™ Motrin™) for over-the-counter use, but at a limited, lower dose.

So what do NSAIDs do? They work by blocking the production of *prostaglandins*, hormone-like, naturally occurring chemicals that are believed to be associated with inflammation and pain. Numerous NSAIDs are available by prescription to treat pain caused by osteoarthritis and rheumatoid arthritis, but OTC oral NSAIDs are mainly used for treating pain associated with minor dental procedures, tendonitis, strains, sprains, and other lesser injuries. OTC oral NSAIDs are also commonly used to treat fever and to reduce pain associated with menstrual cramps.

So NSAIDs are good when you need to reduce inflammation, which is a major cause of pain. Another significant advantage of NSAIDs is that they work at the site of discomfort. In other words, rather than blocking your brain’s ability to perceive pain (as some pain relievers do) they block pain modifiers at the location where the pain signals are being generated. In this sense it can be said that NSAIDs are more targeted. However, NSAIDs are a double-edged sword. While they are amazingly effective at reducing pain, they have many side effects. Ironically, the very method by which they alleviate pain is involved in why they have so many side effects.

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Blocking prostaglandins to alleviate pain is a good thing, but this also makes the stomach more vulnerable to its own acid. This is bad, hence the warnings on the package about stomach bleeds. Something that isn't stated on the package is the effect of NSAIDs on the kidneys. If you are young and healthy, short term use of an NSAID is safe. However, health professionals are worried about the effect of NSAIDs on the kidneys, especially in older persons taking them long-term. It is important not to use an over-the-counter NSAID any longer than you absolutely have to for temporary pain relief. For extended use, follow the direction of your physician.

My Recommendation:

For everyday aches and pains associated with common maladies stay with *acetaminophen* (Tylenol,™ etc.) because it's safer. If you do have pain caused by an inflammatory condition, say a tooth extraction or other dental procedure, or a sports injury, it's OK to try a combination of ibuprofen 400 mg PLUS acetaminophen 500 to 1000 mg every 6 hours for a few doses during the day, but only for a day or two. After that, only take as needed and not for more than another couple of days. You must read labels before using any OTC pain reliever products. The FDA is continually revising recommendations and alerting consumers to new risks associated with these drugs.

- Be aware of the different times that NSAIDs are taken. *Ibuprofen* (Advil,™ Motrin™) is every 4 to 6 hours, while *naproxen* (Aleve™) is taken every 10-12 hours. NSAIDs and acetaminophen can cause problems if taken too often or inappropriately.
- Ask your pharmacist before combining a prescription drug with an OTC pain medicine to make sure there are no possible drug interactions.
- Make sure that other OTC or prescription drugs you are taking don't have an NSAID or acetaminophen in them, possibly leading to over-dosing.
- OTC pain relievers, while useful at times, should be used sparingly. Chronic pain needs to be discussed with your physician.

References on file

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