

Heart & Health Reports™

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Trying to Find a Safer Painkiller

NSAIDs and Heart Risk

NONSTEROIDAL anti-inflammatory drugs (NSAIDs) are some of the most widely prescribed medications in use today. They reduce pain, fever and inflammation and are available in both prescription and nonprescription forms. The term “nonsteroidal” is used to distinguish these drugs from steroids (e.g., cortisone, prednisone), which are antiinflammatory medications having a different therapeutic mode of action and side effect profile.

We may think of NSAIDs as relatively new medications, but the prototype of the class was developed more than 100 years ago as acetylsalicylic acid, familiar to all of us as aspirin. Every day, more than 30 million Americans use aspirin and related drugs like ibuprofen and others to relieve symptoms of headache, sprains, muscle aches or arthritis. In 2004, Americans filled more than 100 million prescriptions for NSAIDs and spent an additional \$2.4 billion on over-the-counter brands. Overall, more than one-third of older individuals are



Antiinflammatory medicines help millions, but may increase cardiac complications.

reported to take NSAIDs on a daily basis. These medications have revolutionized treatment of arthritis and related disorders. But this pharmaceutical advance has come with a

price, with the potential for side effects ranging from mild to life threatening.

Understanding pain

In order to understand how NSAIDs work, first we need to know something about how our body responds to injury. When we suffer an injury, the damaged tissues release *prostaglandins*, chemicals that cause the tissue to swell and increase the level of pain. Prostaglandins also have beneficial effects and are required for the normal function of the gastrointestinal tract, blood clotting, kidney and circulation.

NSAIDs help and hurt

The synthesis of prostaglandins requires an enzyme called cyclooxygenase (COX). All NSAIDs inhibit the COX enzyme, thereby reducing

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Real People

A Monitor Misfire

PAUL, age 31, was determined to get back into shape. He used to consider himself an athlete, spending many afternoon hours playing basketball. But a recent look in the mirror made him realize that his endeavors to land his first job as a young attorney had taken a toll on his physique. He didn't care much for the extra 20 pounds he noticed in his reflection. He vowed that in the next few months he would regain some of his youthful fitness.

He changed his diet and rejoined

his health club, diligently exercising at least three times a week. He particularly liked the new exercise machines that could measure his pulse when he held on to the sensors. It brought out the competitive nature in him as he worked to achieve the maximum heart rate target.

One day however, he gave himself a scare. He was racing on the treadmill when the heart rate monitor rose to 250 beats per minute. He

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Heart & Health Reports™

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Smoking in the cinema

The summer “blockbuster” movie season has now arrived. This is the time when studios roll out their most spectacular films, filled with sensational special effects and featuring top Hollywood stars. But there is one disturbing development in films that is thankfully getting some closer inspection — the high prevalence of scenes depicting cigarette smoking.

Cigarette smoking is more common onscreen today than in decades. Published reports indicate that a remarkable 75% of all Hollywood films depict tobacco use, including 36% of films rated G or PG.

This is not just an offense to our nonsmoking sensibilities. Two studies published in the journals, *The Lancet* and *Pediatrics*, found that children exposed to the most onscreen smoking were up to 2.7 times more likely to try using tobacco.

Opponents may argue that viewing tobacco use in films does not compel a movie patron’s behavior. But there is little doubt that media influences cultural norms and provides an unhealthy example.

According to data provided by scenesmoking.org:

- Of approximately 2,050 adolescents who start smoking each day, more than half will start because of exposure to smoking in the movies.
- Leading actors light up in 60% of movies.
- The more a favorite actor uses tobacco in a movie, the more likely a teenage viewer will smoke.

A 2005 study published in *Chest* that analyzed 447 “top ten” movies found a prevalence of onscreen smoking of 23.3%. In this study, R-rated films depicted smoking in 37.3%, including 35.8% of actors who were considered protagonists (good guys) and 43.9% of antagonists (bad guys).

In previous years, cigarette makers and filmmakers struck prod-

uct placement deals that strategically included tobacco products in movie scenes. This practice was prohibited by the 1998 tobacco settlement. But nothing currently stops a director from incorporating smoking scenes into the body of the movie.

Antismoking groups have lobbied hard for restrictions on smoking in the cinema. The most vocal have either sought a complete ban on smoking in film or to demand that all movies depicting tobacco use to carry an R rating. Some in the motion picture industry have heeded these concerns.

This past May, the Motion Picture Association of America agreed that portrayals of smoking would be considered along with sexual situations, language and violence in assigning film ratings for young viewers. Three questions were to be considered: Is the smoking pervasive? Does the film glamorize smoking? And is there an historic or other mitigating context?

Movies are a welcome escape from everyday life. For a couple of hours, a film can transport us to far away lands to mingle with wonderful (or evil) characters. But we do need to protect those who would be influenced by undesirable behavior. The motion picture industry must remain aware of its role in setting cultural standards. Depicting smoking as an unhealthy, unappealing habit is desirable. Glamorizing tobacco use is not. Indeed, talented filmmakers can surely create a compelling character without using tobacco. I suspect Humphrey Bogart would be just as special in *Casablanca* as the proprietor of a smoke-free Rick’s Cafe. And perhaps with a better real life role model, the actor would not have died at age 57 of esophageal cancer.

Franklin H. Zimmerman, MD

Editor

Antibiotic Prophylaxis No Longer Needed For Most Patients

Antibiotic prophylaxis before dental work, long a ritual for many individuals, is no longer necessary for most patients. In a remarkable reversal, the American Heart Association has completely changed the rules. Antibiotic prophylaxis is no longer recommended for most patients with valvular disorders, even those with aortic stenosis and mitral prolapse. It is no longer recommended at all for patients undergoing genitourinary or gastrointestinal procedures.

For many years, physicians and dentists have wrestled with the issue of antibiotic treatments to prevent heart valve infections. The mouth is home to billions of bacteria and can seed the circulation during dental manipulations. It was feared that these organisms could then invade susceptible tissues such as heart valves, causing a rare but serious condition known as infective bacterial endocarditis. It was reasoned that by giving an antibiotic prior to the dental (or intestinal or urologic) procedure, the blood-borne bacteria could be eradicated before causing heart valve infection. This concept, known as antibiotic prophylaxis, thus became routine clinical practice.

What prompted the changes? The new guidelines were not the result of a blockbuster new clinical trial. Rather, they were based on a thorough review and rethinking of available data. We now realize that routine daily dental care such as brushing and flossing produce similar levels of blood-borne bacteria as dental procedures. The cumulative risk of daily dental care far exceeds the brief exposures from dental procedures. Therefore, it doesn't make sense to pre-medicate prior to dental procedures when, in effect, we are performing a "dental procedure" every day. Also, there is no

scientific data to show that the use of prophylactic antibiotics will actually have the ability to prevent infective endocarditis as intended.

It is difficult to measure the exact risk of valve infection from a single dental procedure, but the risk is undoubtedly exceedingly low. The absolute risk is probably around one infection per several million dental procedures. Even in the highest risk populations such as patient with prosthetic heart valves, the risk is on the order of one in 100,000. Poor dental hygiene and gum disease are much more likely to cause valve infection than dental procedures.

Why not just give antibiotics to prevent even the rare chance of infection? The answer is that the widespread use of antibiotics is not innocuous. Many patients have adverse reactions such as a rash or diarrhea. Occasionally, a more serious allergic reaction can occur. Inappropriate antibiotic use also fosters the development of resistant strains of bacteria.

In light of these considerations, the new guidelines now call for antibiotic prophylaxis in only a few patient groups. They are those who are at the highest risk of endocarditis and would have the most serious consequences if they develop infection. These include patients with prosthetic heart valves, those with a previous episode of endocarditis, individuals with certain congenital heart defects, and cardiac transplant recipients with valve disease.

Antibiotic prophylaxis, when given, should be administered as a single dose before the procedure. The high-risk patients mentioned above should receive prophylaxis for most dental procedures. These include cleanings, extractions, biopsies, suturing or suture removal, and placement of orthodontic bands. It is not required for dental

X-rays, removal or adjustment of orthodontic appliances or routine injection of anesthesia.

Amoxicillin remains the preferred oral antibiotic. The standard dose is two grams, taken orally, 30-60 minutes prior to the procedure. For penicillin-allergic patients clindamycin, azithromycin, or clarithromycin may be substituted. For patients already on an antibiotic, another class of antibiotic should be selected for prophylaxis.

Key points of the new guidelines include the following:

- Endocarditis prophylaxis is recommended only for a few heart conditions (see table below).
- Prophylaxis is no longer recommended for genitourinary or gastrointestinal procedures (including endoscopy).

These new guidelines represent a major change in practice for physicians and patients. Ask your doctor to see if your customary antibiotic prophylaxis is no longer needed.

— Arthur E. Fass, MD

Cardiac Conditions Requiring Bacterial Endocarditis Prophylaxis

- Prosthetic (artificial) valves
- Previous bacterial endocarditis
- Unrepaired complex cyanotic congenital heart defect (CHD)
- Repaired CHD using prosthetic material (only first 6 months after procedure)
- Repaired CHD with certain residual defects adjacent to prosthetic patch or device material
- Cardiac transplant recipients who develop valve abnormalities

NSAIDs . . . continued from page 1

production of prostaglandins, and hence, reducing pain and inflammation. But the COX enzyme story is not so simple. There are two different forms of the COX enzyme, COX-1 and COX-2. Each has a different role in the body and selective inhibition of COX-1 and COX-2 has different consequences.

The COX-1 enzyme is present normally in most tissues and is important for the proper function of the gastrointestinal tract, kidney, brain, and central nervous and reproductive systems. It plays a vital role in protecting the stomach lining from acid and digestive enzymes. COX-1 also influences blood clotting, affecting the ability of platelets to stick together.

COX-2 is usually dormant, but activates in response to injury and helps to increase blood flow to damaged tissue. COX-2 makes blood platelets less sticky, the opposite effect of COX-1. COX-2 activity leads to production of prostacyclin, a chemical that dilates blood vessels and keeps platelets “slippery.”

NSAIDs differ in their ability to inhibit each form of COX, a factor that has important implications

regarding the benefit and risk of these medications. Traditional NSAIDs are nonselective, meaning that they block both COX-1 and COX-2. By blocking COX-1, these medicines reduce pain and inflammation. But COX-1 inhibition also reduces the stomach’s protection mechanism, increasing the risk of ulcers. The nonselective COX-1 inhibitors also interfere with platelet function and increase the potential for bleeding and bruising.

COX-2 inhibition has different consequences. Blocking COX-2 enhances blood clotting by making platelets less sticky. It also increases sodium and water retention, which can lead to leg swelling, raise blood pressure and exacerbate congestive heart failure.

Searching for a better NSAID

Despite their popularity, the benefits of nonselective NSAIDs are limited significantly by their gastrointestinal (GI) side effects. Studies show that 15-30% of patients who use NSAIDs on a regular basis develop detectable GI ulcers by endoscopy. A greater concern is major GI bleeding. A 1998 analysis

determined that more than 100,000 people were hospitalized each year because of GI side effects from the use of nonselective NSAIDs. A second study from 1998 determined that 16,500 patients died from NSAID-induced GI bleeding. Overall, major GI events occur in 2-4% of patients who take NSAIDs for a year or more.

This concern led to research to find a better NSAID, one that would selectively inhibit COX-2, while leaving COX-1 intact. The premise was that COX-2 inhibition was responsible for the therapeutic effects of NSAIDs, while blocking COX-1 was responsible for the side effects of GI ulceration and bleeding. The first of these new selective COX-2 inhibitors, celecoxib (*Celebrex*), was approved in 1998. This was followed by rofecoxib (*Vioxx*) and valdecoxib (*Bextra*). Research confirmed that selective COX-2 inhibitors were effective anti-inflammatory agents with a lower incidence of GI side effects and major GI bleeding. By October 2000, these drugs were the most widely prescribed NSAIDs, with U.S. sales of Celebrex and Vioxx alone exceed-

Monitor . . . continued from page 1

felt a little lightheaded and slowed down the machine. Still the monitor seemed to show a rapid pulse, alternating between 100 and 200 beats per minute. Concerned, he went over to a fitness instructor who took his pulse manually. “Your pulse is only about 120 and coming down nicely,” the trainer said. “But you better check this out with your doctor just to be sure.”

Paul went to see his doctor who recommended an exercise stress test. The results were completely normal. Just to be sure, Paul wore a special cardiac monitor during his usual exercise session. Once again the heart rate reading on the machine suddenly read a very high

number. But when the sophisticated cardiac monitor was analyzed, there was nothing unusual. It seems the fitness center’s machine was giving a false reading. Reassured, Paul resumed his workouts, but kept his hands off the sensors.

Cardiologist's comment:

Today’s exercise machines have a variety of features that can vary speed, elevation and resistance. Some machines also have sensors that measure heart rate. However, the accuracy of these sensors is highly variable. Errors in measurement often occur when the person fails to maintain a steady grip or

cannot maintain good contact because of perspiration.

Most healthy people can train effectively without heart rate monitoring. Heart rate assessment is most important for cardiac patients and individuals training for competitive sport. You should be aware of an unusually rapid or irregular heart rate that can signify a cardiac arrhythmia. If you feel palpitations or lightheadedness, stop exercising and consult your doctor.♥

— Franklin H. Zimmerman, MD

The stories reviewed in this section represent actual patients. Details have been modified to preserve anonymity.

— Editor

ing \$3 billion.

Concern over heart risk

A large study published in 2000, the VIGOR trial, confirmed that Vioxx had fewer GI side effects compared with nonselective NSAIDs. However, concerns were raised over possible adverse cardiovascular events with use of this medication. Physicians were alerted to use caution in patients with a history of cardiovascular disease, but the drug remained widely popular. Another ongoing study was terminated prematurely after investigators found that patients taking Vioxx had a greater risk of heart attack and stroke. This led to worldwide withdrawal of the drug in September of 2004, by which time an estimated 80 million people had already taken the drug. Studies using other COX-2 inhibitors showed unfavorable cardiovascular outcomes and the Food and Drug Administration (FDA) requested the withdrawal of Bextra from the market in 2005.

Celebrex also increases the risk of cardiovascular events, but an FDA advisory panel recommended it may remain for sale in the U.S. under certain conditions. A warning is included in the packet insert that states that Celebrex may be used for patients who cannot achieve pain control with nonselective NSAIDs, but should be in the lowest possible dose for the shortest possible time. Research is ongoing regarding two new drugs in the class that are not yet FDA approved, etoricoxib (*Arcoxia*) and lumiracoxib (*Prexige*).

What to recommend

The American Heart Association recently published guidelines for using NSAIDs. The highlights may be summarized as follows:

- Try nonpharmacologic treatment first, such as physical therapy, heat/cold treatment.

- Start with acetaminophen (*Tylenol*), or aspirin. Consider short-term use of narcotic therapy for pain relief.
- Consider use of a nonselective NSAID, but also assess the patient's risk of GI toxicity and potential cardiovascular complications.
- For patients with a cardiovascular history or at high risk for events, naproxen is the preferred choice because it is associated with the lowest risk of thrombosis (blood clotting).
- For patients at high risk for GI side effects, prescribe a proton pump inhibitor (e.g., *Prilosec*,

Nexium, *Aciphex*). Consider a COX-2 inhibitor but assess cardiovascular risk.

- COX-2 inhibitors should be avoided if there is an alternative choice.
- Monitor blood pressure and kidney function in all patients who take NSAIDs.

Cardiologist's comment:

A frequent question is whether patients taking NSAIDs should also take low dose aspirin to help prevent cardiovascular complications. Definitive answers are lacking, but this is a reasonable consideration for high risk patients who need long-term NSAID therapy. However, combining aspirin with an NSAID increases the risk of GI bleeding. Adding aspirin with a COX-2 inhibitor is also likely to reduce any GI advantage over nonselective NSAIDs. In addition, studies indicate that ibuprofen can actually interfere with aspirin's beneficial antiplatelet effect. Patients should delay taking ibuprofen for at least 30 minutes after taking short-acting aspirin (not enteric coated). If ibuprofen is taken first, the dose of aspirin should be delayed for at least 8 hours.

A patient who is in pain is usually most concerned about relief of symptoms as quickly as possible. But deciding which medicine to use is not a simple as previously thought. When using an NSAID, a careful assessment of benefits and risk must be made, with consideration of potential gastrointestinal and cardiovascular complications. Remember when trying a nonselective NSAID that they are not all alike. Patients who fail to respond to one drug may find relief with another with a different chemical structure. COX-2 inhibitors should be reserved only for patients who cannot be treated with other drugs, and only then with caution.♥

— Franklin H. Zimmerman, MD

Nonsteroidal Antiinflammatory Drugs	
Nonselective (COX-1/COX-2) Grouped by similar chemical structure	
Aspirin	Diflusal (<i>Dolobid</i>)
Etodolac (<i>Lodine</i>)	Indomethacin (<i>Indocin</i>)
Sulindac (<i>Clinoril</i>)	
Diclofenac (<i>Cataflam</i> , <i>Voltaren</i>)	Ketorolac (<i>Toradol</i>)
Tolmetin (<i>Tolectin</i>)	
Fenoprofen (<i>Nalfon</i>)	Fluriprofen (<i>Ansaid</i>)
Ibuprofen (<i>Advil</i> , <i>Motrin</i> , <i>Nuprin</i> , <i>Rufen</i>)	Ketoprofen (<i>Orudis</i> , <i>Oruvail</i>)
Naproxen (<i>Aleve</i> , <i>Anaprox</i> , <i>Naprelan</i> , <i>Naprosyn</i>)	Oxaprozin (<i>Daypro</i>)
Meclofenamic Acid (<i>Meclomen</i>)	Mefenamic Acid (<i>Ponstel</i>)
Meloxicam (<i>Mobic</i>)	Piroxicam (<i>Meclomen</i>)
Nabumetone (<i>Relafen</i>)	
COX-2 Selective	
Celecoxib (<i>Celebrex</i>)	
Brand names (italics) are trademarks of their respective manufacturers	

Rythmol and Rythmol SR

(propafenone hydrochloride/extended release)

What kind of medicine is Rythmol?

Rythmol is a drug used to control cardiac rhythm abnormalities. It is used in patients without structural heart disease to prevent recurrence of symptomatic paroxysmal atrial fibrillation, flutter, and supraventricular tachycardia. It is also indicated for the treatment of documented life-threatening sustained ventricular tachycardia.

How does Rythmol work?

Rythmol prolongs the time it takes for the electrical impulse to conduct from the heart's upper chambers (atria) to the lower chambers (ventricles). It also has weak beta-blocking characteristics, slowing the heart rate and lowering blood pressure.

How will Rythmol help me?

In the "Pill in the Pocket" study, 94% of patients with paroxysmal atrial fibrillation treated with Rythmol (600 mg for patients weighing more than 70 kg and 450 mg for patients weighing less than 70 kg) were successfully converted to a normal rhythm.

Rythmol is also indicated for the treatment of life-threatening ventricular arrhythmias, such as ventricular tachycardia.

How is Rythmol prescribed?

For both atrial and ventricular arrhythmias, the usual starting dose of the immediate-release form is 150 mg, every 8 hours. The dose may be increased at 3-4 day intervals to 300 mg, every 8 hours.

The extended-release capsule (Rythmol SR) is started at 225 mg, every 12 hours. The dose may be increased every 5 days to 325 mg, every 12 hours, or a maximum of 425 mg, every 12 hours.

Rythmol may be taken with or without food.

The immediate-release tablet may be split or crushed. The extended-release capsule should be swallowed whole.

What dosage forms are available?

Rythmol is supplied as 150 mg, 225 mg, and 300 mg scored tablets.

Rythmol SR is supplied as 225 mg, 325 mg, and 425 mg extended-release gelatin capsules.

How long will it take to work?

Immediate release Rythmol will begin to work in 2-3 hours.

What if I miss a dose?

Never try to "catch up" by taking an extra pill. If you are late by a few hours, take your normal dose. For a longer delay take your usual dose the next day. Taking an extra dose of Rythmol may be dangerous.

Do food or other drugs affect Rythmol?

There are no known food interactions.

- Rythmol may increase the blood level of the following medications: digoxin, metoprolol, propranolol, warfarin, cyclosporine, theophylline.
- The following medications may increase levels of propafenone and potentially increase toxicity: cimetidine, chlorpromazine, fluoxetine, miconazole, paroxetine, ritonavir.
- Concomitant use of the following medications may increase the potential for life-threatening arrhythmias: erythromycin, tricyclic antidepressants (e.g., desipramine).

Who should use caution or avoid this medication?

- Pregnant women should take this medicine only if clearly needed. There are no adequate studies.
- Nursing mothers. Rythmol is excreted in breast milk.
- Those with conduction system disorders such as a slow heart rhythm (bradycardia) and heart block.
- Avoid in patients with coronary heart disease, a weakened heart muscle or heart failure.
- Use caution in those with liver and kidney disease.

How will I feel while taking Rythmol?

The most common side effects are an unusual taste, nausea, vomiting, dizziness, constipation, headache, and fatigue.

Are there serious side effects to watch for?

The most serious side effect is a life-threatening arrhythmia such as ventricular fibrillation or "torsade de pointes." Report any increase in palpitations, dizziness, or fainting to a physician. Another very rare, but serious side effect is a drop in a white cell count (agranulocytosis), manifested by fever, chills, and weakness. Report this, or any sign of serious infection.

How does the doctor monitor my progress?

Your doctor will periodically check your electrocardiogram and do periodic blood testing. There may be routine monitoring of other drug levels as well.

Do you have any special tips for me?

- Some patients can treat occasional episodes of atrial fibrillation with a one-time dose of 600 mg Rythmol.
- Treating ventricular arrhythmias with Rythmol requires consultation with a specialist. Some patients treated with this drug have an increased risk of life-threatening arrhythmias and death.

Rythmol® is a trademark of Reliant Pharmaceuticals.

—Dina R. Katz, MD

Tastes of the Orient

AMERICANS enjoy foods that are exotic and exciting with different flavors and spices. We clamor for foods that are quick and easy as well as flavorful. That is why the Asian food section of the supermarket is bursting at the seams.

The perceptions that Asian foods are healthy and can fit into a vegetarian diet are long standing. Their vegetables bring photonutrients that are different from those that are regularly contained in a typical American diet.

Asian foods found in the freezer case tend to be low in fat and saturated fat and cholesterol. However, those that contain coconut and coconut milk do contain a substantial amount of fat and saturated fat.

Protein in each serving is between 2-3 oz (every ounce of protein is 7 grams). Three ounces is a proper serving size of protein at lunch and dinner. Choose meals that contain chicken, fish, and beef for high protein entrées. Frozen Tofu entrees or other meat alternatives can be difficult to find in local supermarkets and are more likely to be found in Asian markets.

The fiber that is in each frozen meal varies due to the amount of vegetables and whole grains in each product. Add additional vegetables to each Asian frozen food meal to enhance its fiber content. We need between 20-35 grams of fiber a day. Three grams of

fiber in a portion is considered a good amount and 5 grams of fiber is high fiber. Try to find ones with whole wheat pasta and brown rice so that the fiber will be higher.

All frozen meals are high in sodium. Asian meals are no exception and can have particularly high levels of sodium due to their soy sauce content. The daily recommended amount of sodium intake is approximately 2300 mg per day, which is equal to one teaspoon of salt. A low sodium product has 140 mg per serving. Finding frozen foods with less than 500 mg per serving is difficult. If you have to include one of these meals try to be careful about your salt intake during the rest of the day. Pare the high sodium entrée with additional low or no salt items at the meal.

If time is not the problem, then making your own Asian food is a great idea. The different cultures of each country in the Orient bring exciting flavors. If time is of the essence then you can find healthy frozen alternatives by carefully reading the food label.

— Roberta Gershner, RD, CDN

Ms. Gershner is a nutrition consultant in Ossining, New York (www.mynewdiet.com).

Supermarket Savvy

Frozen Asian Foods Buying Guide

Variety (serving size = 1 pkg)	Calories	Total Fat(g)	Sodium (mg)	Fiber (gm)	Protein (gm)
<i>Lean Cuisine Chicken Teriyaki Stir Fry</i>	300	4.5	690	3	17
<i>Lean Cuisine Spa Sesame Stir Fry with Chicken</i>	300	0.6	280	5	20
<i>Kashi Sweet & Sour Chicken</i>	320	3.5	380	6	18
<i>Kashi Lemongrass Coconut Chicken</i>	300	8	680	7	18
<i>Healthy Choice General Tso's Spicy Chicken</i>	430	9	600	5	17
<i>Healthy Choice Beef Teriyaki Stir Fry</i>	310	7	600	5	16
<i>Weight Watchers Smart Ones Chicken Oriental</i>	230	2.5	650	2	12
<i>Chung's Chicken Egg Roll</i>	130	4.5	410	3	7
<i>Health is Wealth Thai Spring Rolls w/ Peanut Sauce</i>	90	1.5	280	1	4
<i>Amy's Asian Noodle Stir Fry</i>	290	7	630	4	9
<i>Amy's Thai Stir Fry</i>	310	11	420	5	8
<i>Ajimonoto Pork, Chicken & Vegetable Pot Stickers</i>	310	16	580	2	15
<i>Ajimonoto Rice Bowls</i>	650	27	820	2	21

Q: "Can you tell me about the new blood pressure medicine, aliskiren?"
— Sleepy Hollow, NY

A: Aliskiren (*Tekturna*) is the first in a new class of antihypertensive medication called *direct renin inhibitors*. For the first time in more than a decade, a blood pressure lowering medication is available with a mechanism unlike any other.

This new medicine works by modifying a pathway important for blood pressure control called the renin-angiotensin system. The ultimate goal is to reduce the level of the powerful blood vessel constrictor, angiotensin II. Two currently available classes of medications lower blood pressure by this mechanism including angiotensin converting enzyme (ACE) inhibitors and angiotensin II receptor blockers (ARBs).

ACE inhibitors (e.g., enalapril, quinapril) lower blood pressure by inhibiting the enzyme that converts angiotensin I to angiotensin II. With less angiotensin II the blood vessels relax and the work of the heart is

made easier. Angiotensin receptor blockers (e.g., valsartan, irbesartan) directly block the angiotensin II receptor at a later step.

Renin is involved in an earlier step in the pathway, converting angiotensinogen to angiotensin I. By directly blocking this vital first step, aliskiren has the potential for more effective blockade of the renin-angiotensin system and hence, lowering blood pressure.

Aliskiren is currently indicated for the treatment of hypertension, either alone or in combination with other medications. Because ACE inhibitors and ARBs are also indicated for diabetic nephropathy, heart failure, and can improve survival in certain groups, it is likely that aliskiren will have the same positive effects. Other beneficial effects of blocking this pathway may be prevention of a thickened heart (left ventricular hypertrophy), as well as preventing plaque rupture and thrombosis, thereby lowering the risk of heart attack and stroke.

In one study of patients taking

aliskiren, systolic blood pressure was decreased by 4.8 to 11.2 mmHg within two weeks. It has also been shown to decrease protein in the urine when combined with an ARB in patients with kidney disease. Side effects appear to be rare and include diarrhea, headache, and nasopharyngitis. Rarely, an allergic reaction called angioedema can occur. This medication is somewhat less effective in the African-American population, as they have lower renin levels.

Aliskiren is prescribed once daily as a single 150 mg or 300 mg dose. Like ACE inhibitors and ARBs, aliskiren should not be prescribed during pregnancy because of a potential serious danger to the fetus.

Aliskiren may be used alone, or combined with a diuretic or other agent. It may also be used with an ACE inhibitor or ARB. Aliskiren is a promising new agent to add to an already strong armamentarium of antihypertensive medications.

— Dina R. Katz, MD

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 465 North State Road, Briarcliff Manor, NY 10510-1468

Have a question? Please write to The Editor, Heart & Health Reports, 465 North State Road, Briarcliff Manor, NY, 10510. We regret that we cannot respond personally and questions may be edited for clarity and space.

In Future Issues

- **How much walking do you really need?**
- **What to do if you were prescribed Avandia.**
- **New information about heart-healthy diets.**