

# **Managing Side Effects of Anti-Inflammatory Medications**

**\*\*\*\*\*Managing Side Effects of Anti-Inflammatory Medications (Part 1)\*\*\*\*\***

**Narrator**

Bonnie Larabee was just 37 years old when she was diagnosed with rheumatoid arthritis, a painful, debilitating condition that changed her life forever.

**Bonnie Larabee, Patient**

Prior to getting arthritis, I was into aerobics, jazz dancing and that was the disco era and I loved to disco dance, so that got curtailed very quickly. That part of my life was pretty much over at that point.

**Narrator**

But Bonnie still had to work full time and help care for her three children, so despite a suggestion from one doctor that she prepare for life in a wheelchair, Bonnie sought a way to keep functioning.

**Bonnie Larabee, Patient**

I eventually found a rheumatologist that didn't agree with that scenario and started me on medication. And here I am, almost 27 years later, still walking around.

**Narrator**

That medication was Naproxen, and Bonnie did well with it for almost two decades. Then sometime in the year 2000, Bonnie's stomach started to give her trouble.

**Bonnie Larabee, Patient**

By noon or lunchtime, my stomach would be so irritated, and it would be like a sore feeling, it would get bloated and then it would get crampy. And this went on and on and on and so when I mentioned it to my rheumatologist, she said, 'well, you know, from what you're telling me it sounds like it's the naproxen. So we're going to have to take you off of that.' So I said, 'And put me on what?' And she said, 'Well, perhaps nothing.'

**Narrator**

That was not a pleasant thought for Bonnie, who knew that without medication, she would again be in terrible pain.

**Bonnie Larabee, Patient**

I get it anywhere from my jaw, and my neck, my shoulders, elbows, well you know anywhere you have a joint, I would say I've had pain.

**Narrator**

NSAIDs medications were a natural choice for Bonnie, and millions of others. They help with everyday aches and pains. And most are products we're all familiar with and products doctors have relied on for years.

Dr. Richelle Koopman is with the Department of Family Medicine at the Medical University of South Carolina.

**Richelle J. Koopman, MD, Medical University of South Carolina**

They are very good for both acute and chronic pain. They are good medicines for several reasons in addition to providing very good pain relief they do not make people drowsy and they don't really have an addictive potential.

**Narrator**

We know these drugs by numerous brand names, and by their primary ingredients, such as Ibuprofen or Naproxen. Even aspirin is part of this group, a category of medications known as NSAIDs, an

acronym which stands for non-steroidal anti-inflammatory drugs. There are currently more than 50 types of prescription and over-the-counter NSAIDS in use worldwide. They have become so common because of their effectiveness in relieving pain and fever.

Doctor David Peura is a Professor of Medicine at the University of Virginia.

**David Peura, MD, University of Virginia**

NSAIDs are a class of medications that actually not only take care of pain provide some analgesia, but they also address substances called prostaglandins which induce inflammation and they inhibit these prostaglandins so that in addition to providing pain relief they also reduce inflammation.

**Narrator**

But, if patients take NSAIDS for extended periods; they may hurt as much as they can help. Over time, the very mechanism that allows NSAIDS to relieve pain and swelling can cause serious gastrointestinal problems.

**Daniel Clauw, MD, University of Michigan**

The problems with NSAIDS are that they have side effects that for most drugs whenever there is a desired biological effect there can also be sort of a comparable side effect that occurs because of that.

**Narrator**

Dr. Daniel Clauw is with the University of Michigan.

**Daniel Clauw, MD, University of Michigan**

Even taking over-the-counter anti-inflammatory drugs can cause ulcers, gastrointestinal bleeding, even death. It doesn't have to be the prescription strength of the drug in order to cause that side effect.

**Narrator**

According to The American College of Gastroenterology, more than half of continuous NSAID users experience stomach pain or discomfort, and a smaller percentage develop ulcers, which can cause dangerous internal bleeding.

Researchers also estimate that each year in the United States more than 100,000 hospitalizations are related to complications from NSAIDs. Dr. Mark Pochapin is the director of the Jay Monahan Center for Gastrointestinal Health.

**Mark B. Pochapin, MD**

NSAIDS have a direct effect on the gastrointestinal system and an indirect effect by just touching the gastrointestinal tract the NSAIDS can actually cause some irritation, erosions, or actual ulcers which are little sores on the inside of the tract and it can occur anywhere in the gastrointestinal tract from the stomach down to the intestine.

**David Peura, MD, University of Virginia**

It's estimated that up to 20% of individuals that are taking NSAIDs on a chronic basis are going to develop some kind of stomach irritation and even ulceration. A very small proportion maybe 1 in a 100 will actually have gastrointestinal or stomach bleeding.

**Daniel Clauw, MD, University of Michigan**

The worst risk of having a serious side effect occurs with chronic daily use, and the longer you take the drug, the higher the dose of the drug, the more likely you'll develop almost any complication, but certainly the gastric or stomach complication.

### **Narrator**

To understand why this happens, we must first understand how NSAID medications work, and they work on a chemical level. NSAIDS stop pain and swelling by blocking the effects of two enzymes, specifically Cox-1 and Cox-2. These enzymes are key components in the production of prostaglandins, hormone-like substances which cause swelling and pain as part of our body's defense mechanism. So the end result is that the NSAIDS slow the production of prostaglandins, which in turn reduces pain and swelling. The catch is, prostaglandins also provide protection for the lining of the stomach. If that protection is weakened by the medicine, the stomach's corrosive acids and other gastric juices can irritate or damage the lining of the stomach.

### **Mark B. Pochapin, MD**

People who use NSAIDS occasionally probably aren't at much risk for having any major problems they might have a little sensitivity to the NSAID and can get some stomach discomfort maybe a little indigestion, but generally it's self-limited a few days, a week.

### **Narrator**

But use NSAIDS long term and those side effects can be serious. Coming up, we'll find out more about who is at greater risk for complications.

## **\*\*\*\*\*Managing Side Effects of Anti-Inflammatory Medications (Part 2)\*\*\*\*\***

### **Narrator**

Tom Oddi is 57 years old, a smoker, an avid golfer and he has osteoarthritis in his hip.

### **Tom Oddi, Patient**

It will wake me up because it's like a toothache, it's like right there, and you just can't find a comfortable position laying down.

### **Narrator**

Tom is not alone. According to the Arthritis Foundation, more than one in three Americans has some type of arthritis. Many patients are given NSAIDS to relieve the pain and inflammation associated with arthritis, but they have serious risks. To minimize those risks, it's important that anyone taking these medications stay in close contact with a doctor.

### **Mark B. Pochapin, MD**

Pretty much I think if you're taking NSAIDS more than even just a few days you should probably let your doctor know that you're taking it. There are certain drug interactions sometimes they're medications that thin the blood, anti-coagulants, even vitamins that in combination with NSAIDS could possibly increase the risk of bleeding. I think it's a good idea since it's a common drug but there are certain side effects that your doctor knows when you're taking NSAIDS for more than a few days.

### **Richelle J. Koopman, MD, Medical University of South Carolina**

When you talk to your doctor make sure that they know about the kind of things that might put you at higher risk for taking NSAIDS and discuss them with your doctor so that you can be sure that they are aware of them. NSAIDS are great pain medicines, but we want to use them in the safest way possible.

### **Narrator**

And that was the situation for Bonnie Larabee. Her long-term exposure to NSAID medication was likely to blame for the stomach pain and cramping she was experiencing. And pain wasn't the only problem.

### **Mark B. Pochapin, MD**

Patients who take it for weeks to months to chronically are at more risk for long term effects, which would include ulcers and sometimes these ulcers can occur completely silently and they wouldn't know about it so patients who take long term NSAIDS really need to make sure they know what the signs would be if they were to develop GI bleeding suddenly.

### **Daniel Clauw, MD, University of Michigan**

One of the big problems with the ulcers that occur come from NSAIDS is that more often than not, there are no symptoms whatsoever of that ulcer. The first symptom the individual has is major bleeding or passing out or some other direct complication of the ulcer. We don't know exactly why this is, but it may be as simple as the person is taking both the drug that can cause the ulcer as well as the drug that reduces pain, so the pain that might normally be associated with the ulcer is not necessarily felt in that individual because they're taking that medication.

### **Bonnie Larabee, Patient**

The side effects: of having bleeding ulcers and internal bleeding you know that can come on at any given moment and you could be totally unaware, that didn't appeal to me. And having stomach discomfort all the time of course hinders what you eat, what you eat and how you eat, and I like to eat. So I thought well, 'I think I'd rather be able to eat comfortably and deal with a little pain.'

### **Narrator**

Even though it was a difficult decision for Bonnie, it was the one that made the most sense to her. When a person's Gastrointestinal, or GI, tract is healthy, stomach acids are kept at bay by the protective lining of the stomach and intestines. But, if the acid in the stomach then gets through to the sensitive tissues lining the digestive system, sores, or ulcers develop. The sores eventually bleed internally which can be very dangerous, especially because they sometimes do so without causing any pain at all.

### **Mark B. Pochapin, MD**

Often NSAIDS can cause this irritation which leads to an ulcer and cause completely painless bleeding could result in just having black tar-like stools which is, in essence, digestive blood.

### **Richelle J. Koopman, MD, Medical University of South Carolina**

If the patient taking NSAIDS has stomach pain, nausea, if they have bloating, a feeling of being full these are important symptoms and they should probably stop taking the NSAID and consult with their doctor. There are some more serious side effects that involve bleeding, so if a person is vomiting or coughing up blood or material that looks like coffee grounds or they have darkening of their stool they should contact their doctor immediately.

### **Narrator**

There are certain patients who are at greater risk for side effects like these, and who need to be especially careful if taking NSAIDS.

### **Mark B. Pochapin, MD**

The patients most at risk for side effects of NSAIDS are really elderly patients, patients who have had ulcer disease before, patients who have helicobacter pylori, which is a bacteria in the stomach and patients who have had problems with NSAIDS in the past.

### **Narrator**

In addition patients who take aspirin, corticosteroids, and anticoagulants regularly, along with their NSAID are also at risk for side effects and should speak with their doctors about possible preventive steps.

At 80 years young, Peggy Dean falls into that high-risk category. Peggy enjoys the outdoors, and doing arts and crafts.

**Peggy Dean, Patient**

I like working with my hands, like scrapbooks or I like to fish and crab. I did have some hobbies like you know scrap booking a little bit, well a good bit, and a little woodworking.

**Narrator**

Those activities went by the wayside though, when Peggy suffered a heart attack a while back. Although bypass surgery helped open up her arteries, she now has chronic pain in her chest and shoulders.

**Peggy Dean, Patient**

Well, I have chest pains still and if I don't do anything or use my arms or stand too long I'm fine, but when I try to move around or stoop and bend. Well, I don't have a dishwasher, so washing dishes is a problem.

**Narrator**

Peggy's doctor, Richelle Koopman, gave her a non-steroidal anti-inflammatory medication to help her manage her pain, but it wasn't long before Peggy was suffering from stomach pain as well.

**Peggy Dean, Patient**

I knew I had had problems with too much acid and you know I had heartburn so I was looking for something to help me with that.

**Narrator**

Coming up we'll find out what Peggy had to take to set things right. And while there are clear risks associated with NSAIDS, patients can learn how to use them safely and effectively. Plus we'll see how new medicines can combat some of the side effects of NSAIDS.

**\*\*\*\*\*Managing Side Effects of Anti-Inflammatory Medications (Part 3)\*\*\*\*\***

**Narrator**

One technique for increasing the safety of NSAIDs is to introduce medicines that block the production of acid, thereby reducing the risk of stomach irritation in the first place.

**David Peura, MD, University of Virginia**

There are several strategies that we as healthcare providers employ to try to reduce the risk or the likelihood of a problem. First we have to identify individuals that are at risk. They are some potential problems even associated with those medications so that in higher risk patients what we often do is we put them on a medicine in concomitantly, a proton pump inhibitor such as Nexium or Prevacid to try to protect the stomach while they're taking the NSAIDs.

**Narrator**

There are a few different types of medicine used to accomplish that goal, and each goes about it in a different way. Some work directly to help the body retain what stomach lining remains.

**Richelle J. Koopman, MD, Medical University of South Carolina**

The first type helps to maintain the protective barrier of the stomach and duodenum and that's called misoprostol. Misoprostol generally is not well tolerated in that a lot of people have abdominal pain, nausea and diarrhea from this medicine, it is quite effective, but many people have side effects. The second class of medications helps protect the lining of the stomach and duodenum through blocking acid secretion above the stomach and this type of medicine is called a proton pump inhibitor.

### **Narrator**

Dr. Koopman gave Peggy one of these types of medications to manage her acid.

### **Peggy Dean, Patient**

And so far it's been very good I haven't had any severe nausea or swelling or heartburn since that time. I take it twice a day, it's very easy to take because it's a capsule and it's not like trying to swallow a big pill. It's easy to take one good thing. And it has worked for me as far as I know.

### **Mark B. Pochapin, MD**

The proton pump is what's responsible for making acid it's basically the factory that produces acid, so the medication blocks the factory from making acid so patients on proton pump inhibitors have much less acid in their stomach.

### **Narrator**

There is also a third class of medications, which are familiar to many, but may not be as effective.

### **Mark B. Pochapin, MD**

Generally the things that you see over the counter things like Pepcid and Zantac are known as histamine receptors. They block the hormone that stimulates acid in the stomach, so unlike the proton pump inhibitors which block the factory, histamine receptors block the messenger so they're not as strong an acid blockade but they do very well and for some patients who only need a little bit of acid suppression or gentle mild acid suppression, a histamine blocker will be perfectly fine they're available over the counter and patients tolerate them very, very well.

### **Narrator**

The method and medication you and your doctor decide upon might change during the course of your treatment, and sometimes simply switching to a different NSAID medication can help alleviate side effects. One option for high-risk patients is a type of NSAID called a Cox-2 inhibitor. This class of medications has been developed specifically to have fewer gastrointestinal side effects, but it is not without its risks either.

### **Mark B. Pochapin, MD**

Cox- 2 was thought to be mainly an anti-inflammatory receptor, so it acted more as an anti-inflammatory with less GI side effects. The problem is that we have learned is that there may be an increased risk of heart disease in particular heart attacks in the setting of these Cox-2 inhibitors, so a lot of people now are fearful of using them.

### **Narrator**

One alternative for patients is to switch from their NSAID to acetaminophen. Acetaminophen has shown to be just as effective for mild osteoarthritis as Cox-2 inhibitors.

### **Daniel Clauw, MD, University of Michigan**

Weak opioids, like for example, what's called Tylenol # 3, are very commonly used for pain and are very reasonable things to use for pain in someone especially that would have some reason they shouldn't be taking an anti-inflammatory drug.

### **Narrator**

Up next: we'll re-cap the big picture and take a look at the future of these medications.

**\*\*\*\*\*Managing Side Effects of Anti-Inflammatory Medications (Part 4)\*\*\*\*\***

### **Narrator**

On the whole, the development of a wide variety of NSAID medications has been a very positive development in the treatment of both acute and chronic pain and inflammation. And careful use, along with a certain depth of knowledge will allow patients to benefit from NSAIDS to a greater extent.

### **Richelle J. Koopman, MD, Medical University of South Carolina**

A good strategy in general is to use the lowest effective dose for the shortest amount of time for it to be effective.

### **Mark B. Pochapin, MD**

I think NSAIDS are great drugs and they work really well for certain conditions. I don't think people should be fearful of them, I think they should be knowledgeable about them knowing that they can cause a little bit of gastric distress or possibly cause an ulcer, can very rarely cause bleeding is very important so if it were to ever happen they would know what to do about it.

### **Narrator**

And as with any medicine, patients who find themselves taking these drugs for more than a few days should always do so under their doctor's supervision. And if problems do arise, there are options that may allow them to continue enjoying at least some of the relief NSAIDS provide.

### **Bonnie Larabee, Patient**

I took medication to reduce the acidity in my stomach and that did help. Even if you are in pain, you kind of have to keep going because if you sit home with chronic pain, I think it will get worse. That's all you're thinking about and then it becomes worse. So I think staying active with your mind and your body is probably the best thing for me.

### **Tom Oddi, Patient**

Naturally you want to feel better but the pain of a stomach versus the ability to play golf- you weigh one against the other and golf wins.

### **Narrator**

There is hope beyond the NSAIDS available today for patients suffering from chronic pain.

### **Daniel Clauw, MD, University of Michigan**

There's really an incredible new frontier in the pain field using genomics, using proteomics, using functional imaging that will tell us much more about a given pain patient and how to treat them better.

### **Narrator**

Researchers around the world are working tirelessly on new medicines and derivatives of NSAIDS to help all of us deal with pain and swelling as we age.

### **Mark B. Pochapin, MD**

I think in the future we're going to have NSAIDS that have less toxicity or irritation to the gastrointestinal tract. Research is going to show us how to make NSAIDS more specific for inflammation and less toxic to the GI tract, I'm really looking forward to when that happens (Smiles).