The Selling Of Osteoporosis

What Midlife Women Should Know About Fosamax, Actonel, Boniva and Other Bisphosphonate Drugs

I'm a midlife woman – and for more years than I'd like to admit, a retail pharmacist. Why do I say that? Because I'm not your garden variety pharmacist. I'm also a certified herbalist. I worked as a U.S. Pharmacopeia researcher compiling herbal monographs, and traveled the country training healthcare professionals about herbal remedies and dietary supplements. I operated a natural pharmacy. And I cured myself of lupus using meditation, diet changes, stress management and supplements.

Yes, I do believe in modern medicine and many of the life-saving, effective drugs I dispense every day. But like many professionals in other fields, I know what goes on behind the scenes and how to interpret data disseminated to the public. The drug industry, like any other, has its shadow side. And my professional position on the front lines has offered me a unique vantage point. I see how drug companies promote their products and what information people are given – and what they understand - about the drugs they're prescribed.

As a pharmacist I'm often the first to spot a trend about drug use, over-use, and even abuse. I get to peek into the prescribing practices of all the docs in the neighborhood - not just the ones next door or the one around the block, but the doctors of each patient who walks through the doors of my pharmacy. And from the over-prescribing of drugs that I've seen, it sometimes makes me ashamed to participate in it. It also makes me angry!

And - especially as it relates to women and osteoporosis – I feel that it's time that I speak up.

In the old days you knew when a pharmaceutical representative was visiting area doctors to promote the benefits of a newly released drug on the market, because of the sudden upswing in sales of the drug. Nowadays drug reps rarely visit doctor's offices. No one has time to spend 30 minutes listening to the rep chatting up drug benefits in between the latest baseball scores. Drug advertising has moved on to a higher stakes game – you, the consumer.

Did you know that since the advent of direct-to consumer (DTC) drug marketing on television, radio, internet and print - pharmaceutical companies now spend 24.4% of their revenue on advertising – compared to just 13.4% for research and development! And for good reason. It's very profitable. In 2000, every $1 they spent on DTC advertising yielded $4.20 in sales.

This handsome return makes it easy to see why ad budgets have exploded, and claims about the benefits of drugs grow more deceptive - as companies spread their net wider to capture consumers for whom a particular drug may not even be suitable.

Bisphosphonate drugs, commonly prescribed to treat osteoporosis, are a case in point.

OSTEOPOROSIS IS BIG BUSINESS

Bisphosphonate drugs, marketed as Fosamax, Boniva, Actonel, and other brands, are a class of drugs with similar actions used to treat osteoporosis and osteopenia. U.S. sales bring in about $8.3 billion a year. Sales of Fosamax alone totaled $2 billion in 2006.

With the baby boomer generation coming of age, pharmaceutical companies are using all of the marketing tools at their disposal to attract women who, at midlife, are just trying to understand their changing hormones, bones and bodies, and to evaluate the relative risks and benefits of various health care options.

In marketing bisphosphonates as a treatment for age-related bone loss, drug companies have designed a comprehensive sales strategy - carefully crafting statistics from clinical trial data, choosing words that show their drugs in the best light, and promoting fear of fractures, and worse, in women with osteoporosis and osteopenia. These tactics make them a poster boy for misleading drug advertising.

What Is Osteoporosis?

To get to the truth behind drug claims, we need to start by understanding what osteoporosis is, what osteopenia is, and how bone density is measured.

Osteoporosis is a progressive disease in which bones lose their mass, become fragile and brittle over time, and more likely to break.

Osteoporosis means “porous bone.” If you look at healthy bone tissue under a microscope, you can see elegantly constructed lattice-like honeycomb formations that give bones their strength. In osteoporosis, the holes and spaces in the honeycomb are much bigger than they are in healthy bone. This means your bones have lost density, or mass, and some strength. **Osteopenia refers to bone mass loss less severe than osteoporosis.** How this is measured is reviewed below.

As women approach their mid forties and early fifties they become more conscious of their health. As part of the natural process of aging, bones begin to gradually lose mass and at menopause it’s often recommended that women, who have one or more risk factors for osteoporosis, get a bone mineral density test (BMD), also known as a DEXA scan, to assess their bone health. It also serves as a useful baseline marker to measure against their norm in later years.

To their very great surprise, many otherwise healthy and active women discover that they have osteopenia. They may even be diagnosed with osteoporosis.

Understanding Bone Density Scores

BMD test results are given as a T-score, indicating how much your bone density is above or below normal. As defined by the National Osteoporosis Foundation, osteopenia is diagnosed as a T-score between -1 and -2.5. Osteoporosis is indicated by a T-score or -2.5 or lower.

- A T-score between +1 and -1 is **normal bone density.** (e.g., T-score 0.8, -0.5 etc.)
- A T-score between -1 and -2.5 shows **osteopenia** (e.g., T-score -1.2, -1.6 or -2.1, etc.)
- A T-score of -2.5 or lower indicates **osteoporosis**. (e.g., T-score -2.8, -3.3, -3.9, etc.)

Once diagnosed with osetopenia or osteoporosis, many women are then given a prescription for Fosamax or another bisphosphonate drug such as Actonel or Boniva, to “reverse their bone loss”, with the assurance that the drug will reduce their chance of hip fracture by 50%.

On the surface this seems like straightforward, good medicine, and a relatively painless and easy solution to allay a real risk. Women feel they’ve made a smart choice, and that they’ve been proactive, doing what they need to do to protect and maintain their heath.

As a pharmacist I have seen this scenario played out many times. But behind this everyday scenario is a well-orchestrated consumer marketing and professional education campaign by for-profit healthcare companies that borders on deceptive, and with the sole purpose of getting their product sold.

THE SELLING OF OSTEOPOROSIS

We are bombarded every day by media headlines suggesting that osteoporosis is occurring in epidemic proportions. Many of these same **news sources suggest that hip fractures are not only associated with osteoporosis, but are their primary cause**, and by assumption therefore, if we treat osteoporosis we have solved the problem. If only it were that simple. Let’s look at the facts.

Osteoporosis is indeed a serious health problem and it is on the rise, along with our aging population. Over 10 million Americans have osteoporosis, and an additional 34 million are at risk due to osteopenia. Of those, 80% are women. But the rate of hip fractures has stabilized, and even decreased slightly, in the last 10 years. The drug companies are attributing the decline -at least in part- to their medications but in reality the reasons for the decline are unclear as no definitive studies have been done. What’s more, osteoporosis is only one risk factor among many for these fractures. So what’s going on here?

It is true that approximately 95% of hip fractures are caused by falls. And osteoporosis can indeed be a contributing factor for a hip fracture - **once you fall**. Obviously, if your bone is porous, you are more likely to fracture a hip if you fall. However **the primary factor in decreasing hip fractures is to prevent falling - not preventing osteoporosis!** Exercises to improve balance, strength and coordination, or perhaps glasses to improve vision would be more appropriate and proportionate responses to preventing hip fractures.

Moreover, with all the tests and drugs available, we still cannot predict who will fracture. **Over half of all women with an osteoporosis-like fractures to the wrist, spine or hip, do not have an “osteoporotic” bone density.** They have either just moderately low bone density, or even normal bone density.

You see how easy it can be to miss the primary cause of hip fractures amidst all of the “noise” linking it to osteoporosis. Instead of educating women on how to avoid falls, the media, carefully fed by pharmaceutical interests, conveniently blur the data, singling out treating osteoporosis as the main strategy to prevent them. Could it be because we have a drug to “fix” it? You might think me cynical, but wait, there’s more.

THE TRUTH BEHIND THE STATISTICS

As Winston Churchill famously used to say “There are lies, there are damn lies, and then there are statistics.

There are 3 things you should know about how drug data is gathered and used to calculate statistics on efficacy, possible harmful or negative side effects, and how the results are communicated to the public and to physicians.

The first thing to know about data on drug statistics is how numbers from clinical trials are massaged and messaged - perfectly legally - to show a drug in the most beneficial light.

Yet, if you don’t understand who and what’s being measured, the resulting numbers are patently misleading. To wit, regarding bisphosphonate drugs:

1. When the manufacturer claims that their bisphosphonate drug can reduce hip fractures in women by up to 50% for Fosamax - 65% for Boniva - they are referring to results of studies showing the **relative risk reduction among women who, as a group, are already highly likely to fracture** before they are selected for the study.

2. Of the 2852 women receiving Fosamax in the 3 year Fracture Intervention Trial (FIT), 71% (2302) were 65 years or older, and 17% (550) were 75 years or older. **All of the women had evidence of at least one prior vertebral fracture.**

And how do manufacturers arrive at their claim of a 50 - 65% reduction of fractures?

3. Of the women in the study, about twice as many (2.2%) in the placebo group - those not receiving the medication – suffer a fracture compared to 1.1% of women taking the drug. Indeed 1.1% is half of 2.2% and therefore the manufacture can advertise that the drug reduces hip fracture by 50%. **This is the relative risk reduction. The absolute risk reduction is 1.1%!** (2.2% minus 1.1%).

To say it another way, **it means that out of 100 women taking Fosamax for 3 years the drug will prevent one woman from getting a fracture, while the other 99 women receive no benefit at all.**
Yet the direct-to-consumer marketing continues to promote a 50% relative risk reduction benefit. Although it is perfectly legal to report results this way, I believe it is dangerously misleading. Women need unambiguous information about the risks and benefits of their options to make sense of what's best for their health.

The second is how data on adverse events is gathered after the clinical trials are completed.

Whenever I tell people about this, their jaws drop an inch. The fact is, once the costly, highly regulated clinical trials, and extensive drug approval process is over, and a drug is released on the market, **reporting of adverse events is primarily voluntary.** Under the FDA’s Medwatch program, both consumers and health professionals can report suspected “unknown” negative side effects via a toll free number or website to the FDA. Yet, as this is not obligatory, **there is no formal process for gathering data on side effects people are experiencing *after* a drug is released to the market.**

To me, this is scandalous. It's easy to see, no matter how rigorous the clinical trial, that the numbers of people on whom the drug is tested is a drop in the ocean compared to the millions to whom the drug will subsequently be prescribed as safe and effective. It's also apparent that pharmaceutical companies have little incentive - in the glaring absence of regulatory pressure - to collect data on adverse events.

The bottom line is that it's very, very difficult to know the true incidence rates of a drug's side effects, or even if they are associated with a drug, if it doesn't appear during the clinical trials.

The third thing you need to know is how drugs are marketed to physicians.

You may be thinking that as a healthy woman in your mid 50s who has never had a fracture, even if statistics are misleading, those clinical trial results aren't really relevant to you in any case. When your doctor receives your baseline DEXA score, he will recommend appropriate options for you. You would naturally think so, but you would be wrong.

Even Doctors Are Misled

It is natural to turn to your doctor, whom you trust, to help you sort out the facts. That's their role. However, you may be surprised to discover that consumers are not the only ones that can be misled by the data. Many doctors and other health care providers can be as confused by the statistics.

It's not that providers are incompetent or careless, or uncaring. But surprisingly, doctors themselves often don't understand the implications of using the 50% relative risk reduction figure., Drug companies capitalize on the frenetic pace of a typical doctor's' busy day by making sure that the real story behind drug benefits are buried in the small print on a website or the advertising glossy. It can be difficult and very time-consuming for a doctor or provider to ferret out the real facts. In the case of bisphosphonates, manufacturers make sure that the stated 50% relative risk reduction rate of fractures remains front and center in their marketing to both professionals and consumers, instead of the **more meaningful 1.1% absolute risk reduction.**

BONE BASICS

It's important to understand that bone is a living organ, like your kidney or heart. Like other functions in the body, bone formation, or bone remodeling, as it's called, is an intricately orchestrated symphony with many instruments. **

Bones are made of millions of cells that are constantly being destroyed and replaced with new cells, called bone metabolism. The process ensures that new healthy bone is continually created and old brittle bone removed to maintain maximum strength and flexibility.

Most of us achieve our maximum bone mass in our early twenties, when more bone is created than removed. The process then stabilizes, and over the next several decades our bone mass gradually declines from peak levels. At menopause, and for 3 to 5 years immediately afterward, bones may lose up to 2% or more a year of their total bone mass.

*** If you do better with visuals, this animated version of bone building created by Dr. Susan Ott is helpful: http://courses.washington.edu/bonephys/opmovies.html (It is the first video, titled "Remodeling").*

Bisphosphonates Interrupt the Bone Formation Cycle

Bisphosphonates basically work by interrupting the natural remodeling cycle of bone. They dramatically **reduce bone loss by doing away with 'destroyer' cells** that break down worn-out bone cells. By inhibiting the natural clearing out of old bone cells, existing bone stays put for much longer than usual. In addition**, the drugs actually become incorporated in the architecture of the bone, like bolts in a building.**

But the story doesn't end there.

During the first year of taking the drug, new bone is put down on top of the old bone. But, after six months to a year, this process also stops. Virtually no new bone cells are formed and no old bone cells are cleared away. Bone cells are neither being created nor destroyed. **After one year, bone remodeling comes to a virtual standstill.**

I'm sure we have all heard Sally Fields promoting the benefits of Boniva – that it "reverses" bone loss and "after 1 year on Boniva 9 out of 10 women have improved bone density." Well, it depends on how you define "reverse" of course, and "improved" for that matter. And of course the ad entirely neglects to mention what happens after the second year – that ***bone remodeling stops.***

So what *is* happening? Good question.

According to findings from studies done by Dr Susan Ott and others, bones of patients taking bisphosphonate drugs are denser than normal bone. And since they contain less water and more minerals, they appear much more dense in bone mineral density (BMD) tests. But **questions about the quality and strength of the bone have not been answered.**

In spite of these findings, the manufacturers contend that bone formed with bisphosphonates is normal. Considering some of the more serious bone related side effects that are surfacing in probable association with these drugs, I am wary of the manufacturer's conclusions.

Do Bisphosphonates "Reverse Bone Loss"?

Just a last word, before I describe reported side effects, about manufacturers' claims that the drugs "reverse bone loss," They have been clever in choosing the words to describe the drug's benefits. When consumers hear "reverse bone loss" on TV, or see it in marketing materials, they naturally assume that the drugs are *rebuilding* bone. And it sounds great, doesn't it? Just what they're looking for.

I believe however, that **a better description of what these drugs do is "stop bone loss"** rather than reverse bone loss, particularly after the first year of taking them.

WARNING

INCREASING EVIDENCE OF SERIOUS SIDE EFFECTS

As with almost any drug, bisphosphonates do have known side effects. Upper GI tract disturbances and musculoskeletal pain are among those listed on the label.

These well-documented side effects appeared during clinical trials and continue to be reported. Although generally considered mild to moderate, they can be problematic for many women. **Abdominal pain, nausea, constipation and reflux** occur in approximately 3-6% of women with varying degrees of severity. To avoid GI tract symptoms, specific dosing instructions, i.e., drinking at least 8 oz of water, remaining upright and not eating for at least 30 to 60 minutes after taking, should be followed.

Another side effect less known by the public is musculoskeletal pain. **Mild to severe joint, bone and muscle pain** were reported by about 4% of patients. Time of onset could be one day to several months after starting the drug. In my experience it is often painful enough to cause women to discontinue taking the drug, though unfortunately the pain may continue long after women stop taking it.

Osteonecrosis of the Jaw (ONJ)

ONJ is a serious disease of the jawbone that results in damage, and even death (necrosis) of bone, caused by reduced local blood supply. Estimates of ONJ in patients taking bisphosphonates range from 1 in 1000 to 1 in 100,000 of people taking the drug. Though in itself problematic and painful, the most severe cases of ONJ may require surgical removal of the affected bone.

Currently the evidence seems to point to cancer patients as those at highest risk. As discussed above, it's difficult to know the true incident rates because of how side effects are reported. Since cancer patients as a group are usually followed more closely and seen more often by physicians than the general population, side effects are more effectively tracked and reported. Further Merck, the maker of Fosamax and other bisphosphonate manufacturers, **claim there is no hard evidence that the drugs even cause ONJ** at doses used for osteoporosis. Yet the following piece of information comes directly from the professional package insert of Fosamax:

> ***Dental Precautions:*** *Osteonecrosis of the jaw, generally associated with tooth extraction and/or local infection, often with delayed healing, has been reported in patients taking bisphosphonates. Most reported cases of bisphosphonate-associated osteonecrosis have been in cancer patients treated with intravenous bisphosphonates, but some have occurred in patients with postmenopausal osteoporosis. Known risk factors for osteonecrosis include a diagnosis of cancer, concomitant therapies (e.g., chemotherapy, radiotherapy, corticosteroids), poor oral hygiene, and co-morbid disorders (e.g., pre-existing dental disease, anemia, coagulopathy, infection). Patients who develop osteonecrosis of the jaw (ONJ) while on bisphosphonate therapy should receive care by an oral surgeon. Dental surgery may exacerbate the condition. For patients requiring dental procedures, there are no data available to suggest whether discontinuation of bisphosphonates treatment reduces the risk for*

ONJ. Clinical judgment of the treating physician should guide the management plan of each patient based on individual benefit/risk assessment.

Even so, most dentists today are leery of doing invasive dental work on women taking bisphosphonates. Hundreds of lawsuits allege that the drugs cause this condition. Recently, the first case to be tried in federal court relating ONJ to the use of bisphosphonates resulted in a hung jury.

Spontaneous Fractures

A second very serious side effect potentially attributable to bisphosphonate use is just beginning to be reported. Spontaneous fractures of the femur (thigh bone) are thus far rare, and appear to be associated with long-term use of the drug, more than 5 years. The fractures appear suddenly and are not caused by a fall, but could occur during normal activity like walking across a room or standing.

These two bone-related side effects may be associated with the quality of the bone that is formed when bisphosphonates are taken up into the bone matrix. Further these drugs have an indefinite half life, meaning it takes years for them to get out of your system long after you have stopped taking them. This is a very controversial issue and obviously the manufacturers come down on the side that the bone is normal but as I pointed out earlier there is some evidence to the contrary. It will still be some time before it is entirely clear.

Report Your Side Effects

In the meantime, I encourage all women to report any side effects that they have experienced while taking these drugs to the Medwatch program. You can call 1-800-FDA-1088, or report them to www.fda.gov/medwatch. As I mentioned earlier once a drug is marketed to the public voluntary reporting is the only way adverse events are tracked outside of a clinical trial and therefore it can take a very long time for serious side effects to be definitively associated with a drug.

HOW DO YOU DECIDE WHAT TO DO?

Osteoporosis is not entirely reversible but there are many things you can do to improve bone density and bone health. Every decision about a treatment modality should be customized to your individual circumstances. Know what your options are. Evaluate the benefits and risks of a particular alternative and then weigh them against the risks of the disease itself.

There are many risk factors that contribute to the development of osteoporosis. Some are preventable, and some are genetic in origin. There are also many ways in which women can build and maintain healthy bones and prevent falls. Dietary changes and an exercise program both strengthen bone and muscle, and go a long way towards reducing your risk of falling, and possible fracture.

Steps you can take

1. **Assess your risk.** Unfortunately this is easier said than done but there are some factors that we know increase your risk. If you have a family history your chances of developing osteoporosis are significantly greater.

    - Osteoporosis has a strong genetic component to it. Do you have a family history of close female relatives with osteoporosis and serious hip or spine fractures?
    - Are you a smoker or consume more than 2 or 3 alcoholic beverages per day?
    - Do you take certain medications such as steroids, benzodiazepines (Valium, Librium, Ativan) or thyroid drugs such as Synthroid?
    - Do you drink a lot of coffee or colas- more than 2- 8oz cups of coffee or 5 cans of cola per day?
    - Are you fair skinned and blue eyed with blonde or red hair?
    - Are you tall or quite thin, or have a slight build and/or less than 18 percent body fat?
    - Have you had at least two consecutive bone density tests at least six months apart, done on the same machine, that reported below-normal scores for your age?
    - Do you spend little time out in the sun, or have a poor diet with few fruit and vegetables?
    - Do you have a history of amenorrhea (absence of periods) or premature menopause?

2. **Educate yourself about the range of options for building strong bones**. If you don't know where to look or what information to trust, start by visiting our shop at www.aheadofthecurveatmidlife.com. In the healthy bone section you will find books about osteoporosis – you may be surprised to learn that osteoporosis is not just a calcium deficiency disease. You will also find recommended CDs and DVDs on yoga and exercise specifically designed to build strong bones. We also recommend supplements and simple exercise equipment to enhance bone building and maintenance. Take a look at our Bone Health Page for further reading and additional information

3. **Honestly assess the lifestyle changes - and trade-offs - you are willing to make.** If you are a sedentary person, are you really going to exercise on a regular basis? If you don't like fruits and vegetables can you make the necessary dietary changes? If the answer is a resounding no, then you probably should consider taking medication- particularly if your risk factors are high. 90% of women taking these drugs have very few or minor side effects. However, the long term negative effects that may be associated with the way the drug is incorporated into the bone are still an unknown as noted above.

4. **Master the essentials –** Learn about a drug-free and natural way to prevent – or even reverse- osteoporosis and osteopenia without side effects in our exclusive program *"Women Doing It For Themselves- 8 Steps To Building Strong Bones For Lifelong Vitality"*

I hope this information has been useful in helping guide your health care choices. My intention is not to raise a rallying cry against modern medicine. Without certain drugs, many people would live compromised lives, or even die. However, they aren't a panacea to perfect health – no matter how much we'd like them to be.

At some point we're going to have come to terms with the fact that as we age, to live our healthiest lives in most cases will require more than just swallowing a pill. We'll have to

change the way we live.

I strongly encourage you to take control of your choices, and to actively participate in evaluating and making the decisions that will affect your long-term health and well-being. For some women, taking bisphosphonates is the right choice; for others it may not be.

Regardless of whether you decide to take medication for your osteoporosis or not, follow the 2004 Surgeon General's guidelines: Begin a program of prevention that includes regular weight-bearing exercise, healthy nutrition, and improve your coordination and balance to prevent falls. You might find our *"8 Steps to Building Bones"* program a good place to start.

To your health!
Jennifer

P.S. If you found the information in this report informative and useful, please watch for our monthly newsletter to arrive in your e-mail box from www.aheadofthecurveatmidlife.com. And meanwhile, visit our site for more timely health information and useful resources on all aspects of a woman's life and health at midlife and beyond.

Jennifer Montgomery has been a pharmacist for over 25 years concentrating on women's health issues. Not long ago she made the decision to step out from behind the dispensing counter and take the time to help patients sort out the drug hype from the truth and expose the shadow side of drug marketing in an honest light, enabling patients to make important decisions about their health care.