Do Your Drugs Really Work?

By Steve Lankford

It's not what we don't know that bothers me. It's what we think we know that ain't so! This is one of my favorite sayings and it really applies to this subject. I think you may be surprised by what you think is so regarding drug therapy, that really ain't so.

Most consumers assume that the medications they are taking are providing them benefit. They may not be happy about the side effects, but they are none the less, confident enough that the drugs are necessary to continue taking them. Consumers are also afraid not to take prescribed medications. Consumers are bombarded with advertising messages, and these messages are reinforced by the doctors, that drugs are beneficial for most people who take them. Even so, many consumers harbor suspicions that we are over medicated.

The dirty little secret is that many prescribed medication have a very low percentage of effectiveness. Much of the research actually shows the low levels of effectiveness. However the reported results are couched in such terms as to make the drugs seem more effective than they are. In this article I will teach you how to evaluate the effectiveness of drugs. I will use a popular statin drug as an example. What I am about to reveal to you is well known by the researchers who study drugs. Whether it is a well understood by doctors, I don't know, but I feel that doctors should know this and should be held accountable for the drugs they prescribe.

After knowing how to evaluate the effectiveness it may make you more cautious before using some drugs and if you are already on a drug that has a low percentage of effectiveness you may want to reconsider your options. In all cases discuss these issues with your doctor. Your doctor should be willing to reconsider your concerns especially if you are well informed of the risks.

Let's use the drug Lipitor and let's discuss how to evaluate the risk. Lipitor advertising in the big print says "Lipitor reduces the risk of heart attack by 36%…*in patients with multiple risk factors for heart disease*.*" This is the headline that sounds so impressive. But the truth is found in the small print. The dramatic 36% figure has an asterisk. It says "That means in a large clinical study, 3% of the patients taking a sugar pill had a heart attack compared to 2% of the patients taking Lipitor." This study lasted 3 1/3 years.

In order to understand what this means we have to do a little math and then you will be able use this information in your decision making. The mathematical formulas are standard research formulas and you can often find these results with a little searching on the internet. Using Lipitor as an example, hopefully you will understand the progression.

Relative Risk% (RR)

Relative Risk formula is: Event rate of the drug divided by the event rate of the placebo.

In the Lipitor example above the event rate is the number of heart attacks. In the Lipitor group 2 out of 100 (2%) had heart attacks. The event rate is 2. In the placebo group, 3 out of 100 (3%) had heart attacks. The event rate is 3. Therefore the Relative Risk (RR) for Lipitor is 2 divided by 3 or 66%.

Relative Risk Reduction% (RRR)

The Relative Risk Reduction is simply 100% minus the RR%. In our Lipitor example RRR = 100% - 66% = 34%. So this is where the dramatic figure for Lipitor is derived. But we must go further to see how this effect the average person. The RRR is only the difference between those who had heart attacks. It does not tells us the risk reduction for those who did not have heart attacks. Remember 100 people had to take the Lipitor for over 3 years to reduce the number of heart attacks from 3 to 2.

Absolute Risk Reduction% (ARR)

The Absolute Risk Reduction is the percentage of how many people will actually benefit from taking the drug. The ARR is calculated as Event Rate Percentage of the Placebo minus the Event Rate Percentage of the Drug. In our example 3% had heart attacks on placebo and 2% had heart attacks on the drug. Therefore the ARR = 3%-2% = 1%. This means that 1 person in 100 will actually be benefited by the drug. And this leads to our last formula.

Number Needed to Treat (NNT)

Number Needed to Treat reveals how many people will need to take a particular drug in order to benefit one person. This NNT is calculated as 100 divided by the ARR. For Lipitor the NNT = 100 divided by 1 = 100. This means that 100 people must be treated with Lipitor to prevent 1 person from having a heart attack.

And do not forget that this was a reduction in people who already had heart attacks. If you are a healthy person, then statin therapy **Has Not Been Shown To Reduce Your Risk of Heart Disease of Heart Attacks**. Studies show that for healthy people with elevated LDL cholesterol, there is no statistical difference in the number of heart attacks in those that took statin drugs and those who did nothing. Lipitor states in it's own literature the following "LIPITOR has not been shown to prevent heart disease or heart attacks."

So basically the case is this with Lipitor. If you are healthy and you take Lipitor there is a 1% chance that it will help you. There is a 99% chance that you will do just as well if you don't take the drug. In addition, there is the

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cost of Lipitor at over $1000 per year and the risk of side effects are many and affect many users.

So there are perhaps millions of consumers that take Lipitor to lower their LDL cholesterol because they are afraid that high cholesterol is a sign of impending and sure doom. This is surely not the case, but it is most certainly the prevailing thought amongst doctors and consumers. Lowering cholesterol by the use of statin drugs in healthy people is simply not good medicine.

Let me restate here, that statins have been shown slightly beneficial in people who have had previous heart attacks. If you are under a doctor's care, please discuss these issues prior to making any changes.

Emerging medical thinking is now just starting to suggest that it is the inflammation that is a better predictor of risk than LDL cholesterol. Suffice to say that nutritional support is one of the most important things you can do to improve your cardiac function. You can learn more by listening to interviews with nutritional experts at www.healthquestpodcast.com.

Now back to a more general discussion of the Absolute Risk Reduction (ARR) and the Number Needed to Treat (NNT). These are the most useful benchmarks. The ARR tells us the percentage of people who had better outcomes and the NNT tells us how many people must take a drug to benefit 1 person. So you want the ARR to be high and the NNT to be low.

If the ARR is 100 then 100% of the people had better outcomes. If the ARR is 10, then 10% of the people had better outcomes. If the ARR is .5 then only one half of one percent of the users had better outcomes. You want the ARR to be higher.

In the case of NNT, you want the NNT to be lower. If 100 people take a drug and 100 people get benefit, then the NNT is 1 (100/100=1). If 100 people take a drug and 20 people get benefit the NNT is 5. (100/20=5). If 100 people take the drug and 1 person benefits then the NNT is 1 (100/1=1). This is where statins perform. You can find these numbers with a little research on the internet.

Let me give you a few other examples of other popular drug therapies:
ACE inhibitors for congestive heart failure – ARR=10.2 and NNT = 10
Simvistatin for elevated cholesterol in patients with coronary heart disease – ARR = 8.4 and NNT = 12.
Aspirin in healthy male physicians, total myocardial infarction – ARR = .9 and NNT = 111.

Come to find out, many common drug therapies are just not that effective.

Some researchers have suggest that anything with an NNT over 50 is like the lottery. One person will win but most will not. If many of the common drugs we take will only benefit a small percentage of users, what are we to do? How do we evaluate whether we are more at risk or less at risk? If you are going to consider not using a drug prescribe by your doctor, you need to know if you are taking a huge risk or maybe just a very modest risk. There is where it becomes important to evaluate other risk factors in your life. Do you smoke? Do you eat a healthy diet? And so on. The less risk factors you have the better your odds. The worse your lifestyle and history the greater the challenge. But to think that drugs are always necessary is a fallacy.

I think it is a huge disservice to consumers for doctor's to continue to prescribe more and more pharmaceutical drugs without regard to and informing patients of the actual benefit. Consumers expect doctor's to prescribes drugs that are safe and effective. With the side effects of common medications and the apparently low levels of effectiveness many consumers would opt out of these drug treatments if they only had the information presented in an understandable format. Is this a deliberate attempt to keep consumers in the dark and confused? I don't know. You be the judge.

Here is a list of some of the most popular medications and the estimated NNT. Lower is better.

Lyrica: NNT = 10
Antibiotics for Sinusitis: NNT = 15
Warfarin to prevent strokes: NNT = 25
Warfarin to prevent heart attacks: NNT = 43
Nexium: NNT =50
Fosamax: NNT = 50
Crestor/Lipitor: NNT = 100
Blood Pressure Drugs: NNT = 140
Aspirin for Cardiac Prevention: NNT = 1667 to 3000

You can find the NNT for many medications simply by searching the terms "NNT for (drug name). Here is one reference sites:
thennt.com
There are many others.

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