

The Tuesday Minute

Nutritional information.... one byte at a time

This Week's Topic

How To Turn Down Inflammation Amplifying Effects of NF-kappaB

We all know the trite saying, “You are what you eat.” But if we look a little closer, the saying becomes even more telling. As clinicians we sometimes forget the profound effects food and nutrients have upon our genes. Genes are like bullets in a gun, but it is our environment that pulls the trigger. The result can be health or disease.

Let's look at a factor that has been documented in the literature called NF-kappaB which has the potential to affect inflammation at the genetic level. Inhibition of NF-kappaB is indicated in the treatment and prevention of a wide range of illnesses including cancer, arthritis, autoimmune conditions, and neurological illnesses such as Alzheimer's, Parkinson's, inflammatory bowel disease, and asthma.

In terms of nutrition and wellness, the NF-kappaB story is headline news and we can make major shifts in how it operates by diet and lifestyle. Sometimes inflammation can play a chemical role; sometimes it can affect our enzymes; and sometimes it can involve our nervous system, but NF-kappaB affects our genes which can then affect chemical, enzymatic, neurological and much more “global deleterious” effects on our body.

NF-kappaB acts like an “amplifier” and has the ability to increase or decrease what I call our baseline inflammatory state. If we were to create

an imaginary scale where 1 was a low level of inflammation and 10 was highly inflammatory, everyone has a baseline based on our life style and diet. That means day in and day out we hover around some number. As we live our lives, inflammation increases or decreases around that arbitrary number.

Bear with me for a second as I make a point. What if we are living at a state of 8 and have a minor injury? Wow, all of a sudden it's a serious event. But if we are living at a level 2 and have the same injury, our body has the resources to take it in stride. You might be sore for a day or two, but that's the extent of it. How does diet affect NF-kappaB? Let me give you an example: a normal breakfast sandwich of sausage and fried eggs with hash browns, increase NF-kappaB by 150% and keeps it elevated for several hours.

I know people who live on processed foods, loaded with synthetic chemicals and hydrogenated plasticizing fat. These stressors force their body into a genetically chronic inflammatory state. We hear words like leukotrienes, COX 2, and LIPOX on the commercials and are told to take drugs to reduce them. We can reduce them naturally by reducing NF-kappaB.

Let's see how NF-kappaB works, and then what we can do about it. First of all, NF-kappaB is a harmless molecule inside the cytosol of the cell

that has to become activated to stimulate the production of inflammatory chemicals that promote pain, inflammation, and disease. There is a natural inhibitor in the cytosol, which keeps NF-kappaB in the inactive state called inhibitor KappaB (IκB). Exposure to “stressful stimuli” activates “inhibitory kappaB kinase” which phosphorylates IκB for destruction. Once IκB is destroyed then NF-kappaB is free to bind with DNA.

NF-kappaB enters the nucleus and binds with DNA to activate genes which encode for the increased production of inflammatory mediators. The increased production of inflammatory mediators - such as cytokines, prostaglandins, leukotrienes - promote cellular dysfunction and tissue destruction. Environmental factors which pull the trigger to fire these DNA bullets are a number of common stimuli like stress, poor diet, injury, infection, food allergies, and bacterial overgrowth in the gut to mention a few.

Dr. Alex Vasquez wrote a great paper that is thoroughly referenced that goes into the exact mechanisms and lists specific cytokines and enzymes that are affected. I have included a link for your further reading on the web page. When you download it for your files you will have all the evidence you need if your colleagues or patients question your judgment.

In his paper, Dr. Vasquez lists several things in our diet that can turn down the amplifying effects of NF-kappaB. Spices like ginger, turmeric, garlic, red chili, basil, rosemary, fennel, anise, cilantro, and cloves. Also nutrients like magnesium and selenium, fish oils, flax seed oil, our old friend vitamin D, vitamin E and

Coenzyme Q. He also lists some high tech supplements and has requested that Biotics Research put them into a formula called KappArest.

This formula utilizes herbs like turmeric, ginger, boswellia, propolis, green tea extract, rosemary extract, celery seed extract, resveratrol, alpha lipoic acid, phytolens, and peperine. Most clinicians are not aware that turmeric or the curcunoids present in turmeric are not bio-available in humans. It works great with animal models, but less in humans due to low absorption. Dr Vasquez and Biotics Research added peperine to increase the uptake and utilization of the curcumin, as well as the other phytonutrients.

This formula is taken, 4 capsules three times per day. As the inflammation is reduced, encourage the patient to titrate the dose appropriately. KappArest also has a calming effect on the immune system; so patients with auto-immune conditions report a greater sense of well being and reduced symptoms.

In summary, inhibition of NF-kappaB should be considered in the treatment but especially in the prevention of a wide range of illnesses. So we want to take an active role. Encourage your patients to eat a greater percent of their diet from plants, take core nutrients and essential fatty acids to support genetic pathways, and consider using phytonutrients like KappArest. These changes in diet and life style can make a major difference.

Thanks for reading. I'll see you next Tuesday.