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Cholesterol (Part 2)

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Cholesterol Oxidation

A preceeding newsletter on cholesterol pointed out that there is little evidence that ingestion of cholesterol plays a major role in the development of heart disease unless this cholesterol is oxidized.

Prevention of cholesterol oxidation is a very important topic. Foods containing highly oxidized cholesterol should be avoided as much as possible. Highly oxidized foods include powdered eggs, aged cheeses, and foods which contain cholesterol which have been highly heated or allowed to be exposed to oxygen for long periods of time. Fresh foods do not contain oxidized cholesterol.

Cholesterol can also oxidize within the body. This is where an individual's antioxidant intake becomes important. Supplements which would tend to prevent cholesterol oxidation in the circulatory system would include Carotenoid Complex, Vitamin E Complex, Super C, and Betagard. Just one of these supplements, Carotenoid Complex, was shown to increase antioxidants in cholesterol five-fold. That is powerful protection against heart disease.

The Cholesterol Pathway

A fuller understanding of the cholesterol synthesis pathway will help us understand why statin medications appear to provide some benefits in heart disease apart from their cholesterol lowering activity. Understanding this pathway also shines a light into some of the side-effects which have been widely reported and experienced with the use of cholesterol lowering medications.

Cholesterol is one of the most important molecules found in the body and plays an important role in health and disease. The molecule is so important that if there is an inadequate supply for bodily needs the body will manufacture cholesterol.

An enzyme called HMG-CoA reductase is involved with cholesterol synthesis. The biochemical pathway involved in cholesterol synthesis is known as the mevalonic pathway. Downstream metabolites of this pathway include seleno-protein, nuclear factor-kappa B, tau protein, dolichol, CoQ10, and cholesterol.

" Research biochemists soon identified the HMG-CoA reductase step as a natural control point for cholesterol synthesis since the reaction was not reversible and it was the slowest step of the entire cholesterol pathway.... This enzyme was quite easily inhibited and suddenly a multibillion-dollar industry was born with the development of the HMG-CoA reductase inhibitors known as the statin drugs."

In considering the implications of blocking cholesterol synthesis one must consider the effects of altering all of these downstream metabolites of the mevalonic pathway. Potential damage will be associated with the strength of the medication used.

Reference:

Graveline, Duane, *The Statin Damage Crisis*, 2009, 17-18.

Duane Graveline

His name contains the word grave and Duane Graveline, M.D., M.P.H., has written extensively on the damage statin medications are capable of causing. Graveline is a retired family doctor and a former USAF flight surgeon and former NASA astronaut.

In 1999 when Dr. Graveline began Lipitor® he lived on the side of a mountain in Vermont. Climbing that mountain was almost a daily event. He also cut and split his own firewood and did odd jobs for neighbors.

Graveline began his cholesterol lowering medication after an exami-

nation at Johnson Space Center revealed that his cholesterol was trending upward. Six weeks after he began the medication he developed transient global amnesia for six hours. Since the new medicine was the only change in his life the doctor in him immediately suspected a side-effect of the drug. The examining doctors protested that statin drugs could not do this, but Graveline discontinued the drug anyway.

A year passed without incident. He then underwent another astronaut physical and his NASA doctors insisted he should resume his statin medication as his cholesterol was elevated and the amnesia he had experienced was not a side-effect of statin drugs. Graveline reluctantly resumed his statin medication at half the previous dose.

Six weeks later he again developed amnesia, this time for twelve hours. Graveline lost all memory back to his high school days. He had no awareness of his marriage or children, his medical school days, his ten years as a USAF flight surgeon, or his selection as a NASA scientist. Graveline writes, "Fortunately, and typically for this obscure condition, my memory returned spontaneously and again I drove home listening to my wife's amazing tale of how my day (and hers) had gone."

The memory loss was only temporary, but Graveline developed other problems. Within just a few years he had developed an ALS-like condition. His neurologist strongly suspected mitochondrial mutation secondary to statin use. He became a "doddering old man with withered limbs." He needed a walker to be able to get from one place to another.

In 2009 Graveline began a heavy supplement program which emphasized antioxidants and quality lipids. Within a month he was much improved and replaced his walker with a walking stick.

Dr. Graveline's experience demonstrates the wide spectrum of difficulties which can be generated by excessive suppression of the body's cholesterol synthesis pathway. This is worth noting because pharmaceutical firms have pushed to lower the norms for cholesterol in order to increase sales of statin medications. One medical report written in 2002 after new guidelines states, "According to the new guidelines, the number of patients with cholesterol levels that can be classified as abnormal has now tripled."

We can now proceed to a discussion of the many and varied changes which can take place within the body when the synthesis of cholesterol is blocked by statin medications. Not all these changes will be noted in every statin user.

REFERENCES:

Graveline, Duane, *The Statin Damage Crisis*, 2009, 40-41, 139-166.

Safeer, Richar S., and Ugalat, Prabha S., Cholesterol treatment guidelines update, *American Family Physician*, 2002; 65(5), 871.

Nuclear Factor-Kappa B

NF-Kappa B is the bedrock or foundation of inflammation in the human body. We now know that statin medications produce their benefits with reduction of the risk of heart disease due to their anti-inflammatory effects. One of the primary means by which statins have their anti-inflammatory activity is reduction of NF Kappa-B levels. It is important to realize that there are other means of specifically lowering this substance without depressing other compounds dependent upon the HMG-CoA reductase pathway.

The most effective means of reducing inflammation in the body is by increasing the omega-3 fatty acid intake and by decreasing intake of the omega-6 family of fats. GNLD Salmon Oil Plus is a state of the art salmon oil product which is tested for over 160 different pollutants. It is standardized to all 8 of the master molecules of the omega-3 family rather than just one or two as is common with fish oil products.

Salmon Oil Plus is also manufactured with a molecular differentiation technology which allows the removal of rancidity and fish taste and makes possible a much smaller capsule than comparable products. This means less burping of fish oil and capsules that are easier to swallow.

REFERENCE:

Graveline, Duane, *The Statin Damage Crisis*, 2009, 55.

Mood

The observation of a link between low cholesterol levels and irritability and aggression was made before the widespread use of statin medications. Cholesterol reduction by dietary means resulted in increased aggression in primates and low central serotonin which is associated with violence.

Golomb and coworkers studied six patients with irritability and short temper. This study does not attempt to determine the frequency of mood problems associated with statins. Among this group of individuals personality disruption resulting from statin use was clear and severe. Improvement did not take place until statin drugs were discontinued. Personality discruptions reappeared when patients were rechallenged with statins.

Patient 1 was a 63 year old male who was normally even-tempered and mild. During statin use, he noted pent up tension and "wanted to kill someone." He damaged property while on the medications. He noted that if he had been married he would have become a widower. Symptoms developed within 2 weeks.

Patient 2 was a 59 year old married male. He developed irritability and quick temper while on statins. Twice he developed homicidal impulses toward his wife. Symptoms resolved 6 weeks after discontinuing the drugs.

Patient 3 was a 76-year-old female who became extremely irritable and short tempered after 3 days on statins. The personality change resolved 3 days after discontinuing the medication.

Patient 4 was a 46-year-old female who developed extreme irritability 6 weeks after beginning statin medications. She treated her husband very badly. Symptoms resolved 6 weeks after discontinuing the medication.

Patient 5 was a 59-year-old diabetic male who developed such a bad road rage that he had to discontinue driving. His wife became afraid of him because he became violent for no reason. The temperament was restored to normal 2 weeks after discontinuing treatment.

Patient 6 was a 45-year-old male who developed quick temper and road rage while on statins.

Changes in mood would not typically be expected to be a consequence of use of statin medications. For this reason, both doctors and users would tend to associate behavior changes with other factors.

These changes were extreme, but one wonders how many users of statin medications experience less severe personality changes.

Duane Graveline suggests that mood changes resulting from statin use are associated with inhibition of dicholol. Dicholol plays a role in the synthesis of a number of compounds involved in our functions of thought, sensation and emotion. It is one of the key engines involved in the synthesis of chemicals which are involved in intracellular communication and immune defense. Statin medications inhibit dicholol to the same degree that cholesterol synthesis is inhibited. The consequences of this inhibition are unknown.

REFERENCE:

Golomb, B.A., et al, Severe irritability associated with statin cholesterol-lowering drugs, *Q J Med* 2004; 97:229-235.

http://www.bmj.com/cgi/eletters/335/7614/285

Memory

Duane Graveline is only one of many who can testify to the loss of memory as a result of use of statin medications. Over 1,000 cases of amnesia and memory loss have been reported to the FDA from Lipitor® alone.

Neurons, the cells that make up the brain, meet and communicate at junctions called synapses. Researchers have now learned that special cells in the brain called astrocytes produce cholesterol which is taken up by the neurons and then regulates the formation of synapses. This was unknown until 2001.

Inhibition of cholesterol synthesis has profound implications for brain function. Inhibition of cholesterol synthesis by statin medications is not limited to synthesis in the liver—it is a universal inhibition with potentially damaging short or long term effects on the brain.

Research by Muldoon and associates found that a statin medication deteriorated attention and psychomotor speed on their entire range of test subjects. They suggest that this diminuition of brain function could have effects on complicated tasks such as automobile driving which requires sustained attention and speed and accuracy of brain and muscle coordination. Muldoon suggests that cognitive impairment is detectable in 100% of statin users if sufficiently sensitive testing is done.

REFERENCES:

Graveline, Duane, The Statin Damage Crisis, 2009, 41, cover.

Barres, B.A., and Smith, S.J., Cholesterol--Making or breaking the synapse, Science 294 (5545 (5545).

Pfrieger, F., Brain researcher discovers bright side of ill-famed molecule. Science, 9 November, 2001.

Graveline, Duane, The Statin Damage Crisis, 2009, 39-41.

Muldoon, Matthew F., et al, Effects of Lovastatin on cognitive function and psychological well-being, Am J Med. 2000;108:538-547.

CoQ10

One of the downstream metabolites of the cholesterol synthesis pathway is a powerful antioxidant called Coenzyme Q10 or CoQ10.Statin drugs can inhibit synthesis by as much as 50%.

CoQ10 is found primarily in the mitochondria, the part of the cell where energy is produced. CoQ10 is central to the production of 95% of the body's energy and is most abundant in the parts of the body with the highest energy requirements, the heart and the liver.

Inadequate synthesis of CoQ10 in the heart muscle can result in heart failure (cardiomyopathy and congestive heart failure).

Excessive inhibition of CoQ10 is believed to contribute to a well-known side-effect of statin drug use—rhabdomyolysis. This is a condition in which muscle cell walls break down and release a compound which blocks the kidney tubules which can be lethal.

Less severe, but much more common, are vague muscle aches and pains from myopathy. Many statin users adjust their dosage to minimize this side-effect.

CoQ10 prevents free radical generation and inflammation in the process of energy production. Pain in

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the muscles is an indication that the mitochondria are being damaged or destroyed in the process of energy production. CoQ10 is also essential for formation of elastin and collagen, essential building blocks for healthy tissue. Not only muscles, but also tendons and ligaments can experience inflammation and damage if inadequate quantities of CoQ10 are available.

The inhibition of CoQ10 synthesis is such a well-known side-effect of statin medications that the pharmaceutical firm Merck obtained a patent for a combination of CoQ10 with statins, but never proceeded to produce the product.

Graveline notes that damage to the mitochondria from lack of CoQ10 can become a progressive irreversible condition. Graveline himself deteriorated much more rapidly than the average user of statin medications. He wrote, "The feeling of weakness and easy fatigability of legs and low back made me cringe at the idea of exercise. Graveline comments, "...think of the number of cases that successfully masquerade as aging and thereby escape detection."

REFERENCES:

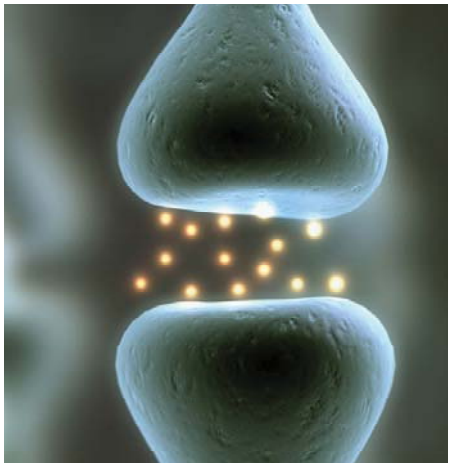
Graveline, Duane, *The Statin Damage Crisis*, 2009, 46-48, 95, 161-166.

CONCLUSION

Space does not permit a discussion of some of the other potential consequences of inhibition of this important metabolic pathway. Graveline suggests that interference with selenoprotein by blocking the mevalonate pathway may contribute to myopathies and cognitive dysfunction.

Tau protein synthesis is also up-regulated by statin medications. Tau protein accumulates in the neurofibrilatory tangles common in Alzheimer's and other neurodegenerative diseases.

Most medications have potential harmful effects. Unfortunately, the "sale" of the value of low cholesterol levels and the value of cholesterol lowering medications tends to ignore and minimize potential side-effects to such an extent that these problems are often not recognized by either physicians or patients.



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