Genetic testing and Methylation.

I know, the title doesn't sound good. As a self confessed biochemistry geek I'm going to risk talking about some very important information for anyone with fatigue, depression, anxiety, decreased memory or dementia, any neurologic problem, high blood pressure or cardiovascular disease, imbalances of bacteria in the gut, reactions to food and poor absorption of nutrients. That might just be about all of us – at least these are very common problems that we work on solving every day.

We heard that once the human genome was known we would have cures for many genetic diseases. Things are a little more complicated than that. Think of the body's biochemical processes as the roads of a city and an abnormal gene as an accident with cars piling up. Knowing an individuals combination of accidents or roadblocks allows us to make a plan for rerouting the traffic so everything can run smoothly. In our case so we want to keep our biochemistry running smoothly. When our biochemistry does not run smoothly we age faster and we have increased inflammation leading to most chronic problems. We basically cannot take the body's garbage out and we know that's not good!

I recently had a very useful genetic test done myself by 23andme.com. and have seen several results from patients. This can be ordered by yourself online for around $200. They do an excellent job of counseling about what information you will receive. The focus

is on the genes for detoxification and methylation which we will talk more about. This information about your individual genetic roadblocks helps us know how to advise you to change your diet and exactly which supplements should be added (and for some people, in what order they should be added!). Many people have asked us why we use supplements so much and it is because most people have these roadblocks where the body does not function properly. If an abnormal gene is the cause there is no cure but we can help the enzymes the gene codes for to work optimally by giving it more than the usual amount of it's co-factors – vitamins and minerals. We use additional antioxidants as well as they help decrease the inflammation and aging changes. We also work with chronic digestive problems which can cause poor absorption of nutrients. A healthy diet with good absorption of nutrients and exercise actually help genes function at their best and "turns off" or regulates genes properly to decrease cancer and autoimmune disease. With diet, supplements and lifestyle we have some very important tools.
Lets focus on a very important category of genetic problem. In current studies it is estimated that 40% of Americans have methylation defects.

So what is methylation anyway?
Methyl groups are the body's messengers, movers and shakers. Each methyl group consists of a carbon atom bonded to three hydrogen atoms (CH_3). This leaves the methyl group with one more available bond that constantly attaches to and detaches from other

molecules in the process known as methylation. It is their ability to change one molecule into another and actually cause our biochemistry to function that makes them so important. They can actually turn genes on or off which has direct implications for our cancer risk. When we do not methylate properly our natural biochemistry is not working well and chronic problems appear over time. I think this is a key issue in searching for causes of problems that sneak up on us over time. I do not have space here to address the equally important issues of environmental toxicity that are helping to overwhelm our systems including our methylation.

Methylation is involved in almost every reaction in your body and occurs billions of times every *second* in your cells. Methylation is central to such critical reactions in the body as repair and building of RNA and DNA (keeping genes from making mistakes as they replace older cells), immune function, digestive issues, gene regulation, brain chemistry balancing, inflammation control, membrane fluidity, energy production, nerve health and cancer prevention.

Because it's involved in so many processes, inefficient function or mutations along the methylation pathways can result in a wide range of conditions including:
Aging, Allergies, Alzheimers, anxiety, Arthritis, Autism, Bipolar disorder, Bowel dysfunction, Cancer, Chronic fatigue, Fibromyalgia, Chronic bacterial and viral infections, Musculoskeletal breakdown, High blood pressure, Cardiovascular disease and Diabetes.

To sum up – please talk to us about the possibility of poor methylation as part of any chronic problems you may have. We are happy to work with diet, lifestyle and supplements to support your biochemistry and function at your best. If you do order a 23andme.com test it will need to have the data put through another website called geneticgenie.com (for no charge or a voluntary donation) before it will be in a form that we can help with. Please let us know if you need more information or go to dramyyasko.com for in depth reading about methylation.

To your health,

Gail Eberharter MD