The Myth of Inheriting Disease

For some time, scientists have been researching the link between genes and the development of every disease from obesity to cancer. The motive has been to create drugs that could prevent disease, and profitable screening tests to detect those that are vulnerable.

Sounds good, but in reality, this line of research has been a miserable failure.

Some of the potential discoveries made big headlines, but follow-up research just could not confirm a link. For example, Harvard Medical School researchers discovered a gene called MTP (microsomal transfer protein) that supposedly could increase the odds of living to 100 years of age. However, in a study of 1039 centenarians and 550 younger control-group patients conducted at University Hospital in Kiel, Germany, researchers could find no link. Another Danish study also could find no link.

According to Joel Hirschhorn, pediatric endocrinologist at Children's Hospital at Harvard, "Just about everything that hit the papers up until a few years ago, all those were wrong." Hirschhorn's research found that only one out of 50 genes reported to be linked to obesity actually was confirmed to have any relationship at all. A study in 2005 performed at Duke University failed to confirm any of 7 genes suspected to have a role in temperal-lobe epilepsy. And researchers at the University of Texas were unable to establish a link between 21 genes identified as potentially having a connection to heart disease. Another study reported in the Lancet found that the ability of genetic profiling to predict cancer outcomes only fared better than a coin toss in 2 out of 7 genetic signatures. Lead author Stefan Michiels stated, "I am really not convinced a unique signature exists."

Here are some other genetic myths that have been discredited:

1. A defect in the angiotensin-converting enzyme was suspected to be linked to the development of heart attack and was reported in 1992. In 2000 a large British study could not find any correlation.
2. The BRCA1 and BRCA 2 genes were reported to cause an 82% increased breast cancer risk in women who have them. Critics of the study contend the actual risk is lower.

According to an article in Forbes Magazine (February 13 2006), the reason this false discovery is happening is that researchers use computers to scan thousands of little-known genes in search of some connection to any disease. The huge number of potential comparisons virtually guarantees

that some false positives will be found. The author of the article likened it to rolling the dice 1000 times and then getting excited when luck finally gives you three sevens in a row.

I have no doubt that our genes have some impact on many aspects of our lives, including health. However, having a gene is not a life sentence. There is a difference between having a gene and genetic expression. Genetic expression is determined by your behavior, in other words, diet and lifestyle choices. I am sure that one of the reasons that follow-up studies have failed to confirm links between having certain genes and the development of diseases is that the studies did not account for differences in the diets and lifestyles of the subjects in the studies.

My favorite point to share with audiences I address is the fact that your genes do not determine your destiny - your behavior does. If you go through life thinking that genes are responsible for your health, you are a helpless victim. But of you know diet and lifestyle determine your health outcomes, you get the control back!

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