

Keynote Luncheon

Donald Coffey, PhD

I. Overview of the Field

What is wrong with the prostate cancer field is that the government puts millions of dollars into studies that aren't very good. The PCLO study was headed down the wrong road from the beginning, and the one out of Europe was far more sensible.

What has been shown in the two great studies in the PSA field is that if you have a rising PSA at 40 years, no matter how low it is, you're in trouble. Men need to get a baseline, and if you measure it over a few years, you will see who needs to be treated very early. If you are an African American or you have a family history, you better get a baseline at 40 and then follow it every year and see what is happening so you can be sure of where you are.

Everybody who has prostate cancer is at a greater risk of dying from a heart attack than they are of dying from prostate cancer because of the age and the curve.

II. Advanced Glycation Endpoint

We are all aging—advanced glycation endpoint. All of the proteins are getting sugar added on, and the protein has to be re-made. Doctors check hemoglobin A1C to see if sugar is added to it. It does the same in a prostate and all through the body, which is one of the big things that hardens up your connective tissue. How could you stop that? What if you restricted glucose—caloric restriction? There are few things that will increase the life of an animal like caloric restriction. This is not a diet. It's cutting it down 30% or so without malnutrition, and it changes all of the aging diseases. We need to learn a lot more about this. It lowers cholesterol and changes the HDLs and LDLs.

III. Cancer

Cancer is a serious disease, and every time you pay \$10 worth of taxes, only one penny goes towards it. Practically no money is going into it. In the next two and a half hours, seven people will be murdered in the United States, eleven will die of AIDS, and 161 will die of cancer. As the aging goes up and people start smoking in China and Asia, it's going to get nasty.

Between 1950 and 2000, science has lowered the death rate from heart attacks and strokes. We're making great progress but not in cancer. We have a problem. The problem is we're not thinking. The gene is involved, but it's not that simple. It has something to do with the context of the cell. ATGC is a key, and we're not even close to understanding the human genome. The decoder is the nucleus in which the DNA is, and that is what is screwed up in cancer. The chemistry and science is very exciting.

The government has selected 11 big centers in the United States, and they're going to be funded to study the selection process of cancer and the physics of it to try to figure out the evolution of cancer.

There is more than hope out there. We have some ideas why things work and why things don't, and we're going to figure it out.

Questions

- I. **We have identified a gene that is a primary factor in African American prostate cancer, and we were able to see that the male gene may have some breast cancer overtones. How do we think about personalized care and focusing on finding out what our genes are like in the face of medicine today?**

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The first thing we saw was that the most common change in prostate cancer was the loss of the small arm on the 8 and the gain of 8Q. They mapped and mapped, and after years of mapping, they found 8Q24. Right near there is a key factor in setting off a lot of bad acting in cancer, the MIC. What the stuff nearby may be doing is making a whole bunch of RNAs that control things. The DNA makes RNA, and that RNA usually makes protein. This RNA is called micro RNA. It doesn't make protein. It controls things. We have to figure out what the RNA is doing. There are also some other genes in that area.

We're also trying to find out which one of the twelve SNPs, might be trouble. Companies are set up to find out if you have one of the five SNPs, and they'll charge you a bunch of bucks. Will it tell you anything? Not really. We're just excited because we've been working with 29 universities across the world to find those SNPs. They are related to cancer of the prostate, but they are not related to the prostate cancer form that kills people. That is a recent find, but if it's in the rearrangements or the fusions that you see, that doesn't show up in the SNPs, it wouldn't be in that series so that begins to make sense. But what causes that? A lot of exciting stuff is coming.