Program: Have You Inherited a Hereditary Cancer Syndrome?
Speaker: Glenn Bingle, MD, PhD, Professor of Genetics, IUSM; Director, Department of Genetics, Community Hospitals of Indianapolis
Introduced by: Hank Wolfla
Attendance: 130
Guests: Erin DeBrota, Jim Lippard
Scribe: Dick Garrett
Editor: Carl Warner

Today's presentation asks the question, have you inherited a genetic cancer syndrome? This was a presentation aimed at everybody in our audience. Many of us are at risk of contracting cancer through our genetic lineage, and one of the effective sources of answers to our risk rests in ever emerging technology and the health of our ancestors. This is the heart of today's presentation.

Dr. Bingle has been a member of the Scientech Club since May of 2018; after hearing him talk, we are most fortunate to have him as a member. He was quick to acknowledge links to many club members who were mentors, colleagues or teachers. Today's presentation was excellent; he managed to present material for both the physicians and the lay members of the club. As he said at the beginning of the speech: "This is a very important presentation". Indeed, it was.

Today's talk had two objectives:

- Describe the underlying basis of the genetics of cancer.
- Help you determine if your family history of cancer puts you and your family at high risk of a hereditary cancer syndrome.

Dr. Bingle is the Medical Director of Genetic Services and Counseling for the Community Health Network. His office did not even exist that many years ago. Cancer's link to genetics emerged about twenty years ago when the association between breast cancer and genetic makeup was made public. He points out that Angelina Jolie gave a boost to this issue by "going public" when, on February 16, 2013 at age 37, she underwent a preventive double mastectomy after learning she had an 87% risk of developing breast cancer due to a defective BRCA1 gene.

The underlying basis for all cancers has to do with the cell replication process in our bodies. Each of us is made up of approximately 100 trillion cells with 100 million new cell replacements each day. With all of this cell replication, every now and then there is a "spelling error" in the DNA sequence that, if left uncorrected, will lead to the production of cells that replicate too fast and become cancer cells. There are mechanisms in the body that work to correct these "spelling errors" but sometimes they miss a correction and you end up with cancer.

Here are some facts about our genetic makeup and the cancer related genes. We all have 26,564 protein coding genes. Of this total, slightly over 1% (300+ genes) are implicated in human cancer. These are the genes his practice attempts to locate with genetic testing and to advise the patents on a course of action if one or more bad genes are discovered. A course of action might be a double mastectomy like Angelina Jolie elected, or careful monitoring of certain organs in the course of a person's life. Another interesting fact is that all cancers are genetic but only 5-10% are inherited cancer syndrome, in other words, passed on from a parent.

Here is the material he says, that is the most important part of his story:

When to suspect hereditary cancer syndrome

- Cancer in two or more relatives on the same side of the family.
- Early age at diagnosis.
- Multiple primary tumors.
- Bilateral or multiple rare cancers.
- Constellation of tumors consistent with specific cancer syndrome (e.g. breast and ovary).
- Evidence of autosomal dominant transmission.
- Ancestry.

At the beginning of his talk, he asked have you inherited a genetic cancer syndrome? If we suspect we have, we now understand some of the things that cause this inheritance, and what to do if we suspect we are at risk. Go to an office where they offer genetic counseling; their skills and capabilities become more efficacious with each passing month.

Glenn Bingle