FUNCTIONAL MEDICINE UPDATE
July 2015
Vol. 35, No. 7

Genomics and the Future of Medical Oncology

Advances in genomic analyses and technology are expected to one day completely transform the practice of medicine. When it comes to incorporating new discoveries and adjusting standard of care in response to new therapeutic approaches, the area of medicine that is perhaps most prepared and ready for change is that of oncology. Cancer has become a major public health issue not only in the United States, but globally. Physicians, scientists, researchers, government agencies—tens of thousands of people focus their daily activities not only on the management of active cancer, but also on questions related to early diagnosis, screening, and prevention.

This issue is the last in Dr. Bland's series on Functional Oncology. He talks with Dr. Thomas Brown, Executive Director of Swedish Cancer Institute in Seattle, about how a large urban facility is incorporating genomic discoveries into their personalized medicine care model.

Clinician/Researcher of the Month

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Dr. Thomas Brown is a practicing oncologist and a successful healthcare executive. In 2013, Dr. Brown moved to Seattle, Washington to take the helm of Swedish Cancer Institute (SCI) as Executive Director. SCI was established in 1932 and is a highly respected organization that is looked upon as a leader in cancer diagnosis, treatment, and recovery. Before joining Swedish, Dr. Brown held positions at the University of Arizona Cancer Center, the MD Anderson Cancer Center at the University of Texas, and Duke University.

Under the direction of Dr. Brown, SCI has incorporated a personalized medicine approach into all aspects of the care model that is offered to patients. At Swedish, personalized medicine has dual meanings:

- Caring for the whole patient, to include addressing patient and family socio-economic, psychological, environmental, and other supportive care needs.
- Utilizing molecular (gene, protein, epigenetic) information from the patient or their tumor to address cancer risk, prevention, screening, early and accurate diagnosis, treatment of disease and survivorship.

Dr. Bland and Dr. Brown discuss the evolution of cancer treatment. Dr. Brown explains how the field of oncology is currently transforming to be less focused on the origin site of cancer (i.e. colon cancer, lung cancer, etc.) and more concerned with the unique molecular fingerprints of individual tumors. This development has led many organizations—Swedish among them—to adopt a multi-disciplinary team approach to patient care, which is now expanding to include genetic counselors. As he is involved in healthcare administration in addition to being himself a provider, Dr. Brown addresses some of business and human resources challenges associated with changing paradigms in medicine, such as acculturation of physicians and modifications that are needed in the traditional reimbursement system. REF #1-7

Summary of the Functional Oncology Series

Dr. Bland concludes this issue with a summary of the Functional Oncology series and some additional commentary about his insights. He makes connections between information learned from his interviews and research that is now emerging in the medical literature. He discusses stem cell biology and discoveries being made in the area of immunotherapy. He also describes very cutting-edge research on CRISPR-CAS9 technology, which is focused on gene editing and may have implications for immunotherapy, cancer therapy, and genetic metabolic disorders. Dr. Bland also discusses several recent studies on cancer, including a large-scale study of cancer prevention guidelines that reported a 60% lower incidence of cancer (statistically) in individuals who adhered to these guidelines. REF #8-14

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