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Continuing the Discussion about Biomarkers: Myeloperoxidase

Myeloperoxidase (MPO) seems to contribute to the pathogenesis of cardiovascular conditions and has been the subject of recent research. Dr. Bland discusses his thoughts about MPO as a surrogate marker for looking at inflammatory status and function. He also discusses a variety of other biomarkers, as well as his opinion that it is data from a set of biomarkers (as opposed to just one) that will ultimately provide the most valuable information for clinicians to use in planning personalized interventions for patients. REF #1-2

17th International Symposium on Functional Medicine Takeaways

The Institute for Functional Medicine hosted the 17th International Symposium on Functional Medicine in Carlsbad, CA, May 20 – 23. Dr. Bland was a keynote speaker and also provided a daily synthesis of the information presented on the topic of "Cancer as a Chronic Disease." Dr. Bland shares some of his takeaways from this experience. He specifically discusses the work of Dr. Dean Ornish, a former FMU Clinician of the Month who was presented with the Ava Helen and Linus Pauling Functional Medicine Award at the Symposium. In addition to providing anecdotal insights on the subject of encouraging and supporting lifestyle intervention programs, Dr. Ornish announced at the Symposium that the Office of Medicare Reimbursement has now authorized reimbursement for a comprehensive lifestyle program focused on heart disease that he and his colleagues at the Preventive Medicine Research Institute have been developing and studying for 16 years. REF #3-5

The Operational Networks of Vitamin D

Dr. Bland has spoken often about the "yin and yang" of vitamin D: taking vitamin D in the appropriate amount and converting it into the appropriate levels of 25- and 1,25-dihydroxyvitamin vitamin D3. In this issue he specifically discusses pregnancy and emerging work related to fetal and neonatal growth. It has even been suggested that vitamin D3 could potentially play a role as an immunomodulatory agent in the treatment of recurrent spontaneous abortion.

The hormonal forms of vitamin D are very active biological molecules. Dr. Bland refers back to his discussion with Dr. Trevor Marshall in 2009 about the vitamin D receptor (VDR). As an extreme example of the number of factors related to vitamin D, Dr. Bland mentions the recent case of Gary Null, a supplement manufacturer who became very ill after consuming a product inadvertently tainted with too much of the vitamin. Mr. Null is reportedly recovering, but reports indicate he faced serious medical issues from his toxic exposure. REF #7-10

Vitamin D and Parathyroid Hormone Levels
There are a number of biomarkers associated with vitamin D physiology. Dr. Bland discusses parathyroid hormone levels and the possibility that secondary hyperthyroidism may be a consequence of vitamin D insufficiency. Although expression of the vitamin D receptor can play a role in secondary hyperparathyroidism, Dr. Bland states that parathyroid hormone levels can vary as a consequence of a number of components. REF #11-13

With the high prevalence of obesity today, Dr. Bland addresses the relationship between hyperparathyroidism, vitamin D, and gastric bypass surgery. It has been suggested that both obesity and bariatric surgery increase the risk for vitamin D deficiency. Dr. Bland suggests that vigilance in cases where malabsorption has been present is very important until adequacy has been achieved. As an aside to this obesity discussion, Dr. Bland mentions that it has been found that exercise training and low dietary glycemic load, in combination, may have synergistic effects on insulin resistance in obese adults. REF #14-15

Rediscovering the Warburg Hypothesis
Dr. Otto Warburg was awarded the Nobel Prize in Physiology or Medicine in 1931 for his discovery of the nature and mode of action of the respiratory enzyme. He studied the metabolic adaptations of tumors, and he reported a high rate of glycolysis in tumors and a concurrent defect in mitochondrial respiration. There has been a revival of interest in Warburg's hypothesis during the last decade that coincides with the discovery of mitochondrial tumor suppressor genes that may conform to the hypothesis. Warburg's work and recent findings are discussed in a 2010 article published in *Current Opinions in Genetics and Development* that Dr. Bland recommends. REF #16

Clinician of the Month

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Dr. Pamela Smith spent her first 20 years of practice as an emergency room physician with the Detroit Medical Center. She is a diplomat of the Board of the American Academy of Anti-Aging Physicians and is an internationally known speaker and author of several best-selling books. Dr. Smith is currently the Director of the Center for Healthy Living and Longevity and the founder and Director of The Fellowship in Metabolic, Anti-Aging, and Functional Medicine. Dr. Smith is also the Director of the Master's Program in Metabolic and Nutritional Medicine at the University of South Florida School of Medicine.

After discussing her path from emergency room physician to establishing a very successful functional medicine practice, Dr. Bland and Dr. Smith focus very specifically

on one of her most recent projects, which is the master's program at the University of South Florida School of Medicine that she helped to launch. Dr. Smith actively designed the curriculum for this program, which she says now has 1700 participants from a variety of medical disciplines. The coursework for the program is specifically designed for individuals who have completed training in their primary fields. It is a combination of three-day sessions, regular webinars, and some online classes. A key feature of the program is that the curriculum is reviewed and updated each time the course is presented to ensure information is kept current with rapidly changing events. More information about the Master's Program in Metabolic and Nutritional Medicine can be found at the University of South Florida website, www.usf.edu. Dr. Smith also invites people to email her directly at pepper4@sbcglobal.net. REF #17-18

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