

Science and the general populace, our patients and our politicians

Editorial

Welcome to the inaugural issue of Endocrinology & Metabolism International Journal. We welcome you as colleagues with a shared passion! You and I are members of a very fortunate and rarified group of physicians, scientists, physician scientists, and allied healthcare professionals. We are endocrinologists and the allied ranks who help care for endocrine patients, and as such, are among the most scientifically literate of all physicians and healthcare providers... indeed, along with our colleagues in all the sciences, the most scientifically literate of all humans. Our knowledge of physiologic regulation, extracellular messengers, cell signaling, intracellular messengers, regulation of cell and tissue physiology, regulation of gene expression and cell/tissue function, analyte & fluid status, and pathophysiology of human disease related to all the above, etc., sets us in a unique and privileged position to diagnose, treat, and educate patients for the diverse set of endocrine & metabolic disease states we deal with as a group, we the endocrinologists.

We see many cases we have come to view as routine (e.g., the diabetic, the hypothyroid, the needy patient with nothing wrong from an endocrine standpoint, etc.) but treat them just as vigorously and conscientiously as the rare and bizarre cases that captivate us and our attention, because our dedication to human health and well being stems from that li'l promise to our patients we took, called the Hippocratic Oath, upon joining the august intellectual and humanistic ranks of endocrinologists who came before us.

Most of our patients have come to us from a background with little or no scientific literacy, and come to us for help with one problem or another, whether physiologic/pathophysiological in nature, psychological/psychiatric in nature, or some combination of the two distinct categories. I participate in an online physician group to whom patients all over the world can write in and one of us USA-licensed physicians will respond to their questions for free with a helpful answer. I find this very rewarding, but as this editorial will discuss, also very frustrating. My involvements in doing this, as well as my daily care of patients in my endocrine clinic, prompt me to write this editorial.

How many of you have encountered patients, acquaintances, family, friends, etc., who have asked you for the "natural" way to treat their endocrine disease? It's as if there's the natural way, a.k.a. the secret, right way, as opposed to the wrong, conspiratorial way that objective, scientific modern medicine promulgates? Nigh on 100% of you, I would wager, if I were a gambling man (which I am not...I'm a scientist, and as such know better than to bet against the house, given the rules are devised so that the house will win in the long run). I will call this magical thinking, for lack of a better term. Magical thinking is what makes people think they can bet against the house and win. Magical thinking is the headwind the human intellect faces when metaphorically running uphill. Intellect has a difficult, nay impossible, time battling against magical thinking. We are accustomed to using logic, evidence, and reason to present a case or

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make a point; these are faculties distinctly lacking in magical thinkers. Magical thinking is a result of sociological failure that begins with each previous generation based on superstition, inertia, dogma not based on evidence, prejudice, and the societal basis for oppression of the under-educated. Magical thinking carries on at home, in many (most) schools, and in most workplaces, military forces, and government, to the detriment of society in general and our patients in particular. Magical thinking is a famous tool among the politician and corporate classes, for it can influence underlying thinking and action. For example, the populace sees its leaders questioning the scientific validity of global climate change and of vaccination against disease, sees them promoting creationism, and saying things like the female body has the ability to "shut down pregnancy" in the case of rape. Scientific illiteracy stretches from the bottom elements of society to the "top", only appearing to sidestep those of us trained in the sciences.

Many of the popular misconceptions among the non-scientifically literate seem to deal with a fundamental misunderstanding of scientific evidence, of treatments demonstrated to be effective and safe, of popular homeopathic potions shown to be neither safe nor effective, etc. To wit, I have been asked: 1) what kind of fish can be used to treat hypothyroidism, 2) how to treat everything under the sun with this or that "herbal preparation", 3) why I don't know nearly as much as the homeopathic nurse practitioner in town who prescribes homeopathic compound X for this or that ailment, etc., etc. Many patients are perfectly content to dump un-dosed quantities anything and everything into their bodies they get recommended to them by a non-professional at a retail store, yet resist with a passion the use of medications shown to be safe and effective, by a trained professional with an understanding of physiology, pathophysiology, and pharmacology. Yes, there are biologically active compounds found throughout nature, some with marvelous clinical utility. But very few substances in nature (not one I can think of, in fact) have such a broad therapeutic window that by chewing or brewing, the substance will be at once therapeutic to some endpoint and nontoxic.

What is the answer? Dear and venerated colleagues, I wish I knew. We have worked very diligently to be given the honor and privilege of treating the sick. But with that, I think we also have the duty to

educate them, especially as it regards their best interests. Not one of us has gotten where we are without some teaching skills. Not all of them will want to hear that their magical thinking is grossly flawed. Except in rare circumstances, we can only reach one at a time. Nevertheless, the populace of the world is grossly scientifically illiterate and magical thinking is pervasive in all societies. This ignorance of science hurts each of them individually and hurts society as a whole. Scientific literacy is the only thing that can ultimately overcome magical thinking. A scientifically literate world population would more likely

make the realities of wars, environmental destruction, and biological extinctions unpopular or even unacceptable, and such a populace would vote accordingly. Human health would be a higher priority, and humankind would benefit directly. In addition to treating their illness, we must make it our goal to educate them about the science, mechanism, and treatment of their disease to foster logic and reason, and the acceptance of scientifically objective reality in our patients. Peace and happiness to you all in 2015, and welcome to EMIJ.