LISTENING TO THE DATA AND THE PATIENT

Continuing our Lucine Health Sciences series, Founder and Creator Dr Chandler Marrs describes the side effects associated with common medications used in healthcare and shares her thoughts on how nutrient deficiency could be at the heart of these problems.

OVER THE YEARS, I have been repeatedly struck by the diversity and severity of symptoms associated with common medications and surgical outcomes. Even more worryingly, many of these reactions never make it on to either the Adverse Events Reports or the side effects labelling put forth by the manufacturer.

In response, Lucine Health Sciences has dedicated its activities to discovering new diagnostic and therapeutic directions that address these adverse reactions to help both the people who suffer from them and the doctors who treat them. We do this by using a combination of quantitative and qualitative research, which includes performing surveys and studies, exploring the available literature, undertaking mechanistic research and, importantly, listening to patients’ stories. From these data and stories, we have noticed something truly amazing about adverse reactions and have come up with a system that could prove highly valuable to the medical community at large.

DAMAGING THE MIGHTY MITOCHONDRIA

Every single one of the billions of cells that make up the human body have at least one thing in common: mitochondria. The mitochondria are small but fierce; they generate the majority of the cell’s supply of adenosine triphosphate (ATP) – the fuel cells crave above all else, as this is what they need to function. Moreover, in addition to supplying cellular energy, mitochondria are involved in other tasks such as immune signalling, steroid hormone synthesis, cellular differentiation and cell death, as well as maintaining the control of the cell cycle and cell growth. They truly are at the nexus of health.

Despite the important role that mitochondria play in the function and health of our bodies, mitochondrial medicine is only beginning to emerge onto the scientific scene. Most of the research into mitochondrial function, until recently, has focused on genetic mutations. However, it is becoming clear that mitochondrial damage is not just a heritable condition, but can arise due to environmental factors.

Though a relatively new field, much of the latest research is showing that pharmaceuticals – at least those that have been tested so far – induce mitochondrial damage at some point. For example, the work of Dr Beatrice Golomb and others shows that statins clearly deplete ubiquinone, also called coenzymeQ10 (CoQ10), and may be responsible...
for some of the side effects associated with these medications. CoQ10 transports electrons between complexes within the electron transport chain of the mitochondria. It is also an anti-oxidant. Deficient CoQ10 impedes energy output and mitochondrial repair.

THOUGHTS ABOUT THIAMINE

Similarly, although post hoc, our work is showing that many medications and vaccines may deplete vitamin B1 (thiamine). Thiamine deficiency is seen typically in long-term alcoholics, but we are seeing it in young girls and women who have taken certain medications and/or vaccines. Thiamine is incredibly important during the initial phases of mitochondrial ATP production, where it is a necessary cofactor in key enzymes responsible for ATP production and fatty acid metabolism.

Thiamine deficiency derails central and peripheral metabolism, induces tissue injury in regions with high metabolic demands (such as the brain, heart and muscles), initiates a build-up of toxic intermediates like lactate and, finally, impairs myelination and other lipid-based processes. In many cases, thiamine deficiency is at the root of the more systemic adverse reactions we see. Other nutrient deficiencies are involved also, but thiamine, because of its role early in the ATP production process, looms large.

A DIVERSITY OF DISEASE

When a patient presents with a multiplicity of adverse reactions, physicians often have a difficult time believing that the range of conditions could be one disease process caused by one medication. However, digging deeper and examining more recent research, we are starting to see that mitochondrial damage can induce a broad diversity of disease processes in any and all systems of the body. Adding to the confusion, mitochondrial damage never presents the same way – even in people who have the same genetic mutations – because it is so susceptible to environmental influence.

However, there is one type of damage that we are seeing more often than not – we are finding thyroid damage. Worriedly, this damage is appearing as a result of multiple drugs, even ones with completely different mechanisms of action. Though initially shocked by what the data were showing us, we think this makes sense, as there is a reciprocal relationship between the thyroid and mitochondria.

NUTRIENTS TO THE RESCUE

Another surprising point that has arisen from our data – specifically, from the qualitative research of our anecdotal evidence – is the critical role nutrients play in inducing recovery from mitochondrial damage. Interestingly, after looking at patients who had suffered an adverse reaction (such as multiple system ailing and/or failing) and then recovered from it, we noticed that their recovery was connected to the use of certain vitamins, minerals and other mitochondrial cofactors.

As we dug into the mechanisms, we noted that our mitochondria – as well as our enzymes and cells – require nutrients to function. When medications deplete these nutrients a cascade of reactions start and illness ensues. Conversely, our data – which is being corroborated independently by the latest research on mitochondrial medicine from top universities and research labs – suggests that patients heal when supplemented with high doses of these micronutrients. Indeed, I have talked with many people who have taken high dose IV nutrients, adopted clean diets, removed environmental exposures, and subsequently have seen a great improvement in their health and quality of life.

Like most of us, I was surprised by how critically important nutrients are to human physiology. It is not something any of us would like to admit, but what we put into our mouths and how we live our lives greatly impacts our health.

ADDITIONAL READING

Dr. Chandler Marrs suggests the following papers for people interested in learning more about mitochondrial damage and its effects in pharmacology

Kalighatgi, S., et al., 2013, Bactericidal Antibiotics Induce Mitochondrial Dysfunction and Oxidative Damage in Mammalian Cells, Science and Translational Medicine, 5(192), 192ra85, DOI: 10.1126/scitranslmed.3006055


COMBINING QUANTITY AND QUALITY

All of Lucine Health Science’s insights come from engaging with people on social media, listening to patients and then going back, digging into the science and asking the question: is what they are saying mechanistically possible? And if it is possible, are other people experiencing the same thing?

Obviously, we cannot answer these questions on our own. We need medical scientists and researchers to dig into these questions using traditional, quantitative routes. That being said, we would not have had anywhere near as much insight into mitochondrial and thyroid issues through quantitative data alone. Medicine also needs to mix in messy, qualitative data in the form of patients’ stories, and we have found that social media offers a great platform to do so.

What makes our approach unique and valuable to the wider medical community is the fact that we look at our patients’ stories as a new form of case report. It is not the same type of case report you would get from a physician, because a physician views health and disease through a specific lens. But it is worth remembering that patients have their lenses too, and while there are certainly problems with looking through a patient’s eyes, there are also enormous opportunities to find insight.

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