Ketones and Alzheimer's Disease

review by Katherine Duff

> **"One of the prominent known features of Alzheimer's disease is the problem of insulin deficiency and insulin resistance in the brain."**

Alzheimer's Disease: What If There Was a Cure?, by Mary T. Newport, MD
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No one has years to wait for the cure for Alzheimer's disease (AD) when faced with its progression in oneself or a loved one. For Mary T. Newport, MD, witnessing the decline of her husband to AD sent her to the Internet to search for anything that could help him. What she learned not only helped her husband but sent her on a mission to, as she puts it, "get the word out." Her book *Alzheimer's Disease: What If There Was a Cure?* is just part of that effort.

The first step in helping her husband was to get him into drug trials. While researching the available trials, Newport happened upon a press release for a drug called AC-1202 developed by Accera, a small biotech firm. It was here she was introduced to the concept of AD as decreased glucose metabolism. The product developed by Accera delivers a secondary energy source to the cells, namely through ketones.

Newport studied the Accera patent application and learned that the product was medium-chain triglyceride oil (MCT) made entirely from medium-chain fatty acids, coconut oil, and palm kernel oil. Accera's research demonstrated cognitive improvement in half of the subjects taking the MCT as compared with decline in all of the patients taking the placebo. People who did not carry the ApoE4 gene showed the greatest improvement.

Persons with AD are known to have decreased glucose in certain areas of the brain. Insulin receptors are needed to transport the glucose into the cell so that it can be converted to adenosine triphosphate (ATP), and here is a problem. Some of the insulin receptors that should be located on cell membranes in the brain are missing. Those cells then are deprived of their energy source, leading to symptoms that we recognize as AD.

What may further clarify the role of insulin and insulin receptors in AD is a chapter that discusses AD as type 3 diabetes. Here we learn that researchers have found that the brain makes its own insulin. They have also found that "there is a gradual progression of insulin deficiency and insulin resistance in parts of the brain in people with Alzheimer's."

The human body does have a backup system for cell energy, and that is ketones. When food supply is not available and the glucose stores have been used, stored fats are sent to the liver, where they are converted into ketones, a process called ketosis. From there they are sent into the bloodstream, where they can directly nourish cells without the complexities found in glucose metabolism. In addition, ketones easily cross the blood–brain barrier and, compared with glucose, ketones produce twice as much ATP inside the cell. Ketones can be produced by fasting and by maintaining a low-carbohydrate, low-protein, and high-fat diet. Another method for increasing ketones is to ingest medium-chain fatty acids, which are found in coconut oil and palm kernel oil.

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And so began the author's journey of treating her husband by adding coconut oil to his meals. Through trial and error, she developed a treatment regimen that would keep his ketone levels high for most of the day. While the beginning of this book is a description of her husband's slow decline, the discussion of her treatment with the coconut oil shows immediate improvement and continued improvement over the next three years. Since Newport was trying to enter her husband into drug trials, she has a record that includes cognitive exams required for participation. His early testing disqualified him from participating due to low scores. His later test scores were high enough that he was accepted into a drug trial.

One would think that anything that improves the symptoms of AD would be greeted with enthusiasm, but as the author describes, that is not what happened. She was thwarted by the Alzheimer's Association from participating in its conferences. Her attempts to engage high-profile people and interest media were met with silence. She learned that Dr. Richard Veech, a world-renowned researcher of ketones, was having difficulty obtaining funding for research on his ketone ester – a form of ketones that would offer flexibility in methods of administration and easier dosage adjustments. Not one to give up easily, Newport has worked from the grassroots to teach others about ketones and encourage funding for Veech's work.

After writing an article about AD and ketones, Newport received thousands of letters and e-mails from caregivers who tried the coconut oil and/or MCT oil. Most of the reports were from people who found positive results for a variety of conditions that included Parkinson's disease, Huntington's disease, multiple sclerosis, and even macular degeneration, to name a few. From these reports she could chart results, which she limited to dementia, showing that some responded immediately, some responded slowly over a course of months, and some did not respond at all. She was able to present these results at conferences in Greece and Scotland.

This book is intended to get the information about ketones and their potential to anyone who could benefit. Physicians will find that the work is well supported by research. Caregivers will find instructions for introducing medium-chain fatty acids into the diet, with recipes included. For all there is an informative question-and-answer section that addresses health concerns such as whether these oils will cause weight gain or increased cholesterol levels, as we have been led to believe. And here, Newport does warn those with impaired liver function away from this regimen. She provides guidance for making informed consumer selections and lists resources for additional information and sources for coconut oil.

In addition to the practical information in this book, there is also a personal story of a tenacious woman. When faced with the tragedy of her husband's AD, she went to work finding something to help him. When the traditional Alzheimer's group blocked her way, she went around it. And for those with whom she and her husband share the ravages of AD, she offers a rather simple dietary intervention and asks, with great empathy, what do you have to lose? ◆