http://www
nmsociety.org

Metabolism
Society

Charles Lucas, MD, FACP, FAHA

I have spent a lifetime learning about the problems that ensue with careless use of carbohydrate foods in patients with diabetes and lipid abnormalities. An early learning encounter was with my boss and mentor at the University of Michigan when I was a fledgling endocrinologist. He was Dr. Jerome Conn, discoverer of primary aldosteronism. In his earlier years when was an intern, one of his fellow interns was Franklin Johnson, a type 1 diabetic before the days of insulin. Dr Johnson drank 3 glasses of heavy cream per day for his nutritional needs. The caloric value of this diet was ~2500 calories. Estimated protein and carbohydrate intakes were ~15 and 20 grams/day, respectively. This was called the 'Allen' diet begun by Dr. Allen around 1910, and it was believed to keep type 1 patients alive longer. A year later Dr Franklin was the first person in Michigan to get commercial insulin. He became head of the division of cardiology and worked well into his 70's. He continued to use some heavy cream as part of his nutritional program.

Years earlier, I had an experience with the dangers of carbohydrate use with 2 patients during my residency who presented with nonketotic coma and blood sugars over 1000. One consumed huge amounts of a cola beverage and the other ate a high sweet diet in a nursing home. Dr. Gerald Reaven and I published this story in the Lancet around 1960. Both survived on a carbohydrate restricted diet.

A similar case presented at the University hospital in Michigan and was reported by Dr. Sumer Pek in *Diabetes* in 1966. The gentleman with diabetes, not on drugs, went from his usual fasting blood glucose level of about 115 to over 1000, presenting with nonkeotic coma. His diet had recently become replete with consumption of juices and sweets. He survived with therapy. The third patient was not so lucky. He was a 40 year old man who was brought to the ER in the 80's by his friend presenting with lethargy and later coma. The ER, nor his friend knew anything about a history of diabetes. He died in the hospital with blood sugars >1000, apparently of dehydration and nonketotic coma. We were to learn at the presentation of the case at mortality conference that he was an aficionado of a commonly sold sugared drink.

In the 1980's and 90's I began my nutrition program and saw many people with type 2 diabetes who were poorly controlled on more than one antidiabetic medicine. They all ate the typical American diet, that in all cases included foods like breads, crackers, pretzels, fries, and often sweets. I treated some 20 patients over a short period of time, wrote the material up in an unpublished abstract. My main treatment was a diet containing <100 grams of carbohydrate per day, that avoided breads, bagels, crackers, sweets and even fruit. Patients kept diaries over a period of weeks. Their afternoon blood sugars were the first to come close to normal, beginning within a week. Fasting sugars were a bit more difficult to bring down, but in a few cases they returned to normal in a matter of months. Mean hemoglobin A1c's dropped by an average of 2.3%, in spite of the fact that, in some of them, I discontinued significant amounts of their diabetes medications.

Another case, not part of this group, was a pathologist, who drew his blood laboratory values now and then and on this occasion that I will describe his fasting glucose was ~450mg/dl. His cholesterol and triglycerides were 300 and 1000 mg/dl, respectively. Labs had all been normal up to this time. He loved bread, pasta and rice, but also lamb, beef and salads. Once I became sure that he was not a type 1 diabetic, I put him on a diet that excluded all the usual carbohydrates including starchy vegetables. The diet featured lamb and chicken, vegetables and salads. Fruit was excluded. He took up walking, lost 50 pounds, and everything returned to normal. Even his glucose tolerance test became normal. All of this took about 6 months to a year. I ran into him one day at the starting line of an eight mile race, a very pleasant surprise.

Finally, I have seen a few patients who doctors have placed on an AHA diet for cholesterol combined with other lipid abnormalities. When their lipids got worse, they were referred to me. Restricting carbohydrate in these patients corrected their cholesterol, triglycerides and HDL in all cases. My most recent adventure was a few months ago when a neighbor who ate lots of cookies, had routine(yearly)laboratory test which showed high cholesterol, high triglycerides, low HDL and a blood glucose of about 115 mg/dl A 120 gram carbohydrate diet corrected these abnormalities to normal in a month.

I will finish with a patient, also one with high cholesterol, placed on an AHA diet by his doctor. In this case the patient fell for the oatmeal ads, and began to bake oat bread and ate it with honey. Her doctor sent her to me not knowing why the AHA diet caused her cholesterol to reach 300 and her triglycerides 1000. Maximal doses of simvistatin had no effect. I placed this lady on a low carbohydrate diet, the oat bread and honey were discontinued as was the simvistatin. All her numbers were normal in one month.

I hope this information will help others.

Charles Lucas, M.D. FACP, FAHA