Hypoglycemia

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In an attempt to treat mental disease by the provision of the optimum molecular environment for the mind, especially the optimum concentration of substances normally present in the human body, it becomes obvious that diet should be a primary consideration. In any diet, there may be nutrients which are oversupplied or undersupplied for the individual biochemistry. Chemicals found in processed foods may cause allergic reactions. This portion of the program is limited to a discussion of hypoglycemia, low blood sugar. Later in the program, other aspects of diet, namely cerebral allergies, will be discussed.

Hypoglycemia has been estimated to affect 10 percent of the United States population. Any other disease affecting even a lesser amount of people would be classified easily as an epidemic. But, because this disease is not understood by the general medical population, it is dismissed as a "fad" disease, and patients who beseech their physicians for a five-hour glucose-tolerance test are oftentimes scoffed at. It is important to know that hypoglycemia is a real disease that can be treated effectively, and relatively inexpensively. It is a disease that will not kill you, but may make you

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wish you were dead.

In spite of massive amounts of popular literature over the past few years, hypoglycemia is not a new disease. In the early 20's, Dr. Seale Harris noted that some of his patients had symptoms that looked like an overdose of insulin, which had recently been discovered, isolated, and used in doctors' offices. It was through this observation that he did the original work on hypoglycemia, developed the Seale Harris diet for hypoglycemia, which is still the basic diet for this condition, and received an award from the American Medical Association. Unfortunately, his work became obscured for reasons I cannot understand.

In the early work of the megavitamin proponents, hypoglycemia was recognized as an important condition often occurring with schizophrenia. It was this association between hypoglycemia and schizophrenia that has resulted in the Orthomolecular psychiatrist becoming expert in the diagnosis and treatment of hypoglycemia and thus extending the boundaries of Orthomolecular psychiatry. Hypoglycemia is an abnormality of metabolism that results in a low blood sugar level in response to eating carbohydrates, especially the quickly absorbed processed carbohydrates, sugar and white flour. The significance of this can be understood quickly if we realize that it is the sugar in our blood which is

one of the main nutrients of our brains and is an important source of energy for our bodies. If the sugar level in the blood falls below a point which is normal for the individual, symptoms arise.

The symptoms of hypoglycemia are varied and fall into physical and emotional classifications. Patients may complain of depression, anxiety—that awful anticipation of something bad about to happen— and phobias. Most often there is an irritability that interferes significantly with relationships at home, socially, and at work. Physically the most common complaint is lack of energy as expressed by, "1 have no stamina," "I can't get started," or "1 poop out easily," "I get terrible sinking spells," "No matter how much sleep I get, I wake up tired." Other physical symptoms are insomnia with fitful type of sleep, interrupted by several periods of awakening, or waking after a few hours and inability to fall asleep again. Many times there are episodes of pain which escape definite diagnosis, for example, headaches, chest pains resembling heart attacks, abdominal pain resembling ulcers and back pains which are severe enough to interfere with normal functioning. Others have allergies as part of their symptomatology. By now you can see the symptoms are varied and imitate many other physical and psychiatric illnesses.

It is of interest to understand the causes of hypoglycemia. These are classified as the known physical causes and as the unknown, or no demonstrable, physical cause. Some of the important physical causes are tumors or enlargement of portions of the pancreas, liver diseases, adrenal and other endocrine diseases. These physical diseases are the least common cause of hypoglycemia. By far the greatest number of cases are of the unknown cause. My own theory, which is in agreement with the feeling of many other physicians, is that the most probable cause in this group is the result of our eating habits which have us consuming an average of 104 pounds of sugar a year per person. The following discussion is primarily concerned with the group of hypoglycemics of "unknown" cause.

The process of diagnosing the condition is the same as any disease. First, there must be an awareness of the disease and what is called in medicine "a degree of suspicion" on the part of the diagnostician. If, in taking a history of what the patient's symptoms are, his suspicions are present, he will be able to investigate further his diagnostic impression. The history of the presence of some of the symptoms outlined before should make the diagnostician think hypoglycemia. A dietary history is also important for, in cases of hypoglycemia, most of the patients eat a large amount of carbohydrates or would like to eat more, even if they consume smaller amounts because of vanity or health reasons. Often there is a "sweet tooth" or cravings for sugar, starch, or carbohydrate binges. The alcoholic who usually does not have a sweet tooth, since his carbohydrate craving is supplied by the alcohol, should always be suspected of having hypoglycemia.

After a physician takes a history, he does a physical examination. In hypoglycemia there are no findings, which in themselves makes the diagnosis. As a matter of fact, the lack of findings usually gets the patient in trouble since the lack of physical findings and normal laboratory findings on fairly routine lab tests leads to the conclusion, "There is nothing physically wrong with you." After a few of these exams, perhaps a year or so apart, both the physician and all but the strongest of patients really begin to believe that there is "nothing wrong," so the conclusion is, "It's in your head and you should see a psychiatrist." I find it appalling to think of the number of patients who really need their sugar tested and not their psyche probed. The only physical findings that a physician may uncover which are not in themselves diagnostic are a general appearance of apathy, an unhealthy look. Perhaps the complexion is sallow. Often the blood

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pressure is found to be "low." Lacking the physical findings, the diagnostician turns to the laboratory.

The specific test for hypoglycemia is the five- or six-hour glucose-tolerance test. After a patient is prepared for three days prior to the test, by loading himself with a high-carbohydrate diet, he reports to a laboratory in the morning where the sugar in his blood is immediately tested on a fasting specimen. Next, he is given a drink containing a measured amount of glucose. The sugar in the blood is tested one-half hour, one, two, three, four, and five hours after the glucose. A normal glucose-tolerance curve starts with the fasting level usually between 80 and 100 mg percent, that is 80 to 180 milligrams, 1/1000 of a gram, for every 100 cubic centimeters of blood. Within the first hour, the blood sugar should rise 50 percent above the fasting, level and return to the fasting level at the second hour, and remain within a short range of the fasting level on all subsequent specimens, even up to six hours.

If the fasting level is very low, for example, below 60 milligrams percent, or, if one of the blood samples falls to around 30 milligrams percent, the physician should be suspicious that this hypoglycemia may be caused by a physical reason as mentioned before, and further tests may be ordered. The following discussion concerns the cases with no known cause.

After the test is done, it must be interpreted correctly. If one of the specimens falls below 50 milligrams percent, a diagnosis of reactive hypoglycemia is made. Of the no-known-cause group, the reactive hypoglycemics represent only about 5 percent of the cases I see. A far more prevalent group of hypoglycemia is the group known as relative hypoglycemia, described by Salzer. This embodies Roger Williams' important concept of individuality. One person may get along very well with a blood sugar of 70 milligrams percent, whereas another person may need 90 milligrams percent to have a normally functioning brain. How then can the criteria for diagnosis be so statically defined as having to fall below 50 milligrams percent before a diagnosis is made? In the relative hypoglycemic group, if the blood sugar on any of the specimens is more than 20 milligrams percent below the fasting level, or falls more than 50 milligrams percent in one hour, and these changes are accompanied by symptoms of hypoglycemia, the diagnosis of relative hypoglycemia is made. The proof that this is a valid concept is in the improvement obtained in a large number of cases. Other abnormal curves qualifying as hypoglycemia are the flat curve, which is the failure of the blood sugar to rise 50 percent above the fasting specimen during the first hour, and the saw tooth curve, which is a marked rise of the blood sugar after the return to the fasting specimen level at the second hour.

The routine, ordinary type of five-hour glucose-tolerance test has been described. If there is a high degree of suspicion and there is a failure to demonstrate the finding of low blood sugar during this test, some variations are done. Sometimes tests are scheduled for the afternoon instead of the morning; sometimes exercise is added to the testing. Blood samples may be drawn at more frequent intervals at the patient's request, or at the blood technician's observation, if the patient is experiencing symptoms. It is obvious that if there is a low blood sugar level in response to taking the glucose drink then the response is not going to take place obligingly and neatly on the hour when the blood is drawn. To do the exam under the best circumstances, the technician should be briefed on what to look for, or the patient should be instructed as to what might happen and asked to request an extra blood sample if symptoms occur more than a few minutes before the sample is to be drawn. While these two solutions are ideal, in a practical situation, dealing with busy outside laboratories, the best solution is to inform the patient to observe his own symptoms carefully. If the patient has-

definite symptoms during the test, this is a more important finding to me than what the lab report states. As physicians we must remember that we treat the patient, not the lab report.

The obvious value of the glucose-tolerance test is to make the diagnosis. But there are other important values. I find that the graphic demonstration of low blood sugar to a patient makes them more apt to stay with a diet. Dietary indiscretions seem to be more frequent when a person **thinks** he has hypoglycemia, rather than **knowing** he has this disorder as proven by the lab. Treatment considerations are also provided by the test. The timing of snacks can be varied, depending on the particular curve. For example, a person whose blood sugar drops at the third hour would be advised to snack by the clock every two hours. Snacking time could be less frequent for one whose blood sugar level dropped only at the fifth or sixth hour. There are also a group of hypoglycemics described by Shaw and Kryston, Hahnemann Medical School, who have a flat or saw tooth curve, who do not respond to diet and vitamin supplements. If this type of curve is present, and there is no clear indication of response within two to three months, they are treated with DBI, a medication given to diabetics, which has the unique ability to normalize insulin levels over an eight-week period. In this group they have found either high levels of insulin or markedly irregular jumps in insulin levels tested throughout the five-hour glucose-tolerance test.

While these are some of the values of doing the test, it is important to know that the question frequently asked by a patient, "How bad is my low blood sugar?", cannot in my experience be answered by a review of test results. I have seen minimal laboratory changes with maximum clinical symptoms and have seen fantastically low blood sugar levels with minimal symptoms. For this reason, the glucose-tolerance test is not used to monitor the progress of the disease; it is only used to diagnose the disease in the same way a pregnancy test is done—you either have it or not, and if you have it there is no need for repeated tests to find out what is happening. The determination of successful treatment with hypoglycemia is made on clinical considerations, that is, a report from the patient on progress, or lack of it.

While a five-hour test need not be repeated, the physician should be aware that some cases of hypoglycemia progress to diabetes, and for this reason some shorter tests for diabetes are in order from time to time.

The treatment in most cases is relatively simple, mainly diet and vitamins. There are three aspects to the diet, what you eat, how much you eat, and when you eat. All three points must be followed for results. The "what you eat" is a low-carbohydrate, high-protein diet. To be absolutely avoided are processed carbohydrates, sugar, white flour, and caffeine. Physicians who have experience in the treatment of hypoglycemia disagree on some points such as the use of milk, which has a special sugar, lactose, and the use of artificial sweeteners. All agree that the processed carbohydrates and caffeine, which causes the body to release its stored sugar, are to be avoided. The second aspect of the diet is, "how much do you eat." This is an individual matter. Since part of the protein is turned into sugar, one should not eat a large amount of protein because then you would have a large amount of sugar in the blood system. Therefore, it is a good policy never to be stuffed when you get up from a meal. However, on the other hand, you should never allow yourself to be hungry, which means that your blood sugar has dropped, a condition which leads to the symptoms of hypoglycemia. This leads to the third aspect of the treatment, "when you eat." Eating should be done by the clock and not by the stomach. The glucose-tolerance curve gives a good clue on when to eat, that is, at a time before the blood sugar drops. For most people this means three small meals a day and a protein snack every two hours. The diet is designed to keep large

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amounts of carbohydrate out of the blood at any one time by furnishing small amounts of protein frequently, which results in the needed sugar getting into the system in small enough amounts which do not cause a reaction.

Supplements are equally important, such as a high potency B-complex, often ascorbic acid, vitamin E, and minerals.

When undergoing treatment for hypoglycemia, it is important that the patient knows that the results are not often immediate, even if they give up their favorite foods such as starch, candy, ice cream, coffee, and alcohol. There are generally three stages that a patient passes through when going through the treatment. The first stage is, "What's wrong with the doctor? I feel lousy." The second stage is, "Thank Cod it's all over with—I'm never going to get well." The third stage, "I'm better than I was, but not as well as I'd like to be." During the first stage, more often than not, all symptoms that the patient has complained of are as bad as they had been, and sometimes worse. There is also a craving for sweets and starches during this time which fortunately disappears in the first stage. The second stage is ushered in with a fairly dramatic change characterized by a sense of well-being both physically and emotionally, which prompts many to state, "Thank Cod, it's all over with." Unfortunately, this feeling only lasts from a few hours to a few days and is quickly replaced by the same old feeling which in the unaware prompts, "I'm never going to get well." The second stage most often takes the patient on the roller coaster for a while until the marked changes diminish to a point where the patient says, "I'm better than I was, but not as well as I'd like to be," and this is the feeling at the beginning of the third stage, which is characterized by gradual improvements. Most go through the three stages taking about a month for each of the three stages. However, some patients do the whole thing in one month, a few will do the stages in a total of nine months, and, in some, for one reason or another, there is no improvement. I find that there is nothing that is 100 percent sure.

Providing that a patient has completed his three stages on schedule on a three-month period of time, I usually allow another month on the strict diet before asking the patient to do some of his own detective work by varying his diet some. The first things that I allow are usually more of the natural carbohydrate foods which had been restricted at first, such as bananas, apples, grapes, and especially more whole grains. These foods must be added slowly, since bad reactions to the additions take place 24 and sometimes 72 hours later. Many people find they are able to make several changes in their foods except when under physical or emotional stress, at which times their bodies are supersensitive to the carbohydrates. The patients soon learn that their bodies are not static, and their tolerance changes from time to time. Others find that even the addition of small amounts of carbohydrates causes a return of symptoms. These patients are usually very willing to stay on the diet, because they recognize, for the first time in a long time, what it is to feel well.

In summary, hypoglycemia is one of the important dietary treatments with which the Orthomolecular psychiatrist is familiar. This condition is prevalent in schizophrenia and sometimes is responsible for neurotic manifestations of depression, anxiety, and phobias, and for alcoholism. The diagnosis depends on; the physician's degree of suspicion and the careful laboratory examination. Treatment consists of a low-carbohydrate, high-protein diet, small regular meals, and between-meal feedings. Vitamin supplements are helpful. The beneficial effects should not be expected as soon as one changes his diet, but do occur usually after three months on the program. This is a widespread condition, and since it masks as so many diseases, particularly those of the psychiatric area, it is essential that psychiatrists become aware of this, in order to treat their patients.

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