

Pandeficiency Disease

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Introduction

Diagnosis classifies disease for two main reasons: (1) to improve prognosis and (2) to improve treatment. Prognosis is very important so patients and family can prepare for the future especially if the future is very dim. Estimating when a person will die may be extremely important for all sorts of reasons. Before specific treatment was discovered doctors were judged on their ability to prognose correctly. It would be very bad for the physicians reputation if his prognosis were wrong. Many years ago when I started to practice some of my patients, when giving me their history, would tell me that their doctor had told them they would die but the doctor died before they did. Good doctors were good prognosticators and this depended upon accurate diagnosis.

Diagnosis became even more important when specific treatment was discovered. Diagnosis advised the clinician what treatment to use. It was assumed that patients with the same diagnosis would respond to similar treatment which had already been described by other doctors. I had pneumonia in my early teens. Our friendly family doctor (he was also surgeon, emergency doctor, obstetrician, etc. as he was the only one in the community) told mother I had pneumonia and ordered mustard plasters. It must have been very effective or else my pneumonia was very mild as I was well in a couple of days. That was standard treatment for a disease that killed a large proportion of the victims. This diagnosis was a descriptive diagnosis. By listening to my chest the doctor discovered something wrong and it was most likely pneumonia. No other diagnostic tests were available.

After it was discovered that many

lung lesions were possible it became necessary to distinguish one from another. Was it bacterial and if so which bacteria, staph. or strep.? Was it cancer or silica or tuberculosis? Specific laboratory tests are used. Diagnosis is now etiologic. It is based on the cause of the condition. Until the causal diagnosis is made the treatment can not be very successful. This is the pathway diagnosis has traveled, from description of the site, the organ, and later to the cause when known. If the cause remains unknown the diagnosis remains descriptive. Psychiatric diagnosis is almost entirely descriptive.

Deficiency Disease

Clinical or descriptive diagnosis is not very accurate. It depends too much on the orientation and skill of the clinician and surprises are common. Disease caused by one factor can take a variety of expressions. This means that the descriptive principle of classification can not be used. A perfect example is pellagra. This is a classical deficiency disease caused by a deficiency of vitamin B₃ in food. But the expression is so varied that one can only with difficulty visualize it as one disease. Classical pellagra expressed itself in major skin lesions, in gastrointestinal changes and in mental changes. The pellagrous skin also varies enormously and even today expert dermatologists fail to recognize it. It does not by itself point to the cause. The gastrointestinal symptoms might need the diagnostic skills of a gastroenterologist and the psychiatric manifestations need the skills of the psychiatrist. During the great pellagra pandemic over 100 years ago in the United States, one third of the patients in the south-east mental hospitals in some years were psychotic and could not be distinguished from schizophrenia. When niacin and/or

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niacinamide became available it became simple: If one suspected pellagra (and that was natural in the pandemic areas) one needed only to give them niacin. If they were pellagrin they would recover, sometimes quickly, sometimes it would take much longer. For a physician not familiar with this major disease it would be almost impossible to accept that these conditions could be caused by a lack of only one factor. Doctors specializing in pellagra were known as pellagrologists. We still do not have a laboratory test. Blood assays for this vitamin will not reveal it until they are close to the fourth D of pellagra: death.

Another example is syphilis, a parasitic invasion. Its symptomatology was so variable, so wide spread, that enormous numbers of pages in old medical text books were needed to describe the clinical condition. After the development of the serological test these massive descriptions no longer were needed; one needed only to suspect and then order the test. When the test first came into use it must have been very surprising to the clinician to find so many patients not clinically suffering from this infection who were positive on the test.

The Saccharine Disease

During WWII Surgeon Captain T.L. Cleave was concerned about the physical ill health of many of the sailors. From his studies he concluded that most of them suffered from one disease over all others, he called The Saccharine Disease (1966). I had a copy of his original publication but it was worn out by constant use. This book turned my life around. I became a full time nutritionist. He designated it as the major disease which included diabetes, coronary disease, obesity, malabsorption, peptic ulcer, constipation, hemorrhoids, varicose veins, E. coli infections such as appendicitis, cholecystitis, pyelitis, diverticulitis, renal calculus and many skin

conditions and dental caries. (*Hoffer and Walker, 1978*).

This nutritional disease affected all the organs and systems which were then diagnosed according to the organ or malfunction of that organ. The cause was the diet which was too rich in the sugars and refined carbohydrates and too deficient in food containing its original fiber. It is also deficient in essential fatty acids, vitamins and minerals. The diet was typically refined cereals devoid of their bran and germ such as white bread, polished rice plus a heavy intake of sugar averaging about 125 pound per person each year. Cleave did not consider the role played by the deficiency of essential nutrient factors. He emphasized the excessive intake of sugar and the deficiency of fiber.,

The massive evidence Cleave discussed had little impact except for a sudden interest in bran as if it were a drug especially designed for people with constipation. Cleave did give his sailors bran but he was much more concerned with the white flour they were eating and his message was clear that what was needed was the original whole grain cereals as in whole wheat and rice. Just adding bran provided a partial answer. In 1972 Professor John Yudkin published his book *Sweet and Dangerous*. He presented the evidence that proved sugars were the culprit. His work was ignored.

In 1953 Professor Ancel Keys showed that there was a negative correlation between fat intake and cardiovascular disease. Later it was shown that he had been selective in presenting his data and when all countries where data was available were included, there was no correlation whatever. But he was very persuasive and his hypothesis swept the field. Food fats became the villains and medicine adopted a hypothesis which has been very detrimental; the low fat diet. It was forecast that this diet would eliminate these diseases. It did not but this is old

stuff, why the sudden interest?

Gary Taube in his recent book *Good Calories, Bad Calories* (Knopf, New York) debunks the low fat diet hypothesis. This severe case of mistaken consensus was foisted on us by a process called Cascade. A few highly placed individuals with sufficient self confidence and clout are able to establish ideas which lack sufficient evidence. It was predicted with the utmost confidence that switching away from fats and replacing them with carbohydrates would solve most of our cardiovascular problems such as heart disease, hypercholesterolemia, obesity and more. This view became the ten commandments of modern nutrition and were enshrined in Canada's food rules which emphasized cutting back on meat and fat and increasing carbohydrates. The massive evidence reviewed by Taube shows that none of these goals were realized. Instead we have an even worse pandemic of obesity, cardiovascular disease and a whole host of other condition such as diabetes. Why should this be surprising? If you need 2000 calories a day and if you are going onto a low fat regime you have to make up these calories by eating other food and this usually will be carbohydrates: sugars and products derived from refined flour. The low fat diet favored by all medical institutions in the US and Canada increased the intake of sugar and refined carbohydrates. The new diet and national food rules did not eliminate disease.

The evidence is massive that the major villain was and always will be sugar and refined foods that are converted into sugar too quickly and absorbed too quickly. This is typically the modern high tech diet which is characterized by too much sugar and too little of all the other important nutrients. How could such a massive error be made and imposed on the whole world? This is what makes this book so interesting and valuable for it traces from the beginning the influences which led to

this debacle. There was a relatively small clique of nutritionists who, according to Taube, were not scientists nor clinicians who actually treated patients, who spearheaded the low fat diet movement. It included Professor Fred Stare from Harvard University who once wrote that people would be much healthier if they doubled their average sugar intake from 125 to 250 pounds per person per year. Dr Stare received very large annual grants from various food industries whose products contained huge amounts of sugar. It also included Professor Jean Mayer. Both these professors were violently opposed to orthomolecular concepts. They were as correct in their ideas about orthomolecular as they were about the importance of sugar enriched diets. If we followed the dietary concepts of these two leaders in the field we would all be eating tons of sugar, white flour and white rice, would eat little fat and would never ever take any vitamins or minerals. Our chronically sick population would increase, the current financial sickness crises would get worse and I would be even busier.

Until 1940 clinicians wrote about food and diet and usually advised that one should decrease the amount of sugar and refined carbohydrates such as white flour and polished rice. Dr TC Cleave was emphatic that the modern sugar rich diet was responsible for a large number of diseases he called collectively The Saccharine Disease. One example was what happened to Jews who were expelled from North Africa and fled to Israel. When they arrived they were healthy but probably not very happy. After 20 years on the modern high tech diet they were probably happier but not very healthy. When I was in Israel 20 years ago a public health doctor told me that heart attacks and death, like in North America, were common. Taube provides an excellent review of Cleave's research and adds to it. He adds the metabolic syndrome which is now so common and

has become a major problem in psychiatry with the use of highly toxic antipsychotic drugs such as zyprexa.

The low fat diet originated when Professor Ancel Keys looked up the statistics of over 20 countries that had records of their fat intake and the incidence of heart disease. He selected a third of the countries which fit the correlation he had in mind and showed that the countries with the highest fat intake had the highest incidence of heart disease. Because he was so highly regarded and determined, that became the orthodoxy of nutrition. However when all the countries including the ones he had not used were looked at the correlation disappeared. Almost all the clinical studies show that the problem comes from the sugars and not from the fats. However for many people a low fat diet may have been helpful if it meant they eliminated dairy products (not eggs) from their diet. These people are allergic to dairy containing foods. For many people dairy products are the major source of fat. One should no longer talk about fat but about the foods which contain the fat.

Ever since reading Cleaves book many years ago I have advised my patients to follow a sugar free, refined carbohydrates free diet. I think most of them who followed my advice have been grateful. There is nothing more pleasing than feeling good.

How could this one explanation account for the amazing number of diseases. This is how. Constipation was the main outcome of a diet deficient in fiber rich foods, not in a simple deficiency of fiber. If it were a simple deficiency of fiber one could eat fiber made from wood. This will certainly increase the fiber intake but will do little for one's health. Chronic constipation leads to the other diseases of the intestine. In South Africa it was said you had be English to get appendicitis. The natives who still ate high fiber foods did not. The remaining diseases came from

the high sugar intake. These are diabetes, coronary disease. metabolic disease.

Everyone knows that the major problem with modern food is that they are too rich in fat. But is this really true? When I wrote everyone I was wrong. A few of us did not think so but rather thought that too much sugar, and too little fiber rich foods were much more pathological. But the sugar industry was more adept at deflecting blame from their major source of revenue and the meat and fat industry were too lax in fighting and fell for the same idea. For a complete description of modern foods see Hoffer (1999, 2005).

The Saccharine Disease is also characterized by a deficiency in vitamins and minerals. The foods richest in these nutrients are not consumed. There is really no question about this and it is well recognized by government as well as by the public. If governments concluded that the diets were adequate they would not have mandated the addition of three vitamins and iron to white flour. And I would not have gotten my first job as a control chemist in a flour mill. Vitamin C, thiamin, riboflavin, niacinamide, vitamin D, iodine, calcium are some of the nutrients that enrich our foods. But the most striking was the eradication of pellagra within two years in the United States after it mandated adding niacinamide to white flour in 1942. The Canadian government would not permit this. The American law was adulteration in Canada except that it had to ship the enriched flour overseas to the allied troops and the Canadian Commissioner of Indian Affairs insisted that it also be given to Canadian natives who used it to make bannock.

This is one of the most beneficial public health measures ever, not only in preventing physical disease but in preventing mental disease. Before enriched flour became available up to one third of admissions to South East mental hospitals in the United States were pellagrins who could

not be differentiated from schizophrenia by clinical examination alone. Pellagra, characterized by the four Ds – dermatitis, diarrhea, dementia and death – was gone. In the whole history of psychiatry there has never been a public health measure as effective. The addition of few pennies of B₃ to flour saved the US billions of dollars of disease generated costs. The addition of folic acid to flour has and will do the same. In our book *Feel Better, Live Longer With Vitamin B3* we summarized the epidemiological literature and reviewed my 55 years of experience in treating these conditions and concluded that about half the population, the sick half, would benefit by taking extra vitamin B₃. About half the population suffers from one or more chronic conditions.

In our book *Orthomolecular Nutrition*, (Hoffer and Walker), we described some of the psychiatric symptoms associated with the Saccharine Disease, with the excess sugar that helps to generate it, including anxiety and depression. The patients were referred to me by their family doctors because of these symptoms. When I first read about the role of hypoglycemia in causing mental disease I was very skeptical but I was also curious. A young female was referred to me for depression. She told me that her main problem was that she was frigid. Psychoanalysis was riding high many years ago and it occurred to me that she would be a perfect candidate for psychoanalysis or deep psychotherapy to explore why she was having this problem. I decided that it was unlikely this was caused by hypoglycemia and she would be ideal to disprove the effect of hypoglycemia. I ordered the five hour glucose tolerance test. The curve was typically hypoglycemic to my surprise. Not expecting it would help I still advised her to avoid all sugar and to increase her intake of protein. To my amazement she was normal in one month. I was now more interested than skeptical. I routinely had

patients with anxiety and depression do the test. Over 75 percent had the typical abnormal glucose tolerance curves. I no longer remained skeptical. Since then I have placed every patient on a sugar free and refined carbohydrate free diet without doing any more tests. The condition was present in every one of 300 alcoholics I treated. I did not realize it then but sugar created disease by playing havoc with the metabolism of sugar, altering it up and down, and because patients were allergic to it. Other the foods like milk, to which patients are allergic, will also give the typical glucose tolerance curves. Over the years I concluded that if every doctor who referred their patients to me were to first test them and treat them with the special diet I would lose half of my psychiatric practice.

Pandeficiency Disease

Cleave did not consider the fact that the saccharine diet was also deficient in the B vitamins, nor did the host of nutritionists since then, even though massive surveys have shown that it is impossible to obtain enough B vitamins with this diet. Nor did it occur to me until I had had many more years of experience using large doses of the B vitamins. We treated schizophrenic patients with large doses of niacin or niacinamide and ascorbic acid. This was based on our hypothesis that schizophrenia was caused by the excess conversion of adrenalin to adrenochrome, an oxidation product. We used niacin to decrease the formation of adrenalin and ascorbic acid to inhibit its oxidation. Other catecholamines could also be oxidized in the body due to super oxidative stress. Over the following years it became clear that many other diseases also responded to increased doses of some of the vitamins. Eventually my objective in treating patients changed. I no longer aimed at just curing their disease, I was now interested in much more. I planned

to give them a multi-nutrient program which would not only help them get well but which would keep them well as long as they remained on the program and until they died.

Life extension also became an objective as it had already been shown that niacin would decrease death rate and increase longevity. Finally I concluded that I would no longer adhere to the “one disease–one drug” concept that permeates medicine and the drug industry. Instead, I would do what I could using nutrition and relevant nutrients to help patients regain their ability to deal with stress and with disease. People heal themselves if they are given the right tools with which to do so. I have been using this program for many years and have seen a large number of patients recover from different physical and mental disorders using the same therapeutic program. In the same way added sugar and refined carbohydrates will cause the Saccharine Disease, a multiple deficiency of vitamins will cause what I now call the Pandeficiency Disease (name suggested by Frances Fuller). It is a general disorder which may impact on any organ or system or function or combination. About half the population suffers from this chronic pervasive disease caused by the overall deficiencies in modern high tech diets. If the psychiatric professions were to look carefully at the diagnostic system it now uses it could eliminate hundreds of psychiatric disorders and their official numbers. Almost all the ADD diagnosis of children can be eliminated.

The Treatment Program for Pandeficiency Disease

Diet. Sugar free (including fruit juices), no refined grains, no foods one is allergic to.

Vitamin B₃ In decreasing order of preference: niacin, niacinamide and non- flush preparations. Dose varies from 100 mg to several grams after each of three meals.

This vitamin is most relevant. If the dose is too small it will do little. For schizophrenia it is the most important one as this disease is not a multivitamin deficiency disease. It is pellagra. For its many therapeutic properties see Hoffer and Foster. The best and safest non- flush product is niacin itself as the flush gradually goes away with continued use.

Ascorbic acid 500 mg to several grams three times daily after meals. It is a water soluble antioxidant and antistress substance. It is valuable in decreasing the incidence of flu and colds and thus decreases the danger of relapse.

B complex 100s, once daily, any meal. It is likely that if one nutrient is lacking so will many others be. This mixture provides a good mix of all the other B vitamins. It contains 100 mgs of B₆ but sometimes more will be needed up to 500 mg daily.

Vitamin D. I recommend 6000 IU daily in the winter months and 4000 IU in the summer if living in Canada. In the far north I recommend 6000 IU daily all year. Even in California or Florida many do not get enough exposure to sun which they avoid, following advice by dermatologists,

Other Vitamins May be Needed

Thiamine for alcoholics and sequela such as Wernicke Korsakoff and for very heavy consumers of sugars. Dose 100 to 500 mgs three times daily with meals.

Folic acid as an anti depressant, 25 to 50 mg daily (prescription needed) and less to lower elevated homocysteine levels in blood.

Vitamin E 400 to 800 IU daily but up to 4,000 IU for muscle wasting diseases including Huntington’s Disease and Amyotrophic Lateral Sclerosis

Essential fatty acids-Fish oil (eg Salmon, non farm) 1 g, three times daily after meals.

Selenium-200 to 600 mcg once daily, any meal. This is especially important

when living in areas deficient in selenium like the west coast of North America. In Victoria, where I live, animals not fed selenium will die of muscle disease. It has major anti-cancer and anti-viral properties.

Zinc citrate-50 mg or zinc sulfate 220 mg once daily, any meal.

Calcium-magnesium-1000 mg Ca with 500 mg Mg daily

The total cost of this program per month should be less than the cost of one pill of any anti depressant or atypical anti psychotic drug. Ideally we need specific laboratory tests that are cheap and will tell us exactly which nutrients are needed. We are not there yet and may never be there. With drugs it is far better to err on the side of too little as they are so toxic but with vitamins it is better to err on the side of a little more as they are so safe, so free of side effects and so cheap. Vitamins will have beneficial side effects. No one dies from vitamins. There are no bodies strewn across the country side as there are with drugs; 135,000 each year in Canada and the United States die in hospital with the recommended doses of drugs. Up to 100,000 deaths from one drug, Vioxx. Merck will pay nearly \$5 billion for the victims of Vioxx in the United States (November, 2007).

Medication

This program is compatible with any medication and has the major advantage that when used in combination the drug dose can be drastically reduced thus decreasing the toxic side effects. During my long career in treating schizophrenic patients with a combination of drugs and orthomolecular treatment, less than a handful of my patients developed tardive dyskinesia. It was never a problem and is easily treated. The basic medical injunction "First Do No Harm" applies to drugs. With vitamins it has much less relevance since they do no harm. Hip-

pocrates probably originated the phrase. One translation reads: "Declare the past, diagnose the present, foretell the future; practice these acts. As to diseases, make a habit of two things — to help, or at least to do no harm."

Some Conditions, Hoffer and Foster (2007)

These conclusions are based upon my personal experience in treating many patients with these conditions. I've described case histories beginning in 1960 in 30 books, in 600 publications in the establishment press and in the alternative press, mostly in the *Journal of Orthomolecular Medicine*. JOM has been blacked out by Med Line, the official censoring organization of the anti-orthomolecular establishment. They probably keep JOM properly hidden in some dark closet and classified as top secret. But their censoring role is coming to an end as JOM is now available at <http://orthomolecular.org/library/jom/index.shtml>

Psychiatric Disorders

Schizophrenia and schizoaffective disorder. The main emphasis should be on vitamin B₃. Hoffer (2007,2007a). Number of patients treated: over 5000.

Huntington's Disease. The main emphasis should be on niacin and vitamin E in high doses. Number treated: 2.

Mood disorders. The main emphasis should be on niacinamide, Prousky (2007). Hoffer and Prousky (2006). Number treated: over 1,000

Alcoholism. Developed in close association with Bill W, the co-founder of Alcoholics Anonymous. Main emphasis is on niacin. Number treated: over 500

Fetal alcohol syndrome. Number treated: 2.

Children with learning and behavioral disorders Hoffer (2005) Number treated: over 2000.

Autism. Pyridoxine very important.

Number treated: over 25.

Physical Disorders

Obesity. Jean Mayer, who was strongly opposed to orthomolecular therapy and practice, promoted the simple view that obesity was due to the very simple rule, too many calories in and too few calories expended out. This has become the standard belief of all anti-obesity programs because it seems to make so much sense. However, according to Taube, his massive examination of the clinical literature provides no support for this idea. There is no relation between the amount of food consumed and the amount of exercise expended and obesity. Many people are not obese no matter how little or how much they eat and too many are too fat no matter how little they eat. The problem is not the total amount of food consumed but the kind of food. According to Cleave, Yudkin, and now Taube and many others, the main factor that creates obesity is the amount of sugar and refined carbohydrates that are eaten. Sugars and foods that rapidly release them into the blood are the villains. It is true that if one eats too many calories there will a much greater tendency to put weight on but the real question is why do these people eat too much junk food.

I think they do this because they are sick. An example is the intolerable weight gain of patients who are treated with zyprexa, an atypical anti psychotic drug. I have seen young patients gain 60 pounds in six months after being placed on this dangerous psychiatric drug. It increases appetite enormously. But this is relatively rare. A more common reason is the modern high tech diet which is deficient in every nutrient except sugars and refined foods that create this appetite to eat more. I have called this the Wald hypothesis. George Wald got the Nobel prize for his work with vitamin A. He also showed that starving rats ran a lot more but so

did rats on a diet that contained enough calories but did not have any of the B vitamins. This also increased running (Wald and Jackson, 1944). It makes sense that hunger will increase running (activity) in animals since that motivates them to seek food; to hunt. But it is surprising that depriving them of the B vitamins will do the same unless one postulates that the animals sense the B vitamin deficiency as equivalent to hunger and tries to deal with that by increasing activity (Hoffer, 2007). The diet too rich in sugars is also too deficient in B vitamins. Since during evolution animals who did not respond to hunger by searching for food would not be around today, this has become a natural genetic reflex. Thus the modern diet will activate people in the same way.

There are three scenarios. The first will be the modern high tech diet where no one starves, food is plentiful and easily obtained. The hunger for nutrients (food) will lead to too much being eaten and they will get fat. And they will feel better with their obesity because they are getting more of the B vitamins, They remain uncomfortable if forced to remain thin. In the second scenario there is not enough food. In this case populations deficient in B vitamins will not be able to get the vitamins they need by eating more and they will become lean and hyperactive until felled by starvation, In the third scenario in children the drive for the B vitamins will increase activity leading to the hyperactive syndrome and later to obesity. This hypothesis that excess intake of calories from foods deficient in B vitamins increases activity either by eating more and being more active is a good hypothesis and it is easily tested. I have done so to a limited degree. I have tried to help many obese patients with little success using any type of diet.. But when I advised them to go back to the stone age diet, to take ample amounts of B vitamins and to eat as little or as much as they wanted they

would lose weight with comfort. These were no longer reducing diets. They were the new healthy life styles.

Arthritis. Main emphasis is on niacinamide and/or niacin. Vitamin B₆ and zinc are also very useful. Number treated: over 50

Cardiovascular. Niacin is most important, followed by ascorbic acid. Niacin lowers total cholesterol, lowers triglycerides, lowers lipo A, elevates HDL and has anti inflammatory properties on blood vessels, while vitamin C strengthens the collagen in the blood vessel walls. Not surprisingly, it decreases mortality and increases lifespan.

Multiple Sclerosis. Most important are thiamin, niacin, vitamin D. Number treated: over 50.

Aging. Most important is niacin. Number treated: over 100

Skin. Most important are niacin and essential fatty acids

Diabetes Mellitus. By controlling levels of the cholesterol fractions, niacin protects against the cardiovascular consequences of diabetes mellitus. Number treated: over 10

Virus infections and HIV/AIDS. see Foster(2002). Most important, selenium, ascorbic acid. According to Foster's views, based on a comprehensive examination of the literature and his own extensive research, life on earth is facing a shortage of selenium due to the use of fossil fuels. This is a main factor in the wide spread of virus such as hepatitis B and C and HIV/AIDS. Foster concluded "In short, these three viruses, that are known to encode for glutathione peroxidase and to diffuse rapidly in populations that eat diets that contain inadequate selenium and amino acids, have infected one third of the planet's population. Clearly, antiretroviral drugs, condom use and demands for chastity, unpolluted water and greater cleanliness will not halt these pandemics. We are still awaiting the often promised,

but never delivered, vaccines against HIV and hepatitis C. The tipping point has long passed. To halt the AIDS and other viral pandemics we need to begin the addition of selenium to most fertilizers and to table salt and the promotion of foods (including green algae) that contain higher levels of amino acids. These strategies will also slow down viral mutation and, therefore, the appearance of new human pathogens".

Bacterial infections. Most important high dose ascorbic acid

Cancer. Most important, high dose ascorbic acid, niacin, selenium and vitamin D. Number treated: over 1500

Patients with these diagnoses will respond to the multi-vitamin, multi-mineral regimen described here. They may not all be needed for a particular disease but as there is no way of determining which ones are most needed for that person and since a deficiency of only one nutrient is very rare it is better to use the whole regimen which is safe and can do no harm. Patient acceptance of this regimen is very high. After the patient has recovered they may find out for themselves which ones are most important by eliminating one at a time to see if it makes any difference. Many patients after they have been well for a long time will gradually modify the program and may go off it entirely. If they relapse, as many do, they will resume the program. The relapse may occur in weeks, months or even after several years.

Following Cleaves' lead in decreasing the number of diagnoses to one he called the Saccharine Disease, I have done the same by calling these diseases the Pandeficiency Disease (Occam's Razor). The Saccharine Disease is caused by too much sugar and refined carbohydrates and too little fiber rich foods. The Pandeficiency Disease is caused by the multiple deficiency of vitamins and minerals. I include the schizophrenias even though they are B₃ dependent i.e pellagra.

Causes

Here is a short list of causes. It will be expanded when research physicians look at this condition more enthusiastically.

Diet. This is the most common reason. During wars, droughts, famine and other catastrophes of mankind the food supply is always jeopardized. This is so well known that in emergencies the first efforts are to provide food and clean water. Africa suffers from these catastrophes in many areas. Their people will surely suffer permanent ill health even after the situation has been corrected. If the starvation and malnutrition is sustained too long and combined with stress they will become vitamin dependent on one or more vitamins. This is what happened to survivors of the far east prison of war camps and of the concentration and death camps in Europe and Asia

Iatrogenic. No attention to the nutritional needs of patients in hospital under very severe stress. Vitamin deficiency occurs in hospitals if patients have to live there too long.

Allergies. I have found a strong association between food allergies and the need for vitamin and mineral supplements. I became aware of this connection when I started fasting my patients to determine what foods they were reacting to. I soon found that some patients who needed 12 grams of niacin in order to control partially their psychotic symptoms could not tolerate nearly that much when these foods were identified and removed. Patients needing this much would do even better on 3 grams. This puzzled me. I think the explanation is relatively simple. Foods to which any person is allergic cause a chronic inflammation of the small intestine which then allows polypeptides that have not been fully

broken down to their basic amino acids to enter the blood (leaky gut) and this also decreases the adsorption of vitamins and minerals. When this continues for a long period of time the mild chronic deficiency caused by the food allergy will become a dependency, especially for niacin and perhaps for other nutrients as well. I have seen many on a milk diet who also showed the Pfeiffer signs of pyridoxine and zinc deficiency. Milk inhibits the absorption of zinc.

Diseases of Gastrointestinal Tract. Any disease of the gastrointestinal system will interfere with absorption of nutrients and if this becomes chronic will convert a deficiency to a dependency condition.

Viral infections. The best example is HIV which produces a selenium deficiency. The symptoms of AIDS are identical with the symptoms of selenium deficiency. (See HD Foster *What Really Causes Aids*)

Deficiency and dependency. A deficiency is present when the amount of any nutrient in the diet is below what the average person needs. Classically it applies to the well known deficiency diseases such as scurvy, beri beri, pellagra, rickets Scurvy is caused by deficiency of ascorbic acid. This deficiency alone has killed millions of people. Pellagra is caused by too little vitamin B₃ in the diet. This was the basis of the old paradigm called vitamins-as-prevention, clearly developed about 100 years ago and reluctantly accepted by the medical profession about 50 years ago but since then it has become so solidly established as if it were writ in stone even though it is totally out of date, wrong and harmful to so many patients. The reason it is inadequate is that it assumes that every one has the same nutritional needs. That is like assuming that every one has the same finger prints. A large

number of our population have needs for vitamins that are much greater than can be obtained from our modern diets and if they depend upon the diet only they will never achieve optimum health. For these people the correct term is dependency.

A deficiency will become a dependency if the deficiency is chronic. The rapidity with which this occurs depends on several factors including severity of the stress, severity of the malnutrition and iatrogenic causes. These are trigger factors. The European concentration camps and the far east prisoner of war camps were ideal for throwing people into the dependency state if they lived long enough. In the Japanese war camps, Canadian soldiers were incarcerated for 44 months. There they suffered severe malnutrition including about 800 calories daily, several deficiency diseases and this was combined with severe physical and psychological stress. One third died in camp. The remaining soldiers remained sick with the exception of few who were given niacin three grams daily.

The risk of becoming dependent varies with malnutrition, its duration and intensity, with the presence of disease such as infection of the gastro intestinal tract, food allergies, and systemic infections, its duration and intensity and with the level and duration of stress. When all three factors are operating at high levels the time needed to become dependent will be shortened. Cleaves found that it took 20 years before the Saccharine disease developed on the high sugar, high refined carbohydrates and low fibre diet, but without abnormal stress. The Canadian soldiers in Hong Kong camps became dependent in four years. But their malnutrition, presence of disease and stress was much more severe.

Prevention and Treatment

Treatment is of course very obvious. The diet must be improved, stress must be alleviated and disease must be treated. In

addition niacin must be given in optimum amounts and other nutrients as well. It is no secret that stress should be relieved and that disease should be treated but the medical profession and the nutritional professions have not yet learned that extra niacin will also be needed. If one expects to endure stress and illness it is wise to start on niacin immediately. Unfortunately the poor will not be able to afford prevention and adequate treatment. Orthomolecular treatment, due to the ignorance of medicine, is available only to people who can afford to seek and find orthomolecular practitioners.

To prevent or treat or both these are the three most important principles (1) Optimize the diet. (2) Remove trigger factors. (3) Use the correct nutrients in optimum doses.

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