



Clinical Experience with Use of Nutrition in Hospitals

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How I became interested in using nutrients to treat disease.

My epiphany came in 1980, when I treated a neurological patient, who had been wheel chair confined for 6 years. For many years, he had been the private patient of the head of the department of neurology at the medical school. This man was incontinent of bowel and bladder and he had an indwelling catheter that resulted in frequent episodes of bladder and kidney infections. It was an episode of pyelonephritis that resulted in his hospitalization where I met him. During my workup, I looked at his blood smear under the microscope and I did not see one normal red blood cell. He had very large red blood cells a condition called macrocytosis. As I worked up his macrocytosis (macrocytosis is frequently caused by either a B12 or folic acid deficiency), both his folic acid and B12 blood levels were normal and he did not have anemia. An allopathic approach would have been to look elsewhere, since his lab values were within the normal range. After reading an article that B12 levels did not differentiate between active and inactive forms of vitamin B12. I hypothesized that he may have inactive vitamin B12 so I decided to give him a B12 shot for his macrocytosis. (In medicine, it is standard practice to give one B12 shot a month for a diagnosed case of B12 deficiency).

The next day when I made rounds he asked me what was that red liquid he had been injected with. I told him it was vitamin B12. “Doc, that is the first thing any doctor has ever given me that made me feel better.” So, I decided to give him another shot and each day he reported that he wanted more. I continued to give him daily B12 shots for 3 weeks and then I stopped the shots because I was afraid I was going to poison him, since I knew almost nothing about B12. We had a huge argument that went on for three days where he insisted I restart the shots. I eventually compromised and agreed to give him a B12 shot every other day. He continued to receive the B12 shots for another 3 and 1/2 weeks. As a side note he was on IV antibiotics for six weeks for recurrent septicemia (infections in the blood stream). During the seventh week on a Friday when I made rounds he told me to stand by the door and he got out of his wheelchair and walked. On Sundays, his family would fly in on their private plane and his wife and two gorgeous daughters would visit him in a downstairs sitting area. That Sunday he was sitting in his wheelchair in the lobby awaiting their visit. When his family came in the door about 50 feet away he walked towards them. Frankly it was pandemonium with his family screaming “it’s a miracle” over and over.

This was a totally unexpected; but, pleasant occurrence that was the start of my conversion to being a medical heretic. I am a heretic because I believe that diet, nutritional compounds and energy

devices that support the natural repair and regeneration processes of the body can adjust an individual's metabolism better than medications. I have since learned that B12 levels in the CNS may be up to 5 times lower than blood levels due to impaired cell membrane transport mechanisms, inactivation of B12 by heavy metals in the brain and impaired conversion to the biologically active form methylcobalamin. Any of these factors could have contributed to this man's condition.

Being a heretic is a lonely profession. Therefore, it was my natural inclination to look for other medical heretics. In my search, I read about Samuel Hahneman, Linus Pauling and Hans Nieper, M.D. I eventually became a student of Dr. Nieper, collected a library of his articles and began a correspondence with the great man. In 1998 I was invited to visit his Clinic in Hannover, Germany, where I studied his treatments. Dr. Nieper was a physician who had a background in physics, which strongly influenced his approach to medicine. He had several fundamental beliefs that influenced his treatment of patients. First he believed in using natural nutrient compounds that support cellular metabolism. He believed that nutrients had to be nontoxic even when given indefinitely. He also understood that the cells and tissues of the body had an electromagnetic nature. Dr. Nieper during his career developed and utilized orthomolecular nutrients that supported the cell's and tissue's electromagnetic fields (EMF). Dr. Nieper understood that the cell's electromagnetic character was involved in health and disease.

As a practicing physician, I became interested in using minerals, vitamins and other nutrient therapies to help treat disease states in patients that I came in contact with in my clinical practice. I gradually became disgruntled over time with the inability of medicines to cure illnesses. Throughout my training, I was educated how to treat and control the illnesses that my patients suffered from. The approach to degenerative diseases that I was taught in medical

school and residency entailed disease management with medications. However, unless you are dealing with some very specific fundamental illness such as an infection that can be treated with targeted antibiotics, there is a price to be paid with chronic use of pharmaceutical drugs involving alterations in the body's physiological state. Early in my career I began to think there must be a more natural way to assist the body in healing itself. So, I began to study the essential nutrients required by the body and to ask myself are my patients receiving all the essential nutrients that they need in order to maintain and regain good health.

Essential nutrients are substances that the body cannot produce and must be provided by the diet. Many essential nutrients constitute the structural elements that the body is composed of and which the damaged body requires for repair of its tissues. As I began to philosophically accept that certain nutrients are absolutely essential for health I wondered why this wasn't the starting point for the treatment of all diseases. I have learned the answer after 33 years as a physician. Doctors are not trained to treat health they are trained to treat disease. There is an almost complete lack of emphasis on the role of nutrients and nutrition in medical education. Since most doctors feel that if a subject was important they would know about it, they discount the role of nutrition. I call this mind set "arrogant ignorance".

Essential Nutrient Deficiency:

Over the centuries medical and scientific researchers have clearly established that certain minerals, vitamins, amino acids and fats are essential to maintaining health. Despite these undisputable scientific facts, it is absurd that medical doctors and insurance companies do not

absolutely ensure that the patients under their care have regular screenings to determine if their patients and clients have sufficient levels of essential nutrients in their bodies and diets as a form of preventive medicine. I believe scientific laboratory evaluations and monitoring of all essential nutrients need to be performed periodically whenever patients are undergoing treatment for chronic degenerative diseases.

I think it is medically irresponsible if not downright malpractice for doctors to chronically prescribe pharmaceutical compounds that affect cellular functions without ensuring that the metabolic pathways that detoxify these compounds are properly and continually functioning. Thousands of scientific papers have clearly established that certain essential nutrients are required for maintenance of the body's detoxification pathways and that these same nutrients will become depleted when pharmaceutical compounds are persistently administered. (For example, chronic use of acetaminophen and opioids will deplete the liver and kidneys of the detoxifying antioxidant glutathione. If glutathione precursor nutrients and glutathione regenerating enzyme cofactors are not present in the diet liver and kidney damage will occur). It is a strategic error to assume that all of the essential nutrients will be supplied if the patient just eats a healthy diet. I personally have checked thousands of patients for the presence of critical essential nutrients. I have invariably found that sick individuals almost always have either absolute or relative deficiencies of a number of essential substances and that the levels will vary over time making it necessary

to perform ongoing monitoring and adjustments in nutrient intake.

According to my philosophy the **role of a physician** is to support the body's natural reparative and regenerative processes and avoid using toxic substances that will interfere with natural healing. Men like all living organisms are subject to natural law and our creator has endowed our bodies with the capability of self-healing. When the process of self-healing is violated, the body's metabolic processes are disrupted; therefore, it is critically important to support the healing power of nature. This point of view that God has provided in nature all the elements needed to maintain health has a historical basis. "And God said, Behold, I have given you every herb bearing seed, which is upon the face of all the earth, and every tree, in which the fruit of a tree yielding seed: to you it shall be meat (KJV Genesis 1:29)."

I started working with Mineral transporters in 1990 and I also worked with Dr. Hans Nieper the doctor who invented many transporters. I have extensive clinical experience using mineral transporters in thousands of people. During my career, I have also experimented with combining nutrient cocktails along with use of pulsed electromagnetic field devices, phototherapy devices utilizing LEDs, plasma tube devices driven by frequency generators and frequency specific microcurrent devices using electrode pads. I observed that I could achieve significant clinical improvements with these approaches. I was using field energy to increase cell membrane capacitance, ATP production, protein synthesis and promote healing. I recognized that one effect was that I was improving intracellular delivery of nutrients.

Example of field therapy with diabetics:

Having worked with many diabetics with impaired glucose transport and using field generating

equipment (PEMF) I found that I could drop blood sugar in 9 minutes from 300+ down to 120- 80. I recognized that cell membrane transport of glucose could be increased by providing field energy. Working from the facts that:

- Many substances require active energy-dependent transport mechanisms in order to enter the cells.
- Many people are low in one or more essential nutrients, but clinicians almost never identify or correct these deficiencies. And if a clinician tries to correct a recognized deficiency that they often use the wrong compound (Examples: thiamine HCL, or benfotiamine instead of lipothiamine (TTFD) (Lonsdale, 2004) or pyridoxine HCL instead of P-5-P) or the wrong dose or the wrong combination or fail to account for GI absorption or cell membrane transport issues or cellular energy deficits.
- Many cell membrane transport mechanisms are dependent upon adequate supply of ATP availability at the location of cell membrane and a lack of ATP will limit transport.
- ATP membrane transport proteins can transduce field energy as a source of electrons and electromagnetic field generating devices can increase ATP in the cells.
- Many physiochemical disruptions can impair cell membrane transport mechanisms and cellular energy production (infections, toxins, drugs, EMF, free radicals and many more).

I then theorized that methods that increased cellular ATP production whether by biochemical therapeutics (providing B-vitamin Coenzymes, IV mineral infusions of magnesium + trace elements, etc.) or by utilizing the biophysical properties of cell membranes to transduce field energy could improve the entry of multiple nutrients into the cell. Then it

became a simple manner of ordering extensive nutrient panels, determining which nutrients an individual was deficient in and then providing a preloading cocktail of all the identified factors about 1 hour before treatment with field equipment (PEMF devices, phototherapy devices or plasma tube devices.

I would monitor the response by doing a baseline neurological screening test and then repeat the neurological exam about two hours later. I consistently found that I could observe immediate neurological or mood changes. I did neurological testing because I realized that CNS function is exquisitely sensitive to methods that improve energy production. You can also use a simple tool such as having the person write a paragraph and then rewrite it in <2 hours. Handwriting requires a high level of neural integration so an improvement in handwriting gives an assessment of global CNS function.

Case report of a hospital experience:

In my experience hospitals and insurance companies do not recognize the benefits of nutritional therapies outside of very restricted and rigid guidelines. In this age of managed care, when a doctor admits a patient into a hospital, the doctor must prepare a treatment plan outlining his treatment of the patient. Initially, a hospital employee will contact the managed care company to review the condition of the patient and review the plan of care. The managed care reviewer will then approve a certain number of days for inpatient treatment, but the main focus of the insurance company is to push for the earliest possible discharge. If the hospital stay is going to be longer than the insurance company deems proper the attending doctor is brought into this process and he will have to discuss his care and the patient's condition with a medical reviewer in order to get approval for more days of inpatient treatment. I found from experience that the use of treatments

that fall outside of cookbook guidelines creates red flags with the managed care reviewers. When a doctor speaks to an insurance company representative he will find they only believe in research based on double-blind studies, but not empirical studies and they deride the role of clinical observation in determining the appropriateness for treatment. See section on empirical research versus double-blind research for a discussion of the differences.

I once had a troubling experience with several medical representatives of a managed care company regarding the care of a patient with nutritional treatments. A number of years ago, I was consulted by a physician colleague whose mother 5 months previously had had coronary bypass surgery at a major medical school teaching hospital. The surgery was successful, but this woman awoke from surgery completely incoherent. In fact, she was still incoherent and confused four months after the operation. Because of her altered mental state, after she was deemed medically stable, she had been transferred to the psychiatric unit of the hospital where she was hospitalised for 4 months. During and continuing after her psychiatric hospitalisation she was agitated, confused, disoriented, unable to communicate, unable to feed herself, and unable to control her bowel and bladder functions. She had a severe disruption of her sleep cycle and she screamed and babbled continuously unless she was sedated. Prior to the surgery, she had been active in her church, cared for her home and she was a vibrant senior citizen.

After nearly four months of inpatient medical-psychiatric care the family was advised that her condition was permanent and the medical school physicians recommended that she be placed in an Alzheimer's unit of a nursing home and be kept sedated. During her months-long hospitalisation this woman had been tried on numerous and I mean a lot of psychiatric medications, which served only to

sedate her, but did not correct her abnormal mental condition. Fortunately, this woman had an affluent family with her children all successful professionals. Her family instead of placing her in a nursing home took her home, but because of the severity of her agitation they found that she required 2 full time attendants because one person could not manage her. After several weeks of an intolerable home situation I was consulted and I admitted her to a medical-psychiatric unit under my care for re-evaluation.

Well I knew I had my hands full from the start so I met with the family, reviewed her hospital records, her previous lab work and medication trials. This entire process took 5 hours. After my physical exam, I again met with her children two of whom were medical doctors and I outlined and received permission for use of a unique treatment approach.

Her lab work review showed she had chronically borderline low magnesium and potassium levels, which had been inadequately treated. Her blood counts showed large red blood cells and mild anemia suggesting the possibilities of vitamin B12 and or folic acid deficiencies. Her liver tests showed a significant elevation of liver enzymes, which indicated that she might have problems with drug toxicity due to the simultaneous use of multiple medications and metabolic impairment of her liver functions.

On my physical exam, I noticed that her skin was very dry, her nails were thin and peeling, her heels were cracked and her hair was dry and thinning. I noted that she had lost over forty pounds in the last 4 months and she had muscle wasting. These findings suggested that she might be suffering from essential fatty acid and amino acid deficiencies. Her tongue was smooth, red and she had cracks in the corners of her mouth suggesting multiple B-vitamin deficiencies. I also found her colon to be impacted with feces, which indicated she was not moving toxins out her bowels very well. She also screamed

and babbled incoherently not only during the physical exam, but also during the first 4 days of hospitalization.

Her history obtained by reviewing her records and interviewing her family indicated that she had been eating hospital food for nearly four months and that because of her agitation she frequently would not eat or eat only small portions of her meals. In addition, the family noted that the only food she would eat during most meals was pudding. As a side note, pudding is basically sugar and is lacking in minerals, fats, vitamins and protein. Because of the stress of surgery, medication use, poor food intake and weight loss I suspected that she might have deficiencies of potassium, magnesium, zinc, chromium, vitamin C, B-vitamins, essential fatty acids and amino acids. Prolonged high carbohydrate ingestion, similar to alcoholism, will lead to depletion of B-vitamins especially vitamin B1, which is used up during carbohydrate metabolism. Low vitamin B1 alone is a significant cause of delirium on medical-surgical units during prolonged hospitalization. Cellular transport of vitamin B1 into the brain and glucose utilization can be reduced in sick individuals leading to a CNS energy deficit as the Krebs cycle is impaired, since the brain uses glucose as a primary fuel.

This woman had been on multiple medications including antibiotics, diuretics, stomach acid blockers and psychotropic drugs over the last four months. I suspected that the medications had altered the intestinal flora of her digestive tract, damaged her intestines ability to absorb nutrients and contributed to constipation. The stomach acid blockers had been used for years and could have interfered with the absorption of vitamin B12 and other essential nutrients. The diuretics had also been used for years and I suspected they had contributed to total body depletion of zinc, potassium, magnesium, multiple trace minerals and vitamins especially vitamin B1. She also had been on a low-fat diet and lipid lowering

drugs for years, which would contribute to a deficiency of essential fatty acids and coenzyme Q10.

During my meeting with her family I reviewed her current and past medication trials. I determined that she was still on 13 medications. When an individual is on so many medications it is called polypharmacy and the likelihood of medication side effects and medication interactions are 100%. So the first thing I proposed to her family was that they allow me to remove as many medications as possible this was agreed to by her two physician sons. I reviewed with her family that many of the medications she was receiving were going through the same detoxification pathways in the liver leading to metabolic stress and the likelihood of medication accumulation and drug toxicity.

I removed 12 of the 13 medications leaving her only on digoxin, which was left because of her history of congestive heart failure. I had multiple reasons for removing her medications. First, she obviously had not responded to the medications and I felt the risks outweighed any benefits she may have been receiving. Next, I had her hospitalized on a medical psychiatric unit with trained nurses who could assist me in closely monitoring any changes in her medical and mental condition.

As a people age, most will develop and accumulate medical conditions for which they seek out doctors for treatment. Over time it is common that a person will be prescribed multiple medications often by more than one doctor. A major problem is now occurring, since no one knows for certain what happens when you mix multiple drugs. The FDA does not know, the pharmaceutical companies do not know and the doctors damn sure do not know. A patient will now begin to experience a condition known as 'side effects' but in reality, is drug toxicity. When side effects are serious, more likely than not, a patient will see a doctor who mistakenly addresses the problem by prescribing more drugs. In my opinion a better choice would be to either reduce the

doses of medication or to discontinue the medication that in the doctor's opinion the most likely culprit. Studies will not solve this problem because no one has studied all possible combinations of drug interactions.

Because her diet had basically consisted of processed foods and the family indicated she would accept only limited amounts of foods primarily sweets I knew I was dealing with multiple nutrient deficiencies.

The plan I outlined to her family was to remove her medications, draw routine admission lab work plus lab work designed to look for nutrient deficiencies and to start her on a special diet and supplement program. The special lab work I ordered checked for mineral levels, fatty acid levels, vitamin levels and amino acid levels.

Her diet, supplement and treatment program consisted of:

1. 2 large glasses of fresh vegetable juice daily prepared by the hospital kitchen. Several years earlier I had previously purchased an industrial juicer for the hospital and fresh vegetable juice was a regular part of my treatment approach for certain patients. Fresh vegetable juice contains many minerals and vitamins in an easily assimilated form as well as large amounts of fiber, which assists in normalizing bowel functions.
2. I included 2 scoops of whey protein powder in each glass along with 2 tablespoons of flax seed oil to provide easily assimilated forms of amino acids and essential fatty acids. I believed that her intestines ability to absorb nutrients was compromised so I wanted to be sure she had food in a form that would not stress her digestion. I also believed the flax oil and fiber would further reduce her tendency to be constipated.
3. I gave her daily enemas for the first 3 days to clear toxic waste out of her colon.
4. I started her on zinc, magnesium, potassium, chromium and trace mineral supplements.
5. I gave her oral vitamin C, vitamin E, B-complex supplements.
6. I gave her daily vitamin B12, B1 and folic acid shots for the first 10 days.
7. I gave her 2 tablespoons of lecithin daily and 4 capsules of black currant seed oil daily (source of GLA). Lecithin is an important source of the cell membrane repair phospholipid phosphatidyl choline. Lecithin along with the essential fatty acids in flax oil and black currant seed oil were given to provide brain cell membrane repair nutrients, because the brain structure is 60% lipids. It was obvious from the physical exam that this woman was clinically exhibiting essential fatty acid deficiencies so I believed that these were critically needed in supporting her brain function.
8. I had four pureed meals prepared daily with fresh vegetables and meat. I also had staff members' spoon feed her to assure that she ate the food. I had broiled salmon prepared 5 times a week to give her an additional source of omega-3 fatty acids and protein.
9. I gave her daily supplements of carnitine to improve fatty acid metabolism and coenzyme Q10 to improve cellular energy production. These two supplements are also beneficial for patients with heart conditions.
10. I gave her yogurt each day to replace beneficial bacteria in her bowels.
11. I gave her digestive enzymes with each meal to assist her digestion of proteins and to improve her blood circulation by reducing microvascular clots. I had a microscope that allowed me to look at her blood in my office next to the hospital. Live blood analysis

allows a qualitative assessment of the blood cells and the circulation. When she first entered the hospital, I took a blood sample by finger prick. This examination showed me that her red blood cells were too large and their membranes were deformed suggesting vitamin B12 and folic acid deficiencies (– confirmed by lab tests), fatty acid and antioxidant disturbances (low ascorbic acid level by lab test). Her red blood cells were also very aggregated and she had numerous microthrombi indicating that she was most likely not getting adequate blood circulation, oxygenation and nutrients to her organs especially her brain. Digestive enzymes help improve circulation of the blood through small blood vessels.

12. I had her in a medical-psychiatric ward of the hospital, but I did not give her any psychiatric medications. The reasons were multiple including the fact that I thought she was toxic from medications at the time of admission and I wanted to wash out her system. She had also been on numerous psychiatric medications for 4 months without any discernible benefit.

Within 5 days on this approach she started sleeping at night and she began feeding herself. On the seventh day, she began speaking a few words. And she was mentally improving. Needless to say, the family, the hospital staff and I were all thrilled at her progress. On the fifth day, after the managed care company reviewed her case they deemed the hospitalization to be unnecessary, *“because the doctor does not have her on any psychiatric medications.”* I got on the phone the next day and spoke to the insurance company’s psychiatric reviewer. This psychiatrist told me that the patient’s improvement had nothing what so ever to do with what I was doing that I was obviously practicing orthomolecular psychiatry, which was totally worthless. I was basically astounded since this woman’s insurance company had previously

approved 4 months of psychiatric hospitalization during which time she had made no improvement in her mental condition yet they were demanding that I discharge this woman after only 5 days even in the face of obvious clinical improvement.

I refused to discharge her and I demanded an appeal. I then wrote a 5-page letter outlining the reasons for my treatment approach which I faxed it to the insurance company. The next day I spoke to the medical reviewer. The reviewer wanted to know what scientific double blind studies I was basing my treatment upon and didn’t I know that the approved treatment of an elderly individual with agitation and confusion in a psychiatric hospital involved the use of psychiatric medications. I was able to quote a few articles on the use of nutrients in psychiatric patients and I was able to get an extension for one more day. For the next eight days, the insurance company’s medical reviewer and I spoke daily. I spent more time justifying my treatment approach that week than I actually spent with the patient. Basically, hunting down articles and speaking to the medical reviewer took about five hours of my time that week. By the end of 13 days I could get no more extensions. Because the woman was improving the family decided to keep her in the hospital and pay the remainder of the hospital bill out of their pocket. I kept this woman in the hospital for 25 days so the family had to pay for the last 12 days of hospital care not covered by insurance.

When I discharged my patient after 25 days she was eating well, sleeping at night, feeding herself, walking, talking coherently dressing and bathing herself. Her agitation and confusion had resolved. The family kept her on my entire program after she returned home and within 6 weeks after discharge she had improved so much she was driving her car going to church and she had re-joined her bridge club.

My lab work drawn on admission confirmed that she had multiple essential fatty acid deficiencies,

multiple amino acid deficiencies, multiple mineral and multiple vitamin deficiencies.

Discussion of what I think happened to this woman:

1. When this woman had her coronary bypass surgery she was placed under anesthesia during the procedure. The stress of this type of surgery creates a significant number of free radicals (oxidative stress) and sludging in small blood vessels. Her brain was subjected to severe oxidative stress as well as multiple microthrombi that can reduce blood flow, oxygenation and glucose utilization by her brain. (These conditions can exhaust blood levels of antioxidants). Her confusional state indicated she had impairment in brain metabolism, energy production and disruption of brain functions.
2. Brain cells are especially sensitive to oxidative stress. Oxidative stress, which arises from increased free radical production, is a significant mechanism that is involved in the pathology of neurodegenerative diseases. When free radicals are poorly controlled damage occurs to sensitive structures like cell membranes, DNA and enzymes. Brain neurons are highly susceptible to damage from free radicals because their membranes contain large amounts of polyunsaturated fatty acids. When neuronal cell membranes are damaged by free radicals the membranes can become stiff due to lipid peroxidation and they can become depleted of critical phospholipids (Christen, 2000). Cell membrane damage affects many functions of the cells including genetic expression, energy production, and nutrient transport.
3. Therapeutic approaches that control oxidative stress and deliver essential phospholipids by either oral or intravenous methods have been reported to be beneficial in the treatment of neurodegenerative diseases.
4. The stress of surgery along with pre-existing mineral imbalances of magnesium, potassium, chromium and zinc (she had been on diuretics for years prior to the surgery) along with vitamin deficiencies (she had been on medication for years that interfered with the absorption of B-complex vitamins especially B12, B1 and folic acid) set her up for dysfunction in cellular energy production. The brain is one of the most metabolically active organs in the body and it uses glucose as its primary fuel. Glucose and oxygen must be transported by an intact unclogged circulatory system to the brain. Once glucose reaches the cells it must then enter the cell through the cell membranes, which requires intact sodium potassium transport mechanisms, adequate cellular ATP to run the pumps, insulin, magnesium, zinc and chromium. She was low in potassium, chromium, magnesium and zinc. Once the glucose enters the cell it is turned into cellular energy (ATP) by mitochondrial enzymes that require magnesium and B vitamins in order to function (she was low in numerous B vitamins and magnesium). Coenzyme Q10 is also a key substance involved in the mitochondrial production of energy (she had been on lipid lowering drugs for years, which can lower cellular levels of coenzyme Q10). So numerous factors were present that could lead to impairment in her brain's ability to make energy and perform its functions.
5. She likely had a pre-existing vitamin B12 deficiency due to long-term use of stomach medications that can lead to malabsorption of B12 and other B vitamins. B12 and folic acid are involved in numerous metabolic reactions in the brain and deficiencies of these vitamins can also lead to abnormal red

blood cells and anemia, which reduces the blood's ability to carry oxygen.

6. She had been on a low-fat diet for years because of her heart condition, which set her up for essential fatty acid deficiencies that were only worsened by her poor diet and dietary intake during the 4 months she was in the hospital. Because the brain needs essential fatty acids in order to maintain the health of the brain cell membranes, a deficiency of essential fatty acids can lead to disruption of the function of cell membranes. The oxidative stress of the operation also caused damage to her brain cell membranes that she was unable to easily repair because she lacked the construction materials, antioxidants and energy necessary to perform the job.
7. Her weight loss and inadequate intake and digestion of proteins set her up for multiple deficiencies of amino acids. Amino acids along with the minerals zinc, magnesium, copper and lithium and several B vitamins are needed in order to manufacture neurotransmitters. She most likely had impairment in neurotransmitter levels. Adequate neurotransmitters along with functioning neuronal (brain) cell membranes are necessary for psychiatric drugs to be effective. So, the psychiatric medications she had been given were basically ineffective since she had dysfunctional brain cell membranes and she did not have enough neurotransmitters to manipulate.
8. The multiple medications she had been given also interfered with the detoxification and metabolic activities of her liver so her liver's ability to carry on its functions was impaired.
9. Her bowels were not emptying properly so any waste dumped into the bowels was continually being reabsorbed.

10. I suspect her medications and her illness created disruption in her intestines ability to absorb nutrients so she could not obtain the nutrients she needed.

My approach to her care:

I basically approached this case from a holistic point of view. By understanding drug mechanisms of action, side effects and pathophysiological processes I realized that her body and brain were not receiving the essential nutrients needed for proper operation. I recognized after taking the history, reviewing her records and performing a physical examination that this woman had severe nutrient imbalances. I recognized that the brain and the liver are the most metabolically active organs in the body and since both of these organs showed evidence of dysfunction part of my approach was to support cellular energy production and cellular detoxification. I decided that she needed nutritional support of neurotransmitter synthesis and cell membrane repair. I also recognized that her previous treatments had been unsuccessful and only a damn fool would continue to do something that had already been proven to be useless.

My conversations with the insurance company reviewers:

1. Our conversations basically focused on the managed care company's medical advisor continually suggesting (pressuring) me to try psychiatric medications.
2. The reviewer repeatedly questioned me about justifying my treatment based on clinical (double blind) studies and did I know any studies that gave validation for my treatment. One of the main problems with use of double-blind studies as a guide is that in a case with over 21 variables (just considering the nutrient deficiencies) there

is not just one diagnosis. In this case just looking at a delirium there were many organic factors that could have singly caused the condition. Magnesium deficiency, zinc deficiency, vitamin B1 deficiency, vitamin B6 deficiency, B12 deficiency, folic acid deficiency and essential fatty acid deficiency are all reported to cause confusional states. From a clinical point of view, she was also protein malnourished and severely lacking in both dietary antioxidants and endogenous antioxidants (glutathione, catalase and superoxide dismutase).

3. The two medical reviewers that I spoke with were completely uninterested in the multiple nutrient deficiencies that were evident clinically and were confirmed by the lab work.
4. The medical reviewers had zero comprehension of metabolic biochemistry and did not see the relevance to this case. My difficulty is that I was using a different paradigm and a language that the reviewers did not understand or accept. I was evaluating my patient based on physiological and biochemical parameters, not using a phenomenological diagnosis based on symptoms. I was trying to identify and correct the causative factors that produced the clinical condition. Cook book diagnostics in Psychiatry is to take a history, group the symptoms, assign a diagnosis and use an approved drug covered by the patient's insurance carrier. This approach completely ignores and refuses to look for underlying nutritional, hormonal, physiological and biochemical abnormalities THAT WERE PRESENT IN EVERY CASE I EVER EVALUATED.
5. When the reviewers encouraged me to use psychiatric drugs I repeatedly asked what medications I should use to correct nutrient imbalances (lab findings) such as zinc deficiency, magnesium deficiency,

potassium deficiency, chromium deficiency, vitamin B12 deficiency, vitamin B1 deficiency, vitamin B6 deficiency, folic acid deficiency, omega-3 fatty acid deficiencies and deficiencies of 12 amino acids all of which were present in this case.

6. Basically, the reviewers refused to approve inpatient hospitalization after 13 days because I was not using the appropriate standard of care (approved psychiatric medications).
7. I realized on reflection that the reviewer's cookbook paradigm for the appropriate treatment of an individual with a neuropsychiatric illness encompassed only a) make the diagnosis b) use the approved drugs, but could not incorporate a situation with over 21 variables all nutritionally related much less the other factors that have been delineated in this case history.

Some of the factors actors associated with confusional states that I considered singly or in combination in this case (underlined indicates identified in this case):

1. Impaired CNS glucose utilization
2. Impaired microcirculation – especially in CNS
3. 'Subclinical' hypothyroidism (especially low free T3 levels)
4. B12 deficiency – especially methylcobalamin deficiency in the brain
5. Alcohol and drug abuse
6. Folate deficiency
7. SAME deficiency
8. Vitamin B1 deficiency – specifically CNS deficiency of B1

9. Vitamin B6 deficiency and pyridoxal-5 phosphate deficiency
10. Vitamin B2 deficiency
11. Vitamin B3 deficiency
12. Vitamin K deficiency
13. Vitamin D deficiency
14. DHEA deficiency
15. Growth hormone deficiency
16. Melatonin deficiency
17. Testosterone deficiency
18. Decreased brain levels of creatine
19. Impairments in cellular energy production in the brain
20. Decreased brain levels of selenium and selenium deficiency
21. Zinc deficiency
22. Magnesium deficiency
23. Chromium deficiency
24. Other mineral deficiencies - especially iodine
25. Metal toxicity:
 - Copper
 - Aluminum
 - Mercury
 - Lead
 - Cadmium and other metals
26. Medication induced nutritional deficiencies
27. Medication toxicity – with 13 medications the chance of toxicity approaches 100%
28. Essential fatty acid deficiencies
29. Amino acid imbalances
30. Hyperhomocysteinemia

Need for a new paradigm:

There are only three important questions when evaluating a treatment. Does it work? What are the adverse effects? How much does it cost?

Most approaches to brain and other organ dysfunctions involve trying to identify single compounds that can be utilized to support or inhibit some metabolic process. This “one pill” approach is based more on economics than on biological reality, since large corporations fund much of the biomedical research that is done today. To a large degree, the economic interests of these corporations require that the focus of research be on the development of compounds that can be patented and marketed.

In the author’s opinion in conditions such as Alzheimer’s and other forms of dementia the current medical model of looking for a single treatment agent is an illusion. The body is a complicated structure, where millions of processes are interacting simultaneously and in every ill individual there exists a unique set of biochemical and physiological abnormalities. Therefore, any approach that fails to recognize the continuously interactive nature of body’s components and the unique nature of illness in every person is by definition incomplete and that medical approaches that fail to look for, identify and correct imbalances are doomed to failure. A better model would be one that accepts that the nature of illness in each person is different and that is directed toward efforts to identify and correct imbalances.

Consider for a moment the analogy of an orchestra that has 100 members all playing different instruments. The conductor’s job is to evaluate and ensure that each member of the orchestra plays his or her instrument properly and that all members are playing the same musical composition in the correct fashion. The more imbalances that the conductor can identify and correct the closer the orchestra moves toward musical perfection.

In an orthomolecular paradigm, an individual would be evaluated by examination of their blood, urine and tissues for evidence of deficiencies of nutrients and excesses in nutrients and toxins. The individualized data collected could then be used to develop a "targeted" intervention that addresses the specific and unique needs of that individual. This strategy of using nutrients that are appropriate to an individual's unique metabolic needs is much more rational than the common approach of trial and error utilized by most individuals.

Dr. Jeffery Bland has advocated that medical professionals utilize a holistic model in their treatment of patients. "Nutritional interventions should be directed at reducing a one's exposure to substances that cause a neurotoxic response, and enhancing one's intake of nutrients that help normalize neurochemical activity. Specific nutritional interventions, therefore, can improve cognitive and emotional function (Bland, 1995)."

Even though it is generally accepted that poor nutrition plays a role in the ageing process, a great deal more needs to be learned about the role of nutrition-related risk factors in cognitive impairment. "Research in this area has been intensive during the last decade, and results indicate that subclinical deficiency in essential nutrients (antioxidants such as vitamins C, E and beta-carotene, vitamin B(12), vitamin B(6), folate) and nutrition-related disorders, as hypercholesterolaemia, hypertriacylglycerolaemia, hypertension, and diabetes could be some of the nutrition-related risk factors, which can be present for a long time before cognitive impairment becomes evident (Gonzalez-Gross et al., 2001)." This article highlights the concept that a multitude of abnormalities may be present, should be looked for and should be corrected in any individual patient.

My approach is built on certain principles that have proven effectiveness:

- First, it must be recognized that the body heals itself and that the components of the body self-assemble when toxins are eliminated, an optimal amount of the right construction materials are accessible in the right location, and an adequate and uninterrupted energy supply is available. Therefore, one place to start is to ensure that the diet contains all of the essential raw materials needed to repair old cells and build new cells and that the digestive system is optimized as much as is possible to ensure assimilation of critical materials needed for production of structures and energy production. Attention therefore must be paid to the diet and assimilation processes. The diet should contain adequate amounts of proteins, fats and carbohydrates and efforts must be made to assure that all of the essential amino acids, essential fatty acids, minerals and vitamins are included in the diet. In addition, efforts, should be made to optimize energy production and energy storage in the cells.
- It is my experience that individuals with degenerative conditions typically have multiple coexisting nutrient abnormalities. In addition, each individual has his or her own unique set of abnormalities that create a cascade of metabolic dysfunctions involving multiple pathways. An individual cannot be properly or completely evaluated unless the entire range of critical essential and conditionally nutrients is checked.
- Functional testing of known essential nutrients can help identify the lack of optimal levels of certain nutrients and guide the development of an individualized supplementation program that fills in any

identified gaps. Blood tests can be utilized to detect vitamin, mineral, amino acid, essential fatty acid and hormone deficiencies and imbalances that can cause or contribute to neuropsychiatric conditions. The identified imbalances can then be corrected with dietary adjustments and the correct doses of the right supplements, the effectiveness of this approach can be confirmed by repeat blood-tests and clinical improvements in baseline symptoms.

- An important caveat of this approach is to utilize physiological amounts of exogenous substances as much as possible so as to not create imbalances with the treatment.
- Second, all humans now live in a toxic environment. The older a person becomes the more opportunity they have for toxins to accumulate. Therefore, attention must be paid to identifying toxins, supporting the organs and metabolic processes involved in removing toxins from the body. Some of the issues that must be addressed in this area include providing an ongoing supply of beneficial microorganisms through the use of probiotic formulas and supporting the antioxidant systems and detoxification pathways. Beneficial bacteria help keep the intestines healthy, aid in the assimilation of nutrients, help improve detoxification of the organs and produce valuable growth factors. Antioxidant and detoxification pathways depend upon the availability of certain key nutrients especially nutrients that improve the production of glutathione.
- Third, the immune system must be supported so that it can switch from its immune defense to its immune repair mode. Use of nutrients like dietary peptides and nucleic acids and other compounds can significantly aid in this process. For example, bovine derived peptide and nucleic acid concentrates from enzymatically extracted

bovine organs can provide organ-specific growth factors and other critical compounds that aid in cell repair and tissue regeneration. This approach while popular in past decades has fallen out of favor despite clinical data that supports its utility.

- Fourth, any approach employed must itself be safe, non-toxic and designed to do no harm. So only natural methods that support cell repair and cell regeneration will be identified and utilized.
- Fifth, a search must be made for reversible factors like vitamin deficiencies that can cause dementia and to correct any abnormalities detected, since it is a well-recognized scientific fact that elderly persons are at higher risk for vitamin deficiencies than younger adults (Johnson et al., 2002).

Levels of cellular intervention:

From a nutritional point of view a clinician can intervene at the level of the cell membrane, DNA/RNA in the nucleus, the protein machinery in the cytoplasm, the protein and enzymes in the cytoplasm and cell membranes, and the mitochondria. The goals of treatment are to prevent and correct cellular abnormalities such as cellular energy depletion, oxidative stress, increased protein degradation, membrane degradation and DNA damage.

- Interventions at the cell membrane level can be addressed by:
 1. Supporting peptide-signaling processes - this entails use of conditionally essential dietary peptides to support cell-signaling mechanisms.
 2. Supporting the structure and electrical functions of the cell

membrane - this entails: identification and correction of essential fatty acid deficiencies, antioxidant protection of the cell membrane, identifying and correcting imbalances in fatty acid metabolism, removal of toxic dietary fats such as trans fatty acids from the diet, removal of toxins from fat storage sites (infrared, homeopathic, herbal and dietary nutrients that support the body's detoxification processes), use of physiological amounts of mineral transporters and trace minerals to support the electrical potential and capacitance of the cell membrane.

3. Use of electromagnetic equipment that can support the capacitance of cell membranes.
- Interventions at the level of the genetic machinery include: the use of conditionally essential dietary nucleic acids to support DNA and RNA production and removal of intracellular toxins that interfere with the genetic machinery of the cell.
 - Interventions at the level of the protein/enzyme machinery include: the identification and dietary correction of essential and conditionally essential amino acid deficiencies and optimization of amino acid levels in the blood stream. This approach also entails use of a nutrient dense diet and the assurance that the stomach has the proper production of HCL (hydrochloric acid), which is essential for protein digestion and mineral assimilation, that the pancreas is producing an adequate amount of digestive enzymes, that the liver is producing adequate amounts of bile. In this context HCL, pancreatic enzymes and bile can be considered to be conditionally essential substances. The functions of the small

intestine must also be supported, especially by providing a full spectrum probiotic program. Probiotics or beneficial bacteria are required for digestion of food, detoxification of toxic dietary substances, assimilation of nutrients, support of immune functions and these bacteria also digest proteins into amino acids and they produce peptide growth factors that help regenerate organ systems.

- Interventions at the level of cytoplasmic and membrane proteins and enzymes include: use of charged waters that support structuring of nanoscale polarized layers of water around protein/enzyme structures, which helps support the electrical and biochemical functions of proteins/enzymes. It is also necessary to provide all of the dietary mineral cofactors and vitamin coenzymes required for proper enzyme functions.
- Interventions at the level of the mitochondria include: use of mineral transporters that can deliver minerals to the mitochondria; antioxidants to protect mitochondrial membranes, enzymes and DNA; use of creatine, coenzyme Q10, L-carnitine, NADH and the coenzyme form of B-complex vitamins to support ATP production.

Philosophical basis of this approach to brain repair:

Key concepts in this strategy involve protection of surviving brain cells by:

- Identifying and correcting known risk factors;
- Ensuring blood flow to the brain and improving microcirculation with nutrients such as enzymes;

- Controlling free radical and inflammatory processes;
- Eliminating and removing exogenous and endogenous toxins (detoxification);
- Optimization of critical essential and conditionally essential nutrients to support the functions and repair of existing brain cells;
- Using combinations of neuroprotective agents;
- Optimization of cell membrane structure, functions and repair with essential fatty acids, phospholipid compounds, mineral transporters, glyconutrients, antioxidants, etc.;
- Optimization of mitochondrial functions
- Optimization of the biochemical processes involved in cellular energy production;
- Optimization of the biochemical processes involved in protein production;
- Optimization of the biochemical processes involved in lipid biosynthesis;
- Identification and correction of metal toxicity, chemical toxicity, etc.;
- Use of chelators that bind iron, copper, aluminum, etc. in the brain;
- Use of proper signaling peptides to turn on brain cell regenerative processes;
- Utilization of nontoxic nutrients that have been shown to improve memory such as creatine, acetyl-carnitine, CDP-choline, and Ginkgo extracts, etc.;
- Restoration of hormones such as DHEA, thyroid, melatonin, estrogen, testosterone, growth hormone, etc.;
- Use of lithium as a trace mineral
- Use of other trace minerals
- Proper source of other trace minerals
- Role of glyconutrients (Dietary use of certain glyconutrients)
- Use of dietary peptide growth factors and nucleic acids to support brain cell functions especially repair and regeneration. (Sources – animal organ extracts, purified peptides given orally, by inhalation, transdermally or by injection.)
- Smart nutrients to increase dendritic connections and brain cell replacement

More issues regarding nutrients and CNS function:

Prior to going into research, I had an integrative medicine clinic where I used both oral nutrients and IV nutrient cocktails. My practice was focused mainly on nutritional treatments of neurological and psychiatric conditions. I became aware about 15 years ago, that some stroke patients could show dramatic neurological improvements in less than one hour when they were given nutrient cocktails focused on mitochondrial energy production. I recognized then that many neurologically impaired individuals were suffering from conditions such as inadequate aerobic metabolism and that nutrients that provided critical missing cofactors/coenzymes could create responses within minutes-hours. Other issues included addressing inflammation control in the CNS, correcting antioxidant imbalances, correcting cell membrane structure, addressing cell membrane transport mechanisms, supporting liver and renal detox mechanisms, improving mobilization and removal of toxic metals from the CNS and other issues.

There are some general treatments that apply to all neurologic disease. The body needs basic nutrients in the form of real food and at times supplements. If repair is going to take place, we must rid ourselves of nutrient deficient, processed foods, and fast foods.

We need to avoid toxins. The supplements that I emphasize, that support nerve and brain tissue, are the active coenzyme forms of B vitamins, especially B1 (thiamine), B6, folic acid, and B12. Essential fatty acids, both omega 3 and omega 6, are components of the nerve cell membrane and the myelin sheath that surrounds the nerve. Phospholipids, specifically phosphatidylcholine and phosphatidylserine, are also important parts of the cell membrane and the myelin sheath. There is a greater volume of fat in the brain tissue than there is actual nerve tissue (so if someone calls you a fathead, don't take offense—they're correct!).

Other nutrients that are very important to reverse the ongoing damage to the brain include many antioxidants, specifically glutathione, alpha-lipoic acid, selenium, and melatonin. Unfortunately, glutathione, perhaps the most important antioxidant in the brain, cannot be absorbed intact when taken orally. It can be administered intravenously or transdermally (through the skin), or the three basic components can be taken orally. The B vitamins, co-enzyme Q 10, L carnitine or acetyl-carnitine, ribose and magnesium are all known nutrients that can support the brain bioenergetics or mitochondrial system, from which all the energy of the cells is made.

I think a major issue overlooked by almost all doctors is impaired transport of nutrients through the cell membranes into the cells. Nutrient transport can be derailed by many factors starting with a lack of stomach acid, lack of sufficient bile, malabsorption in the intestines, poor blood transport, damage to cell membranes, and a lack of cellular ATP to operate the energy dependent cell membrane transport mechanisms.

Ineffective vitamin forms:

Taking B1 as an example, neurological responses that are profound can occur starting within hours when a CNS cellular deficit of thiamine is corrected by using

'a suitable form' (see Lonsdale, 2004) that can optimize/saturate the metabolic pathways that are compromised due to impaired absorption in the gut, impairment in transport across the cell membranes, and overutilization leading to rapid depletion of thiamine (vitamin B1).

I see the same issues are involved with B12 – impaired conversion to the active form methycobalamin, vitamin B6 – impaired conversion to the active form pyridoxal-5-phosphate, and vitamin B2 – impaired conversion to the active form riboflavin-5-phosphate. Most people consume chemical forms of vitamins that have to be converted by enzyme reactions into an active form before they can be utilized. However, toxins, many drugs and lack of other critical nutrients can impair the enzymatic conversion so the result is a deficiency state even though the person was taking what they thought was an effective vitamin.

Use of synthetic coal tar derived vitamins and poorly absorbed mineral preparations also complicate these issues. When the body cannot convert a synthetic B-complex to an active coenzyme form a clinician often thinks he has addressed an issue when he has completely missed the boat. I have seen many people suffering from both subclinical and overt nutrient deficiency syndromes who are taking the very substance that they are functionally deficient in.

Nutrient supplementation will fail when biochemical individuality, genetic polymorphism, GI tract malabsorption, impaired transport into and through the blood stream by dysfunctional carrier mechanisms, dysfunctional cell membrane structures (due to bad fats + lack of essential fatty acids + disrupted sterol metabolism) and free radical damage (to membranes, mitochondria, membrane bound proteins/carriers/transport mechanisms, metabolic enzymes and damage to RNA and DNA are not considered.

In addition, toxins that are not removed also affect all of these mechanisms and create uncoupling in the mitochondrial electron transport chain + disrupt DNA activity and DNA repair.

Digestion issues in this case:

Good digestion is necessary for optimum health, and disordered digestion is a major contributor in the development of many diseases. Proper digestion requires healthy intestinal epithelium (which I believe was absent in this woman), normal production and secretion of pancreatic and intestinal enzymes, hormones, bile salts, hydrochloric acid (poor HCL production was a given, since she had been on acid-reducing medications for many years) and a healthy population of a variety of intestinal microorganisms (dysbiosis was likely due to repeated course of antibiotics over the preceding 4 months).

Improper digestive function associated with unhealthy intestinal mucosa, low production of stomach acid, inadequate production and secretion of bile salts, inadequate production and secretion of digestive enzymes, and over growth of pathogenic bacteria in the intestinal tract frequently lead to malabsorption of nutrients resulting in a host of organ dysfunctions. She certainly had a history that made all these factors likely.

Aging leads to a number of organ dysfunctions. It is very common for elderly individuals to develop a decline in their secretion of stomach acid, pancreatic enzyme secretion and bile secretion as well as atrophy of the of the bowel mucosa leading to lower absorption of nutrients (Schlenker, 1993). Half of the people over age 60 develop low stomach acid (Davis and James, 1930). In severe cases of intestinal atrophy organ levels of nutrients decline to the point that some elderly individuals cannot absorb enough vitamins through their intestinal tract to maintain their tissue levels without intramuscular injections of vitamins (Baker et al., 1980).

Patients who have hypochlorhydria (low stomach acid), as a result of age related decline of hydrochloric acid production by the stomach or as a result of excessive use of medications designed to suppress secretion of HCL, will often develop overgrowth of pathogenic bacteria and fungi within their intestines. Bacterial and fungal over growth can also develop due to antibiotic therapy. The combination of low stomach acid, overgrowth of pathological microorganisms, and insufficient production and delivery of pancreatic enzymes and bile salts can create malabsorption and impair nutrient delivery to the organs.

Why do I advocate balancing metabolism versus fighting disease?

The practice of medicine over the last 100 years has been dominated by a philosophy of treatment that developed out of the Germ Theory of disease. When doctors conceptualize disease in this paradigm they think of diseases as isolated entities. Diseases in this context are viewed as an enemy to be conquered rather than a relative with whom one must learn to coexist. When physicians see diseases as outside invaders (germs) or insurrectionist rebels (genetic illnesses) they look at treatment as a form of warfare where the physician with his arsenal attacks the disease that has inflicted his patient. Emerging from this philosophy is the approach of fighting disease by assaulting the symptoms. The treatment of symptoms while often effective in acute conditions has historically been unsuccessful in chronic degenerative conditions. Instead of trying to attack a condition I advocate a more holistic approach where imbalances are identified and treatment is designed to restore the body to a state of regeneration.

The concept of biochemical individuality, while scientifically formulated by Dr. Roger Williams, has been around for thousands of years. The Greeks divided people into the four humor types. The Chinese historically divided people into the five

element types of air, water, fire, wood and metal. The Indians using the Hindu system of Ayurvedic medicine expanded the Chinese system people into different types based on the 5 elemental types and the 7 chakra energy centers. I believe the modern scientific work on metabolic typing begins with the work of Dr. Frances Pottenger, who published two famous books, the first *Symptoms of Visceral Disease* addressed Metabolic types based on the activity of the autonomic nervous system and his second more famous book *Pottenger's Cats* addressed a series of nutritional experiments on several generations of cats.

Essential nutrients are substances the body cannot produce and must be obtained from the diet. Nonessential nutrients are substances, which can be produced in the body by metabolic processes. Medical doctors are taught that if a substance can be produced in the body it is not needed as a supplement. However, this all or nothing approach ignores the development of conditional essentiality.

Conditional essentiality is when conditions such as disease states or physiologic stress create a relative deficiency state by higher utilization or impairment of synthesis of the compound. Although our bodies may produce a nutrient compound they may not always produce it in optimal amounts in all situations thus certain individuals may suffer from a deficiency of a nutrient that in other circumstances could be created by their body. One of the goals of a holistic physician is to assure that an adequate external supply of critical nutrients is provided by the diet to meet the biological needs.

Empirical research and observation versus double-blind research in medicine:

“Empirical research is a way of gaining knowledge by means of direct and indirect observation or experience. Empirical evidence (the record of one's

direct observations or experiences) can be analyzed quantitatively or qualitatively. Through quantifying the evidence or making sense of it in qualitative form, a researcher can answer empirical questions, which should be clearly defined and answerable with the evidence collected (usually called data).”

http://en.wikipedia.org/wiki/Empirical_research

According to Wikipedia, “*The term empirical was originally used to refer to certain ancient Greek practitioners of medicine who rejected adherence to the dogmatic doctrines of the day, preferring instead to rely on the observation of phenomena as perceived in experience.*” In this case, at the time, I had 25 years of practical experience specializing in the nutritional biochemistry of neurological and psychiatric conditions and I had previously evaluated the essential nutrients of thousands of patients by laboratory testing. So I basically was an experienced observer who could diagnose and verify nutritional abnormalities when I saw them. Philosophically, I approached this case as an informed observer who recognized that dogmatically adhering to a supposed standard of care – meaning the utilization of cook book pharmacological interventions in this delirious woman, was incorrect after considering all the data I had been presented with.

A cook book approach of only using drug therapy in neurologic and psychiatric conditions without consideration of clinical judgment and evaluation of the unique physiology, biochemistry and nutritional status of each individual patient is short-sighted at best and stupid in the long run.

Double-blind studies had their origin in agricultural research where only one factor was changed at a time and the results could be measured by changing

in growth patterns. With the advent of drug therapy into its predominate position in medicine the double-blind study became the gold-standard in evaluating the effect of a drug on a disease condition.

In my opinion, there are many limitations in relying on double-blind studies as the only method of determining treatment effectiveness. I will cover this in part 2 of this series.

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