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Editorial

Stigma and Schizophrenia

In the *Globe and Mail*, June 8, 2008, Andre Picard states bluntly that we are all to blame for the death of Mr. Lall's family in Calgary. Mr. Lall was undoubtedly mentally ill, probably schizophrenic, but did not receive the help he deserved to help him get well. We did not do the killing but by our overall attitude toward the psychotic mentally ill we are complicit. And he blames the stigma attached to mental illness as the real reason. He is correct. But Picard did not discuss the reason for this stigma. It is the refusal of the psychiatric establishment to properly educate the public how to recognize those who are ill, how to get them some help that is more than palliation, even though that is better than no treatment for many of them. The book I wrote forty years ago with Humphry Osmond, *How To Live With Schizophrenia*, was the first major attempt to make the public aware.

No one denies that the stigma persists in spite of decades of efforts by the Canadian Mental Health Association to remove it. Merely talking about mental illness and claiming that it is just like any other disease is not good enough. The public knows that this is not true. It sees this in their relatives and friends who are not the same afterward, and who rarely ever go back to their earlier normal state, if they were ever normal.

Senator Michael Kirby's committee properly started its report (*Out Of The Shadows At Last, May 2006*) with descriptions of some of the stories they heard from patients who had been treated. Hundreds of Canadians told their stories. Their stories showed how people living with mental illness and their families experience the current system. Their words tell a story about the lack of knowledge, compassion, information and services and about stigma and discrimination. These descriptions accurately describe how the mentally ill are treated. Even if the system is as sick as it is, the major responsibility should be laid at the hands of the psychiatric establishment which has not done a better job and which has not protested long and loudly enough that the system should be improved.

Mentally ill patients face the stigma of being mentally ill as also happens with some physical diseases. Diseases which are not understood and for which we have no effective treatment tend to be stigmatized. So it was with leprosy and tuberculosis many years ago. Families were very fearful of these conditions because there was no effective treatment and patients had to be taken to leper colonies and sanitariums for many months or years of treatment. Today even though there is reason to be fearful of the resurgence of tuberculosis there is no stigma attached as we have effective treatment for it. Syphilis is another example of a disease which was abhorred and stigmatized. But with the introduction of the proper antibiotics and with a change in moral sexual standards it appears to have no stigma attached to it. Special treatment centres were created in hospitals for the diagnosis and treatment of this disease although there were separate entrances away from the front entrance of the hospital. A more recent example is HIV/AIDS which carried the same severe stigma 20 years ago, most of which has dissipated because the HIV establishment has created the overall impression that we have effective treatment. We do have palliative treatment.

For the same reasons the mentally ill, especially those who did not recover, were stigmatized, and schizophrenia still is. Schizophrenics were said to have nervous breakdowns and these were discussed in hushed tones by families and friends and whispered about to each other even though no one knew what having a nervous breakdown meant. The institutions where these patients went for help soon were enveloped by the same stigma.

Strenuous efforts have been made over the past 100 years to remove the stigma first by changing the name of the institution and over the past 50 years by trying to educate the public that this is a disease just like others. But in fact it is not and the public was not fooled. Schizophrenia would be a disease just like other diseases if it were generally recognized as an easily treatable biochemical disorder with an excellent high recovery rate when treated by orthomolecular methods.

Schizophrenia is considered a disease for which there is only palliative treatment. This negative view of the condition is accepted as the natural state and no attempt is made to help them recover. Until two years ago, when I was still practicing psychiatry, medical students from England, Scotland and Ireland, from Australia and from eastern Canada as part of their elective spent one or two days with me while I saw my patients. At the beginning several students came from UBC. But later they no longer came probably because of fear of the College of Physicians and Surgeons of BC, All forty students who came had had at least one hour of teaching in nutrition. One had none because the professor did not show. Invariably they were surprised when they spoke and interacted with schizophrenic patients who calmly discussed their hallucinations and delusions past or present. They had seen patients in the psychiatric wards under heavy medication. All my patients they saw had previously failed to respond to drug-only treatment and had been referred as failures.

For many years standard psychiatry diagnosed schizophrenia only if patients never recovered. This was a hallmark of schizophrenia. In Europe, if a schizophrenic patient recovered after even fifteen years s/he was rediagnosed out of schizophrenia. The professions acting on this belief do not try and therefore have not seen recoveries. If they see one they are rediagnosed. This preserves that hopeless idea. If the rule is that all crows are black and you see one white one you simply declare that it is not a crow, as all crows black. Thus the rule is maintained.

The only people who have seen patients recover are families, close relatives and friends. Poor patients cannot afford nor find physicians willing to treat them by orthomolecular methods. They think using vitamins is too dangerous. Only dedicated, intelligent and middle class families do see the results of curative treatment. Orthomolecular treatment is available for the rich; the poor will not have access to orthomolecular treatment because there are so few practitioners and they have often to travel far in order to find one. Many are so desperate they will follow the treatment on their own without telling their doctors who they know will disapprove. This has made orthomolecular treatment a luxury for the rich. The poor must be left in the clutches of the profession using palliative treatment only. There are a few exceptions like the young man who took a difficult, low paying job and saved his money so that he could fly several thousand miles to see me.

The earliest term for the old mental hospitals was asylum. I am sure that Dr. Conolly back in 1850 was happy with the term asylum being applied to his hospital where he was able to get a 50 percent recovery rate. But as the character of the hospitals deteriorated until 1900, the stigma of non-recovering patients became so bad that the term asylum was dropped. It meant that anyone in an asylum was mentally ill and untreatable. The Oxford International Dictionary of The English Language defines asylum as follows: (1) A sanctuary for criminals and debtors from which they can not be forcibly taken without sacrilege; (2) A secure place of refuge or shelter; (3) A benevolent institution affording shelter to some class of

the afflicted, the unfortunate or destitute; (5) Lunatic asylums. I think the word is a good word and ought to be resurrected and asylum should be given, if necessary for life, for patients who have been so badly damaged that they will never be able to live an independent existence.

To counter stigmatization, the word asylum was dropped and an innocuous term was used instead, such as Saskatchewan Hospital in Weyburn or Spring Grove State Hospital in Maryland. This did not help reduce the stigma, which had enveloped the original structure and would not leave no matter how hard any one tried to blow it away. By 1950 another attempt was made by simply describing the location of the psychiatric wards within the hospital. At the Royal University Hospital in Saskatoon it was called 5DE, an accurate description of the location of our wards on the fifth floor in wings D and E. It soon became obvious that patients from the rest of the hospital did not want to go to 5DE and it, too, carried the same stigma. I believe most psychiatric wards are still called psychiatric wards and a few places have names of their own to honour certain political persons such as the Eric Martin Pavilion in Victoria. It has the same reputation that any other psychiatric hospital has. It is not very good and patients resent and fear going there. There is only one way to remove the stigma and that is to show the public that patients with schizophrenia recover and become useful members of society, that it is not an untreatable disease. Legal sanctions that applied only to highly contagious diseases such as leprosy, tuberculosis and untreated typhoid should not be applied to Canadians who are mentally ill. After all it is against Canada's constitution. Why don't the provinces, except for Ontario, obey the constitution? Maybe we will need to wait until each province is taken to the Supreme Court of Canada for another declaration.

The Globe and Mail ran a series of reports on the mentally ill in Canada that was very good (June, 2008). It should highlight to the public the serious nature of the problem facing us today. Perhaps it will open up the public purse some more and the mentally ill will get more effective treatment. However reading the case histories will not change the over all level of stigma, for so few of the schizophrenic patients ever return to the point that they can pay income tax. They can be kept at home with lots of special care but the track record of recovery is dismal. This is not made clear in this series in *The Globe and Mail*, nor will it remove the stigma from schizophrenic patients. It will help do so for depression but this has never been as feared by patients who have not suffered through it. Many of these psychotic depressions are really undiagnosed schizophrenia. The stigma is so great that even doctors are afraid of the term and will use other words instead. Frequently the early symptoms and signs of schizophrenia are ignored if the patients are depressed and they are promptly said to have borderline personality disorders. Often the correct diagnosis is made only after patients have become so schizophrenic that it would be malpractice to ignore it. If these patients are disagreeable or refuse to cooperate they are labeled borderline personality disorders. This absolves the treating doctor of responsibility, as it is currently believed that BPDs are not treatable. A patient brought into hospital by the police as an emergency was seen by a psychiatrist after two days and was told that she was being discharged as she was BPD and they knew no treatment for this condition. She recovered as an outpatient in six months on orthomolecular treatment.

There is lot we can do. We can demand from the psychiatric profession courteous treatment of the mentally ill. We must demand honesty in reporting

the results of treatment using only palliative drugs and we must demand it looks at treatment that is more effective. The moral treatment of the insane used over 150 years ago by the Quakers, and in Canada in the hospital on Queens Street in Toronto until about 1900, yielded about a 40 percent recovery rate. This was achieved by a combination of proper housing (not the streets), good food, (not the junk served in hospitals today), treatment with consideration and care. If one adds orthomolecular treatment, the recovery becomes much better. The psychiatric profession believes that very few patients recover based on the results that they see but it does not seem to care, and considers palliative the best than can be achieved. If you have cancer which do you prefer: to shrink the tumor and allow you to die with less pain, or to cure you of your cancer? We must have more accountability from the psychiatric profession.

–Abram Hoffer, M.D., Ph.D.

Energy Efficient (Toxic?) Light Bulbs

There are two things that should be viewed with caution about the new "energy efficient" light bulbs: they are made in China and they contain mercury. With the recent news about lack of inspection and control of Chinese factories concerning the presence of Melamine in pet food and milk products, one wonders how much mercury is contained in each light bulb? If it is 0.1 μg, could it be 10 or 100 μg. How do we know? It is not listed on the package.

Mercury is a neurotoxin. The package lists the following precautions: "This product complies with part 18 of the FCC Rules but may cause interference to radios, televisions, wireless telephones, and remote controls. Avoid placing this product near these devices. If interference occurs, move the product away from the device or plug into a different outlet. Do not install this product near maritime safety equipment or critical navigation or communication equipment operating between 0.45-30 MHz. Use only on 120V 60 hertz circuits. Not intended for use with emergency exit fixtures or lights, electric timers, photocells, or with dimmers."

If it will interfere with common electrical devices, what will happen to the brain if one is reading a book for several hours with this bulb over their shoulder, or to an infant with a bulb near their bed or crib?

Also, the US EPA (http://www.epa.gov/mercury/spills/index.htm) instructs the following if a bulb is broken: "Never use a vacuum cleaner to clean up mercury spills. The vacuum will put mercury in the air and increase exposure. Never use a broom to clean up mercury. Before clean-up; air out the room. Have people and pets leave the room, don't let anyone walk through the breakage area on their way out. Open a window and leave the room for 15 minutes or more. Shut off the central forced-air heating/air conditioning system, if you have one. Carefully scoop up glass pieces and powder using stiff paper or cardboard and place them in a glass jar with a metal lid (such as a canning jar) or in a sealed plastic bag. Use sticky tape, such as duct tape, to pick up any remaining small glass fragments and powder. Wipe the area with damp paper towels or disposable wet wipes. Place towels in the glass jar or plastic bag." There are several more paragraphs dealing with carpets, stairs, etc.

We do not use these bulbs at The Center or in our homes. Remember two things: bulbs contain mercury and are made in China.

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Vitamin C and Chemotherapy

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Introduction

A recent paper by Heaney et al. (2008) claims that "vitamin C" antagonizes the cytotoxic effects of chemotherapeutic drugs.[1] On closer examination, the evidence presented does not support the claim. Contrary to Heaney's suggestions, vitamin C is an effective anticancer agent, capable of killing cancer cells at concentrations achievable by oral supplementation.[2] Other researchers argue that vitamin C enhances the effectiveness of chemotherapy and curbs its side effects.[3] To understand these apparent contradictions, we need to appreciate the differing roles of vitamin C in the body and in tumors.

Ascorbate and Dehydroascorbate

Vitamin C is a simple chemical, called ascorbate or ascorbic acid. Ascorbate is an antioxidant: each molecule can donate two electrons, helping to prevent free radical damage in the body. When ascorbate (vitamin C) donates its two electrons, it is oxidized to a different molecule, called dehydroascorbate.

In their experiments, Heaney et al. used dehydroascorbate or oxidized vitamin C, rather than ascorbate. Dehydroascorbate is an oxidant: it tends to gain electrons. Inside cells, dehydroascorbate molecules can be reduced back to ascorbate, by gaining electrons, produced using the cells' metabolic energy. In tissues, this expenditure of cellular energy may add to the stress on sick cells, which typically exist in an oxidizing environment, under free radical attack.[4,5]

Vitamin C (ascorbate, antioxidant) has low toxicity, whereas dehydroascorbate (oxidized ascorbate, oxidant) is more toxic. Importantly, these two molecules can influence cancer cells in contrasting ways.

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Ascorbate and Cancer

Vitamin C can act as an anticancer agent, killing cancer cells by generating hydrogen peroxide and other oxidants. In tumors, vitamin C acts as an oxidant, rather than an antioxidant. Together with free iron or copper, the vitamin C causes a redox cycling Fenton reaction, which releases a cytotoxic oxidant, hydrogen peroxide. Many other substances, such as alphalipoic acid, vitamin K3, or the drug motexafin gadolinium, work similarly with vitamin C to generate oxidation and kill cancer cells.

Dehydroascorbate and Cancer

In healthy individuals, the body maintains low dehydroascorbate levels, to minimize toxicity. When dehydroascorbate is formed, cells take it up and reduce it back to ascorbate. Thus, in healthy individuals, the level of dehydroascorbate is low, relative to the amount of ascorbate.[6] People taking vitamin C supplements consume ascorbate, not dehydroascorbate.

Researchers have suggested dehydroascorbate for use as an anticancer agent. To quote a recent paper, the results of studies on the effects of dehydroascorbate as an anticancer agent are "truly remarkable."[8] Dehydroascorbate is selectively toxic to cancer cells.[7,8] Its effectiveness has been demonstrated both in vitro,[9] and in animal studies. In standard survival studies (using mice with P388 and Ehrlich carcinoma), 50 control mice received saline injections and had an average life expectancy of 11 days. Fifty experimental mice received 2 mg of dehydroascorbate (80 mg/kg) and lived for a minimum of 31 days; half of these had no detectable tumor cells and went on to survive long term.[10]

These dehydroascorbate results, like those on vitamin C itself,[11,12] put chemo-

therapy to shame. In such experiments, even with aggressive conventional chemotherapy, an increase in life expectancy of about 2 days would be considered significant;[13] long term survival is rare.[8]

In another study, researchers investigated the effects of dehydroascorbate on the growth of solid tumors (Krebs 2 sarcoma and Ehrlich carcinoma). Control mice with Ehrlich carcinoma had an average tumor size of more than 2 cm^2, whereas the subject mice, treated with injections of dehydroascorbic acid (2 mg per day about 80 mg/kg), developed no obvious tumors. In the control group, the Krebs sarcoma tumors were on average larger than 1.6 cm^2, yet of those in the dehydroascorbate treated group, only two of 25 mice developed detectable (small) tumors.[14,15]

Animal studies have shown dehydroascorbate to be an effective anticancer agent, at doses lower than those for vitamin C.[16] These results were considered so unusual by an establishment accustomed to the failure of standard chemotherapy, that they were considered suspect and ignored. However, continuing research into ascorbate and dehydroascorbate as anticancer agents confirms their potential.

John Toohey has recently suggested a mechanism of action for the inhibition of cancer cells by dehydroascorbate. Toohey proposes that cancer cells synthesize homocysteine thiolactone, which reacts with dehydroascorbate to produce the toxic mercaptopropionaldehyde. Cancer cells have an increased demand for methyl groups, which leads to homocysteine formation. This methylation is combined with a high rate of protein synthesis necessary for growth. Both these processes lead to homocysteine thiolactone and a susceptibility to dehydroascorbate toxicity.

Dehydroascorbate is Not Vitamin C

In the study by Heaney et al.,[1] the authors assume that giving an injection of dehydroascorbate is equivalent to giving vitamin C; this is incorrect. In healthy tissues, high levels of dehydroascorbate are toxic and generates oxidative stress, whereas ascorbate's antioxidant action prevents such stress.

Within cancer tissues, the action of the two molecules is also different. Dehydroascorbate is absorbed rapidly by the cancer cells, where it may be reduced to ascorbate, through use of metabolic energy.

By contrast, ascorbate often remains in the extracellular space, where it takes part in a redox cycle, generating dehydroascorbate, hydrogen peroxide, and hydroxyl radicals. This results in oxidative damage to the cancer cells, which is cytotoxic.[12] In addition, the resultant dehydroascorbate may be taken up by the cancer cells and reduced, placing additional oxidative stress on the tumor.

Poor Experimental Methods

In the Heaney et al. paper, the researchers gave high doses of dehydroascorbate to cancer cells in vitro. The cancer cells absorbed the dehydroascorbate, reduced it internally, thus accumulating high levels of intracellular ascorbate (vitamin C). Our microevolutionary model[17] predicts that such levels of ascorbate could protect cancer cells from further stresses, such as chemotherapy. The intracellular ascorbate would lessen the occurrence of apoptosis, and might potentially aid cancer growth. However, these findings have no relevance to the use of ascorbate as an anticancer agent, nor do they suggest, as Heaney et al. argue, that high intakes of vitamin C are contraindicated during conventional chemotherapy.

Normally, the body maintains relatively high levels of ascorbate, compared to dehydroascorbate. In tumors, ascorbate is converted to dehydroascorbate, in a mechanism that generates hydrogen peroxide and hydroxyl radicals. This produces severe oxidation, which destroys cancer

cells by apoptosis and other mechanisms. Thus, high levels of ascorbate lead to an environment that is toxic to cancer cells. Once this poisonous environment exists, cancer cells may absorb the dehydroascorbate. However, reducing it back to vitamin C adds a second oxidative stress, taking energy from the cellular metabolism.

Thus, high levels of ascorbate do not act as antioxidants in tumors, but as oxidants, in a process that adds an additional selective stress to the tumor as it undergoes chemotherapy. Rather than acting as an antioxidant against the chemotherapy, as suggested, high levels of ascorbate should be synergistic with it. This action has been demonstrated in previous studies.[18-23] In their study, Heaney et al. circumvented the cytotoxic vitamin C Fenton reaction process, by using dehydroascorbate rather than ascorbate. Their study therefore has little relevance to the use of ascorbate as an anticancer agent.

Inconsistent Results

In their mouse experiments, Heaney et al. report no appreciable anticancer effects with dehydroascorbate at a dose of 250 mg/kg. However, reports in the literature have demonstrated that, in mice, 300 mg/kg doses have a "truly remarkable" antitumour effect.[8] In some animal studies, dehydroascorbate appears to outperform standard chemotherapeutic approaches. The paper by Heaney et al. is inconsistent with these earlier animal studies, which are not cited in the paper.

Conventional Chemotherapy is Generally Ineffective

Conventional chemotherapy has had some success in Hodgkin's disease, acute lymphocytic leukemia, testicular cancer, choriocarcinoma, retinoblastoma, and Wilm's tumor. However, these rare forms account for less than 5% of cancers in the United States. In the majority of cancers, there is little evidence that chemotherapy extends life substantially.[24] The contribution of chemotherapy to survival is approximately a 2% increase (treated versus untreated patients).[25] The cost of this is high, both financially and in terms of reducing the quality of remaining life. Given such poor therapeutic results, oncologists should ask themselves why they continue to encourage patients to accept chemotherapy and yet ignore the potential benefits of vitamin C based redox therapy.

Conclusions

The literature on the use of antioxidants in combination with chemotherapy or radiotherapy for cancer is complicated by the dual antioxidant/oxidant nature of many supplements. We can explain these inconsistencies in light of the redox microevolutionary model. There are numerous "antioxidants", like vitamin C, which, at high intakes, can assist the cytotoxic mechanisms of conventional treatments, while protecting healthy cells from bystander toxicity.[12]

However, in the light of the fascinating experimental, animal and clinical data for the efficacy of an orthomolecular approach to cancer therapy, the crucial question is, why is this data being ignored? Rather than being welcomed, the topic appears to attract biased studies, apparently designed to show that vitamin C is not absorbed, is ineffective, or is harmful.[4]

The paper by Heaney et al. confuses dehydroascorbate with vitamin C. It bypasses the existing literature on dehydroascorbate, and fails to highlight that its results conflict with the literature on the action of both ascorbate and dehydroascorbate as cytotoxic anticancer agents. Furthermore, the paper shows little understanding of the oxidant role of high levels of vitamin C in tumors.

When the limitations of authors' interpretation of this paper are understood, the claim that vitamin C should not be taken by patients undergoing cancer is clearly

false and misleading. Unfortunately, if taken seriously, the Heaney et al. paper could stop cancer patients benefiting from the selective effects of redox therapy, including its lessening of side effects associated with the failed conventional approach to cancer chemotherapy. We can find no scientific or ethical justification for claiming that vitamin C supplementation may be harmful to cancer patients.

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The HPA Axis: The "Home" of Alcoholism

Genita Petralli, HHP, NC, MH[1]

Introduction

The "home" of alcoholism resides in the HPA (hypothalamus-pituitary-adrenal) axis of the neuroendocrine system. Now that we know where the well-defined biochemical markers of addictive chemistry live, we can use extremely sophisticated tests which monitor the performance of this axis under various conditions by measuring dopamine, endorphins, enkephalins, serotonin, GABA, glutamate, epinephrine (adrenaline), norepinephrine (noradrenalin), cortisol and DHEA which are the eight main neurotransmitters and two key hormones which define either the health of the neuroendocrine system or its state and depth of illness.

Addictive or addicted biochemistry is essentially the body's inability to adequately self-medicate with the natural stress hormone cortisol, and feel-good neurotransmitters such as serotonin, GABA, dopamine, enkephalins and endorphins which predisposes an individual to seek relief in external ways such as alcohol. Addictive biochemistry is associated with an excess of excitatory neurotransmitters which cause an upregulated sympathetic nervous system where, due to the ensuing low GABA, serotonin, and endorphins, excitatory neurotransmitters such as glutamate, norepinephrine and epinephrine are overexpressed which cause the many symptoms problem drinkers are known to self-medicate. It is also the bedrock of the progression of alcoholism because the longer one drinks, the more damage is done to the neuroendocrine system rendering it progressively unable to medicate the body naturally which intensifies symptoms which then causes one to drink more. This applies to both those actively drinking and those abstinent because rarely do they include healing this system–instead, they typically adopt diets high in sugar, carbs and caffeine which, while producing short episodes of elevated serotonin/GABA and endorphins, continues the very same damage alcohol produced.

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The HPA Axis and Alcoholism

The biochemical markers in the brain chemistry which spell alcoholism are low endorphin, enkephalin, GABA, serotonin and dopamine expression which results in the over expression of the sympathetic nervous system; glutamate, epinephrine and norepinephrine. It doesn't necessarily have to be all of these; it could be just one or two out of balance that can engage the practice of self-medicating. The symptoms experienced can vary depending on the exact deficiencies/excesses of these neurotransmitters combined with adrenal fatigue and extreme blood sugar fluctuations, but they can include depression, mental/physical fatigue, panic attacks, cravings for simple carbs, low self-esteem/confidence, and anxiety or restlessness, to name a few. Just a couple of ounces of alcohol can fix all of these because it immediately raises the deficient "feel good" neurotransmitters serotonin, GABA, dopamine and endorphins. The price to pay is high, though, because on the other end comes the bottoming out of the already inherently low levels of the same neurotransmitters. What causes this imbalance between the parasympathetic and sympathetic nervous system is usually an over stimulating environment (stress, emotional pain, lack of stability, constant change), neurotoxins (aspartame/MSG) found in our "food" supply, diets high in sugar and caffeine, heavy metal toxicity, environmental sensitivities, pollutants,

and food allergies. Life on the planet today is far too stimulating; we get more mail in a day than people got in a lifetime a hundred years ago. And our bodies have endured more change in the environment in the last 100 years than that of the last 10,000 years, making it nearly impossible for our neuroendocrine system to maintain homeostasis. This over-stimulating internal and external environment causes the inhibitory system to burn-out allowing the excitatory to rise which creates the symptoms. Biochemically many people are in a state of flight or fight from the time they wake up, and the mind responds to the chemical messengers as if it is in crisis all day long because the brain interprets this stimulus as a threat; the body is producing the chemicals as if a tiger is chasing it but there is no tiger. The mind knows this but the brain doesn't. Malnutrition also plays its part by not providing the body with the amino acid precursors and vitamin/mineral/EFA cofactors to produce healthy brain chemistry.

Due to the continual extreme demands on the adrenals, problem drinking invariably fatigues the adrenals and brings the problem drinker to a serious stress syndrome due to depletion of cortisol and the depressive effects of low serotonin and GABA. Consistent with Dr. Hoffer's work, B_3 therapy is key because niacin is exhausted metabolizing carbohydrates. Those addicted to alcohol are known for high carb diets which accompany their high sugar/carb alcohol habit. When niacin goes low, tryptophan will be converted to niacin which lowers serotonin stores. This is one very important pathway to imbalanced brain chemistry which requires attention in every alcohol addicted patient because low serotonin is not only associated with carb/alcohol cravings but compulsive behavior which is the hallmark of addiction. This "tryptophan steal" biochemical pathway is a key cause for the depression that follows many into sobriety because they typically replace alcohol with high sugar/simple carb diets which cause extreme niacin deficiencies.

Due to low cortisol/epinephrine, those addicted to alcohol will suffer from overexpression of norepinephrine which is known to cause irritability, anxiety, aggression, hypertension, and what is called bipolar disorder. In my practice I have found that most of the patients that come in having been diagnosed with bi-polar are actually in a state of severe adrenal fatigue and are hypoglycemic; their symptoms are primarily the product of extreme blood sugar fluctuations and adrenal fatigue–definitely not a condition that justifies a cocktail of dangerous psychiatric drugs.

What happens within the body of those who have been abusing alcohol for a while and have damaged their neuroendocrine system is this: while the person is drinking, GABA, endorphins, dopamine and serotonin are overexpressed and literally emptied out from the CNS and hypothalamus which gives them the relaxation and medication for their symptoms they desire. This over-production of inhibitory neurotransmitters leaves stores "empty" the next morning which causes the overexpression of glutamate and the catecholamines. The symptoms of this condition are any of those I've mentioned previously. Over time the negative feedback loop tells the system there are plenty of endorphins and enkephalins (due to tetrahydroisoquinolines saturating receptor sites) and production of the body's natural opioids is diminished while their receptors are down-regulated they won't have much of the natural pain killers available to mediate the hangover; which leads to the next drink. The internal environment with most people who rarely drink excessively is quite different; they have ample healthy stores of serotonin, dopamine, GABA, endorphin and enkephalin and they will immediately rise to the job

of balancing the overexpressed glutamate and catecholamines the next morning. In the long-term drinker this is impossible because their body's ability to manufacture and replenish healthy levels of these neurotransmitters has been diminished from the damage of alcohol toxicity and the resulting malnutrition.

Once the damage is established in the HPA axis by long-term drinking, the cycle becomes deeply embedded in the person's biochemistry because this condition renders them entirely dependent on alcohol to achieve peace and relaxation; they can't feel good inside their own skin naturally anymore, within a reasonable amount of time, and not without a bout of withdrawal which they are not inclined to endure. Finally, their lives become unmanageable.

Inherited and acquired imbalanced neuroendocrine function is caused by weakened or injured organs of the HPA axis caused by various sources of toxicity and chronic stimulus, and extreme blood sugar fluctuations over a considerable period as well as malnutrition. Alcohol metabolites such as acetaldehyde will also injure all of these organs in variable degrees making a considerable contribution to the addiction.

Alcoholism is extremely responsive to neurotransmitter repletion since it is their deficiencies and imbalance that is at the very root of alcohol addiction and the cravings so many of those who limit their recovery to support groups endure.

Symptoms of Long-term Alcohol Abuse Directly Related to HPA Function: Stress Disorder

Due to alcohol toxicity damage and malnutrition, adrenal fatigue causes low cortisol output which leads to high norepinephrine levels (overexpressed). This is because cortisol is required (along with SAMe) to produce epinephrine from norepinephrine. When this doesn't occur, norepinephrine rises while epinephrine and cortisol are diminished. Note that cortisol is required in some areas of the brain to activate serotonin, so when it is low it can also inhibit serotonin expression. This condition delivers one to the "alarm" stage of stress disorder due to elevated norepinephrine which can produce extreme anxiety, panic attacks, exaggerated fear (paranoia), worry, insomnia, depression, aggression, irritability, hypertension and even what is diagnosed as bipolar disorder. All of these conditions center on the deregulation of the HPA axis.

Baseline Biochemistry Measurements

Under controlled environments such as after a patient has detoxed from sugar, caffeine, pesticide ridden foods, OTC, street and prescription drugs, it is possible to achieve very accurate brain chemistry tests. Using HPA axis testing, we can measure the key neurotransmitters known to activate addictive biochemistry. Cortisol and DHEA levels are also tested to establish the degree to which the adrenals are damaged so that an appropriate treatment for the adrenals can be developed. Once the neurotransmitter deficiencies are exposed, the practitioner can develop a personalized, orthomolecular, targeted nutritional therapy (TNT) to bring the neuroendocrine system back into balance, optimizing the HPA axis and relieving the individual of the symptoms they self-medicate. Other contributing factors such as liver and GI damage are considered and addressed to provide the system with the best possible environment to heal and correct the "broken" metabolism and produce healthy, balanced brain chemistry. An insulin sparing diet, centered on rebuilding the liver, adrenals, hypothalamus and pituitary is required to maintain healthy blood sugar levels and facilitate the healing process.

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The Proper Treatment of Schizophrenia Requires Optimal Daily Doses of Vitamin B_3

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Introduction

For over 50 years Dr. Abram Hoffer has been educating clinicians about the need to correctly (optimally) dose schizophrenics with vitamin B_3 (niacin; niacinamide). For the past 10 years I have, likewise, educated numerous naturopathic and medical doctors about the very same thing. For some reason, both types of clinicians routinely treat schizophrenic patients with plenty of vitamins, minerals, and other natural health products, but they rarely provide enough vitamin B_3. Schizophrenic patients cannot get well if not provided with optimal doses of vitamin B_3. This prevents the real acceptance of nutritional treatment since clinicians will not observe favorable results when inadequate treatment is provided; their schizophrenic patients will continue to suffer needlessly.

To understand the importance of vitamin B_3 treatment, some background information is necessary. Schizophrenia is characterized by a combination of perceptual changes (e.g., hallucinations) and thought disorder (e.g., delusions).[1] These aberrant mental states, which can lead to psychotic behaviour, cause a tremendous amount of emotional and psychological suffering. The cause of schizophrenia is the subject of much debate. It is considered a biochemical disease, although certain genetic factors most certainly play a role.

The majority of scientists and psychiatrists subscribe to the dopamine excess theory of schizophrenia – that too much dopamine is largely responsible for the symptoms of psychosis. However, since 1952, Hoffer, the founding father of orthomolecular medicine, has researched, published, and expanded on the adrenochrome theory of schizophrenia.[1,2] He and his colleagues, Drs. Osmond and Smythies, arrived at this theory by studying and researching the effects of substances such as mescaline, lysergic acid diethylamide (LSD), and amphetamines – all of which can cause a clinical syndrome in normal individuals that would be clinically indistinguishable from schizophrenia.

Osmond and Smythies noticed that mescaline had a similar chemical structure to that of adrenaline. Hoffer, Osmond, and Smythies concluded that since both can be converted to indoles in the body, the potential schizophrenic toxin might be an indole derivative of adrenaline with similar neurochemical properties to that of mescaline or LSD. They eventually deduced that the schizophrenic toxin was an oxidized derivative of adrenaline known as adrenochrome. Since the early 1950s, the adrenochrome theory has been validated by the following findings:

1. Adrenochrome and its close relatives – dopaminochrome (from dopamine) and noradrenochrome (from noradrenaline) – are present in the human brain.[3-5]
2. These compounds probably induce a combination of neurotoxic and mind-mood-altering effects.[3-5]
3. Reducing adrenochrome and its close relatives is therapeutic for the treatment of schizophrenia.[6]

To reduce the production of adrenochrome, Hoffer and his team decided on the methyl acceptor vitamin B_3. This vitamin, previously used to treat pellagra (a disease clinically indistinguishable from schizophrenia), had relevant biochemical

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properties.[1,2] Hoffer and his team researched the metabolism of adrenaline. They knew that the reaction involving noradrenaline to adrenaline required the addition of one methyl group. Because vitamin B_3 was known to function as a methyl acceptor, Hoffer's team thought that an optimum dose of niacin might decrease the amount of noradrenaline that would be converted to adrenaline. Since adrenochrome was thought to be an oxidized derivative of adrenaline, vitamin B_3 could help reduce the quantity of adrenochrome by simply limiting the production of adrenaline.

Hoffer and his team also discovered an additional biochemical property of vitamin B_3 that would help to explain its therapeutic efficacy. Vitamin B_3 is a precursor to nicotinamide adenine dinucleotide, which is present in both oxidized (NAD) and reduced (NADH) forms in the body. In the brain, adrenaline becomes oxidized and loses one electron to become oxidized adrenaline. If enough NAD and NADH are available then the oxidized adrenaline is reconverted to adrenaline. These back and forth processes continue to occur in the presence of sufficient vitamin B_3 coenzymes. However, in the absence of enough NAD and NADH, the oxidized adrenaline loses an additional electron and becomes adrenochrome. This last reaction is irreversible, and presumably occurs in much greater concentrations in the schizophrenic brain.

That being said, where is the proof? Can vitamin B_3 help in the treatment of acute and chronic schizophrenia? The first report on the therapeutic use of vitamin B_3 for schizophrenia was presented in 1952 at the Saskatchewan Committee on Schizophrenia. At this meeting, eight cases were presented, each demonstrating favorable effects from giving 1-10 g vitamin B_3, and, in the majority of cases, equal amounts of vitamin C.[1] After a more involved pilot study demonstrated excellent therapeutic responses to vitamin B_3,[1] the first North American double-blind, placebo-controlled experiment was undertaken to assess whether or not this vitamin was effective for schizophrenia. The study, which began in 1952 but was not published until 1957, involved 30 acute schizophrenic patients who were each randomized to placebo, niacinamide, or niacin.[1,2] They were given 1 g three times daily for 30 days, and then followed for one year. After one year, the patients given vitamin B_3 with the standard treatments at that time had more than double the recovery rate (80%) compared to patients in the placebo group (33%).[7]

In their second double-blind, placebo-controlled experiment, Hoffer and his team used only niacin and placebo.[1,8] The study lasted 33 days and involved 82 patients (43 in the placebo group and 39 in the niacin group). Vitamin B_3 once again contributed significantly to the recovery of acute schizophrenic patients. In the niacin group, 79.5% improved compared to 41.9% in the placebo group. Other parameters evaluated by Hoffer and his team included the number of patients readmitted, the number of readmissions, the number of patients well or much improved, and the number of patients who were considered cured. This data involved the following groups of patients: (1) those who only took vitamin B_3 while in the hospital and not in the community; (2) patients who did not take vitamin B_3 when in the hospital but did take the vitamin when in the community; (3) patients who took vitamin B_3 when in the hospital and community; and (4) patients who never took vitamin B_3. The results demonstrated that patients in the community who were taking niacin (groups 2 and 3) had more community years that were free of readmissions compared to patients not taking vitamin B_3 (groups 1 and 4) – 91% versus 62% of the community years free of readmissions. The entire niacin group (group 3) was

readmitted 38 times for 67 readmissions (average 64 days per patient). This was much better than the placebo/non-niacin group (group 4) that was readmitted 36 times for 81 readmissions (average 147 days per patient). Once all the data was combined, the results revealed that the most five-year cures and best treatment responses were among the patients who took vitamin B_3 when in the hospital and in the community.

Hoffer followed patients from 1953 to 1960, publishing a total of six double-blind, randomized controlled clinical trials. All of these trials confirmed the positive effects that vitamin B_3 had on the recovery of acute schizophrenic patients, and the fact that the use of this vitamin substantially reduced patients' reliance on the health care system.[2] In terms of treating chronic schizophrenic patients, Hoffer's early studies did not show a favorable response among chronic schizophrenic patients who were ill longer than one year. When Hoffer reviewed this problem more substantially, however, he discovered that the treatment duration was not long enough to have produced adequate results. Chronic patients required vitamin B_3 treatment for five or more years in order to derive observable benefits.[1,9]

In one study involving 32 chronic patients, all the patients failed to respond to vitamin B_3 after two years of use.[1] Nineteen patients discontinued the vitamin, while the remaining 13 patients continued with the vitamin treatment. Data was obtained for the years, 1956-1964. Of the patients not on niacin, the mean number of days spent in hospital was 691 compared to 79 in the niacin group. The proportion of time spent in the hospital was substantially less for the chronic patients who remained on the vitamin. In a more recent analysis of 27 chronic schizophrenic patients who had been under treatment for at least 10 years, consistent treatment with vitamin B_3 produced the following results: 11 patients were able to work; two patients were able to marry and look after their families and homes; two patients were single mothers able to care for their children; and three patients were able to manage their own businesses.[9] These results are remarkable when one considers the state of these patients prior to receiving optimal doses of vitamin B_3. The average age of these patients was 40, the majority of them were ill for seven years before they sought treatment from Hoffer, and all had been unresponsive to previous treatments.

If one is to accurately assess this data as we have, the only reasonable conclusion to be made is that all schizophrenic patients, including both acute and chronic patients, need to be treated with vitamin B_3 as quickly as possible and for the duration of their lives. Vitamin B_3 treatment offers significant hope for a reasonable quality of life among patients who would otherwise remain incapacitated and in and out of hospitals for the remainder of their lives.

The starting dose of niacin for adults is 1,000 mg, three times daily. In our opinion, the daily dose needs to be slowly increased to 4,500-18,000 mg to achieve the best possible outcome. Patients need to be educated about the flushing, heat, itchiness, pruritis, redness, and tingling that they will transiently experience. These benign cutaneous reactions usually begin 15 minutes after taking niacin for the first time, and are first noticed around the forehead, then descend to the thorax, and sometimes to the feet. These reactions typically abate in 1-2 hours following the ingestion of niacin. Niacin causes these cutaneous reactions by inducing the production of prostaglandin D2 in the skin, leading to vasodilation and a marked increase of its metabolite (9a, 11b-PGF2,) in the plasma.[10] Niacin is its own anti-flushing agent because tak-

ing it regularly depletes the skin of prostaglandin D2 and prevents subsequent cutaneous reactions. At 3,000 mg daily, the flush and other symptoms will cease to be an issue following the first 2-3 days of treatment, and will practically disappear thereafter. If patients are not consistently taking these optimal doses throughout the day, they will continually re-experience these cutaneous reactions and possibly discontinue treatment.

The concern over liver toxicity is very minor if immediate-release niacin preparations are used.[11,12] Timed-release preparations can cause liver toxicity and are not recommended for schizophrenic patients unless under very close supervision.[13] In Prousky's clinical experience, niacin is more effective and better tolerated than niacinamide for schizophrenia. Some patients prefer niacinamide since it does not cause flushing or other cutaneous reactions. Nausea and dry mouth are much more common with the use of niacinamide than with niacin. The daily dosages of niacinamide should not exceed 6,000 mg since the likelihood of nausea accompanied with vomiting is much greater.[14]

The prognosis for the majority of schizophrenic patients is bleak, especially if they only receive contemporary medical treatments. About 90 % will remain unwell and nonfunctional for the rest of their lives despite receiving the most advanced drugs and social services currently available.[15] Estimates of first episode schizophrenics are a little more optimistic and indicate that of five recently diagnosed patients, one will recover sufficiently to live an almost normal life without medication or with very low doses of medication.[16] The economic costs of schizophrenia to society are enormous, amounting to approximately two million dollars for each schizophrenic patient over a 40-year course of the illness.[17] In a recent publication examining the economic burden of schizophrenia in Canada, the direct and non-direct heath care costs associated with this disease were estimated to be $2.02 billion (Canadian) in 2004.[18] In addition, when these figures were added to the high unemployment rate with additional productivity, morbidity, and mortality losses, the estimate reached $4.83 billion (Canadian) for a total cost estimate of $6.85 billion (Canadian) in 2004. The authors of this report arrived at the following conclusion: "Despite significant improvements in the past decade in pharmacotherapy, programs, and services available for patients with schizophrenia, the economic burden of schizophrenia in Canada remains high."

Conclusion

As clinicians we need to offer restorative care to patients who suffer with schizophrenia, a severe and usually chronic mental illness. If this information is reviewed carefully and implemented, we believe that many schizophrenic patients will improve substantially and achieve a better quality of life. Some might improve so much that they achieve clinical remission. Since not enough clinicians utilize optimal doses of vitamin B_3 with their schizophrenic patients, we hope that the information presented here changes their minds and compels them to adopt this very effective and safe treatment.

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The End of An Era and a New Beginning: An Orthomolecular Recovery Updated

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Abstract

This is an update on my two previous articles for this Journal, written in honour of Prof. Humphry Osmond and Dr. Abram Hoffer to whose orthomolecular treatment I owe my ongoing amazingly good health after I suffered a mixed psychotic breakdown in 1968 described under a family pseudonym, Diana Walker in September, 1986 and followed by another autobiographical article under my own name in February, 1994, to describe my subsequent career as a clinical psychologist. I have been able to practise full-time in the National Health Service and concurrently in private practice in England with full medical clearance with no mean reputation in the fields of child psychology, psychiatric rehabilitation and adult mental health. Currently, I am practising as a private specialist in Primary Care Psychology and clinical hypnotherapy, with the additional training in Life Coaching to extend my range of expertise and broaden my client base.

Introduction

This article outlines the continuing professional progress of my career and current state of general health maintained on the very low dosage of medication (3 mg Stelazine) combined with 1 g of nicotinamide (vitamin B_3), together with additional supplemental nutrition.

These articles have been written in the desire that they will bring hope to others who have suffered similarly to myself and for them to realize the benefits as well as the deficits of a breakdown.

The second article in this series described survival, as a one-time private practitioner, from the devastating effects of the Thatcher recession in the UK in the late 1980s and early 1990s and how at the eleventh hour I was saved financially through a timely invitation back into the NHS. In addition, I had the generous support of a couple of my friends who bailed me out until I was able to repay them by a fortuitous legacy from a favourite aunt. Moreover, I was able later to pay off the rest of my considerable debts from the sale of my flat when it had recovered from negative equity and I had meantime taken up my friends' offer of a home base with their family. I also benefited from the unsolicited generosity of a good American friend at this very difficult time.

At first, it was difficult to adjust from being my own boss after having left the NHS in 1986 and then to come back to a greatly changed service. The series of Locum appointments I had been awarded in order to shorten the lengthy waiting-lists in the out-patient hospital departments had nevertheless provided a means of re-acclimatizing myself. However, I quickly found that the combination of sometimes questionable NHS management and the lack of resources in the Adult Mental Health service did not make for a happy working environment although it helped to relieve my financial burden by providing a regular income.

New Employment

I was therefore more than happy to take up an opportunity in 1995 to move into the field of Primary Care Psychology where I was appointed in an area nearer to my home, to work in GP surgeries as a peripatetic Clinical Psychologist. This role as an independent Consultant, but one who had the benefit of being a team player in the Service with the back-up of the colleagues under a visionary and

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supportive Manager, was the answer to my future career options.

I stayed in this role until my retirement from the NHS and was given a heart-warming send-off. This was long before New Labour banned ageism, but I had been kept on after the statutory retirement age in the capacity of carrying out extended Locums as the management did not want me to leave the service.

Whilst working in the Primary Care Service I undertook to up-grade my old Master's degree in Clinical Psychology by the option of carrying out a top-up Doctorate (Psych.D). Despite two leaves of absence owing to physical health problems (a total knee-replacement) as well as compassion, I managed to fulfil it with appropriate help from the Head of the University Psychology Department for my rusty statistics as well as the valued practical support of my friends and my adopted family in meeting the deadlines.

I was finally awarded the Doctorate in Psychology by the University of Surrey in December, 2003. I graduated in April, 2004. The "Top-up" Doctoral Portfolio consisted of 87,500 words in 3 parts: 2 Academic Reviews of the literature, a detailed Case Study, but mainly a research project on First-time Fatherhood to complement and counter-balance my first (B.Sc.) research dissertation on Puerperal Depression and Psychosis, carried out in 1974, which had gained a first-class pass.

At last, I felt I had fulfilled a long-standing ambition to complete my academic education and I was able to enjoy the recognition it brought about.

Learning Other Treatment Modalites

Just prior to reading for the Doctorate, I had taken up an interest in the value of hypnosis as an adjunctive treatment for many of the conditions I encountered in the GP surgeries. I participated in a Medical Diploma course in Clinical Hypnotherapy under the auspices of the London College of Clinical Hypnosis and was able to achieve a pass with Distinction.

I had been sponsored by the Health Trust in the NHS to do this, as I had been able to make a case to the Chief Executive that I could move more patients more rapidly off the waiting list, without jeopardizing the quality of the service. And this was, in fact, what I was able to substantiate.

Later, and before I gained my Doctorate, I attended a short Diploma course in Brief Strategic Therapy in London which again won a Distinction and enabled me to perfect a new technique I learned there which was an improvement on the orthodox method of de-traumatization now in vogue in the UK, imported from the USA, (i.e. Eye Movement Desensitisation and Reprocessing or EMDR for short). I had practised EMDR previously with considerable success but the newer technique, based on a similar rationale, Fovea Focus Deconstruction, I find now takes approximately half the time of EMDR and is just as effective, if not more so.

My latest venture, now that the rigours of reading for, and carrying out, the Doctorate are over, is to take up the study and practice of Life Coaching via the Coaching Academy based in London.

This is a very good ancillary method to complete a continuum of care provided for the usually more complex case-load or, alternatively, as a stand-alone treatment for those who are not significantly psychologically impaired, but who need to clarify their goals and negotiate their options in a realistic way. This is in order for them to overcome their having come to a cross-roads in their lives and just needing to be facilitated in this way so that they could move on with more confidence and success.

Life Coaching is proving, even in the training stage, to be a valuable addition to one's repertoire of expertise and to broaden one's range and client base.

However, life is not all bound up in work, since I work only part-time in semi-retirement now. I have always had an abiding interest in art and classical music and am now able to indulge my tastes in the these directions more readily, particularly art.

Regarding the latter, I have now specialized in architectural impressions in black-and-white line-and-wash, as well as house-portraits. I have been encouraged by their reception from family and friends and, latterly, from the incipient commercial success that this is bringing to add to my limited income. I plan to develop this area more fully in the future.

Regarding my personal history and family life: my son and daughter have continued to develop their careers successfully on the Continent. My son, who is a quadri-lingual lawyer in the European Commission, is now applying for other high-powered posts in Belgium where he is currently based in Brussels work-wise.

This is because his 5-year contract with the EC will expire in two years time but he has a wealth of experience and expertise behind him now which he has gained through merit, not family influence.

Sadly, though he has gone through a divorce and has fought many court battles with his ex-wife to gain reasonable access to my delightful granddaughter. These battles should be finally resolved legally this year but it has been an uphill struggle for him and illustrates the inequality of fathers' rights in the UK in such cases. He is now in another relationship with the Belgian mother of her 11 year-old daughter and they have set up a family home together in the country.

My daughter has not yet married but nonetheless is a very popular career-woman in her wide social circle. She has a small house in an up-and-coming area of Brussels and is now having it completely re-designed internally and refurbished. She has left the security of employment with a subsidiary company of a prestigious Economics journal and is now working free-lance as a business events developer and copy-writer and earning twice as much as before but it is all hard work and not for those without stamina.

I have very good, ongoing relationships with my son and daughter which are a source of great comfort to me.

Regarding my ex-husband, I am glad to say that we are now back on reasonably amicable terms most of the time since I wrote to forgive him in the year of the 50th anniversaries of VE and VJ days from WWII. This was considered to be an opportune time to do it as he is a veteran of the Desert war in that conflict and I have always respected the contribution he made to the defence of the UK and afterwards as a regular Army Officer.

That was before he commuted his Commission in the late 1950s and made a second, successful career as a mainframe computer salesman before he finally retired. He is one of the few members of the armed forces who resigned their Commissions under the Government's so-called "Golden Bowler" scheme in 1958 to reduce the officer-class to make a success of civilian life. So many of them could not forget their roles in WWII and expected that the world owed them a living.

He is now quite affable and appreciative of the fact that I visit him every week (in the interests of family duty and compassion) to take him out to his favourite Pub so that he can have his pint-and-a-half of ale and meet his friends there: he gives me a bar lunch and drink there in lieu of the cost of petrol I expend. He cannot see properly to drive any more since he had a retinal thrombosis some years ago and lost the sight of his good eye and has only 40% vision in the other.

His constitution is amazing, since he has survived a major operation on his leg to correct faulty circulation which he

had been previously warned could have resulted in post-operative mortality but he took the risk, and with the luck of the Irish, he came through it all successfully and has been signed off. He is getting really elderly now and unsteady on his legs, but otherwise he manages well in his flat with the help of daily Carers. (He is determined not to go into a Home).

He has all his mental faculties, nonetheless, which he keeps ongoing by doing his newspaper crosswords every day, including the jumbo one on a Saturday. He also watches the History and News Channels as well as his favourite programmes on digital TV which (thanks to daily doses of bilberry extract) he can now watch without a magnifying screen).

Now that we are both getting on in years, the old saying that one mellows with age, is true. He has conveniently forgotten all the emotional trauma he caused me during a particularly stressful period in our marriage, and his contribution in triggering my breakdown. Although I have not forgotten that benighted and awful phase of my life, which I would not knowingly repeat even if I were able to recover fully and be paid a fortune, fortunately one can forgive, with one's greater maturity and understanding.

Regarding my family of origin, there has been the sadness of having to be instrumental in making sure my elderly sister finishes her life in a suitable Home owing to her Alzheimer's disease.

Before her decline, my sister and I and her family have always kept in touch although we are geographically distant from each other. She has been good sister to me in many ways and it is sad to see her now in a little world of her own after being a successful artist, fashion designer and lecturer in her part of the UK.

I am glad to say, that the relations with my two elder brothers have improved considerably. The younger one and I have healed the rift that existed for years between us, partly through personality clashes, and partly because of his previous political acceptance of apartheid in South Africa.

Before he retired many years ago, he was a high-powered international, corporate businessman in RSA, but I am glad to say that – thanks especially to the beneficial influence of his second wife – he has done valuable charity work at his own expense to educate the black street children in the grossly deprived underclass of the fashionable resort where they now live. This has now been recognized at local government level and he is currently engaged in setting up apprentice schemes for the older street children once they have left school.

Apart from this admirable development, a recent long visit to him at his invitation has resulted in the welcome rapprochement initiated by my sister-in-law and he and I now realize that we have much more in common than ever previously realized. This has all been very heart-warming and a welcome change from past tension and occasional covert conflict. He is now so much more understanding and approachable.

My elder brother is not now in good health. He is now a retired successful Consulting Engineer. He has kept himself at a distance from the family since the deaths of our parents, although I have recently attempted further rapport and visited my married nieces who have made me welcome.

I have also renewed friendships with other cousins in the family background which have proved personally rewarding, not a little in understanding our chequered maternal family history somewhat better.

Conclusion

Altogether, although life is still not easy, especially financially having to live mostly on small pensions from the State,

NHS and privately, to supplement present earnings. I am blessed with good health which has been remarked upon enviously by some who compare me at my age with many of my contemporaries who are not so fortunate.

I now regard my former breakdown as a blessing in disguise since, through the process of recovery, I met Dr. Mayer whose beneficial influence has been invaluable, as well as finding my true vocation and being given the opportunities to fulfil it.

Without all that experience behind me I would not have been able to empathise with others to the extent that I do or to re-frame it in such a positive way. Truly, the ways of Providence are wonderful and strange indeed.

I have also embarked on writing a book about my professional memoirs, based on my 30-year career and after awaiting more feed-back from my ex-Clinical Tutor and two other professional colleagues and friends about a sample of it, I shall apply for an Agent to market it.

The book is aimed at the general public in the UK who, even now, have very little idea at the outset, about the range of conditions that a Clinical Psychologist can now treat, not just with drugs. It will be full of human interest and hopefully encourage some of the younger generation to take up what I have been privileged to do by entering an eminently worthwhile and ever-developing profession to meet the needs of those who are temporarily overcome by mental conditions with which they are unable to grapple without professional help.

To all those fellow-sufferers I salute their courage and determination to recover from their various conditions and succeed in this cruel but nonetheless wonderful world we live in today. We need to carry on trying to leave it in a better state within our own sphere of operations than when we entered it.

Special Acknowledgement: My grateful thanks go also to my much-respected late GP in London and former Guru, Dr. Max Mayer, who supported my early, full megavitamin treatment regime, and who, with his charming wife, Yvonne, and delightful family, accepted me after my recovery as a valued friend of the family. He and his sister were survivors of the Holocaust in which their parents died. Max's inspiring example of open-mindedness and humanity, as well as his impressive medical knowledge and culture have proved to be the basis of my own undeniable success as a Clinician in my chosen field. I was honoured to give the opening eulogy at his funeral service on 28th January, 2005. Truly, a man in a million.

"Beat The Odds" Revisited

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Dr. Hugh Riordan and two of the authors listed above (JAJ, REH) published an article titled "Beat The Odds" in the 1992 *Journal of Orthomolecular Medicine,* Vol. 8, No. 4.[1] The name for the original study was chosen with the expectation that those living long enough, will, over time, develop one or more degenerative diseases (Alzheimer's, AMD, arthritis, bone disease, cataracts, cancer, heart disease, Parkinson's, strokes, etc.). By monitoring their blood and urine nutrients, not smoking, diet and proper exercise, participants should be able to "Beat the Odds" of having such a disease. At the same time, participants should be able to slow the aging process in order to enjoy greater vigor and productivity in later life.

Essentially, the program is a tool to measure nutritional status, to maintain health, and to help prevent diseases. If one could delay the admittance to an assisted living/nursing home at a cost of $40,000 a year or more, the saving would be tremendous.

As stated above, the key element of this program is the measurement of actual levels of nutrients in the blood, urine, and, indirectly, the tissues. The 1992 study had one panel of tests. It measured RBC (red blood cell) zinc, RBC magnesium, RBC selenium (all important as cofactors in numerous enzyme reactions). Also measured were two fat soluble vitamins, A and E, and one water soluble, vitamin C. These vitamins and minerals were chosen because a review of 200 patients' results showed that these were the nutrients commonly low in the chronically ill patients seen at The Center. In the initial study, the RBC membrane fatty acid ratio of stearic/oleic acid ratio was also performed as a nutritional screen for cancer.[2] There were 59 participants enrolled in the initial program. See reference 1 for the data and results of the initial study.

Over the years as more research data became available, more panels, in addition to the original "antioxidant panel" were added to monitor nutrients in specific diseases. These included panels for bone, brain, breast, eye, heart, inflammation, preconception/fertility, prostate, skin, hair, nail health and two mega-health panels (basic and comprehensive) that included most all the tests in the other panels plus additional tests. Visit www.brightspot.org and click on Health Hunter/BTO to see an example of tests ordered with specific panels. **Table 1** (p. 203) lists the panels with specific tests.

The latest program is called Health Hunter/Beat The Odds. It is held each April and October. The various report forms are color coded with low, normal and optimal nutrient levels.

A short paragraph gives adequate explanations on how to improve any values not optimal. We have had people from many cities in Kansas, several different states and even some from Canada who come to have a panel done. Many return once or twice a year to keep track of their progress, or lack of progress.

Why specific nutrients for each panel? The United States Department of Agriculture (USDA) performs several studies on dietary habits of certain population groups. For example, 73% of women and 64% of men do not consume the RDA of vitamin E (15 mg or 22.5 IU). Also, 74%

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of Americans do not meet the RDA for mineral magnesium and 33% over the age of 50 have a deficiency of zinc (could lead to stroke). About 88% of the population consumes less than 400 ug/day of folic acid which could lead to dementia and stroke.

If we examine the brain health panel, we find it measures vitamins A, C, D, E, B_1, B_3, B_5, B_6, folic acid, RBC fatty acids, coQ_{10}, homocysteine, essential amino acids plus taurine and glutamine, lipid profile, C-reactive protein, RBC magnesium, selenium, zinc, urine vitamin C and pyrroles. How does this panel help to prevent or delay diseases of the brain? Individuals who die from Alzheimer's have decreased magnesium and vitamin B_1 in their brains. In the U.S., Alzheimer's is more common as people age; in the age groups 65-74 years, 3% have Alzheimer's; from 75-84 years, 19% have the disease; and above age 85, 47% have the disease.

Individuals with high homocysteine have 2 to 4 times the risk of developing Alzheimer's. Deficiency in the B vitamins causes memory loss and ataxia. Vitamins A and E protects the membranes of brain cells. Vitamin C is about 15 times higher in the brain than in the blood. An increase in vitamin C has been shown to improve IQ and cognitive skills. Vitamins B_{12}, B_6 and folic acid decreases homocysteine. A deficiency of B_1 may effect concentration and can result in a form of dementia and B_1 dependent enzymes are decreased in the brain of patients who have died of Alzheimer's disease.

Selenium and vitamin E improve cognitive function and prevents the oxidation of fats and that produce the formation of plaques and increases strokes. Low levels of selenium and vitamin E in men increases the risk of stroke by 4 times. CoQ_{10} helps maintain vitamin E in its active form, protects LDL from oxidation, increases HDL and decreases Lp(a). All the amino acids measured play an important role in brain functioning. Glutamine stimulates thought clarity and alertness, taurine is the most prevalent amino acid found in the brain and low levels lead to depression while leucine and isoleucine stimulate the upper brain to keep you alert.

Low levels of lysine lead to an inability for the brain to concentrate. Methionine helps clear the brain of metabolic wastes. It prevents the accumulation of heavy metals (cadmium and mercury) in the brain. Phenyalanine, in optimal amounts, brightens mood and improves long-term memory. Optimal levels of tryptophan are necessary as it is the major precursor of serotonin (the "feel good" neurotransmitter). Valine promotes a calming effect on the emotions and is partly converted to spermine whose low levels are sometimes seen in age-associated memory loss. Remember, eleven amino acids in adults cannot be made by the human body.

The omega-3 fatty acids (fish oil, flax seed oil) are useful in preventing the onset of Alzheimer's patients. They also improve cognitive skills in these patients. These fatty acids are involved in postnatal development of the brain and low levels are found in children with ADHD.

The lipid profile and highly sensitive C-Reactive Protein (hs-CRP) are added to the Brain Health Panel to provide insights into the potential severity of plaque deposited in the arteries leading to, and in the brain. Low levels of vitamin D are also known to affect brain neurotransmitters.

Each of the HH/BTO panels have similar specific nutrients and supporting tests to measure and monitor the participant's ability to "Beat The Odds" of developing that particular disease.[3,4,5,6] It is also important to remember that the human body cannot make many of the nutrients measured: they are "essential" You must eat, digest, absorb, metabolize, and excrete them before they are of any use to your cells. The only sure way you can do this is measure them in your blood.

Table 1. Health Hunter/Beat the Odds Panels (HH/BTO) as of October, 2008.

Check Panel Desired	HH/BTO Panels	Description
____	Antioxidant Health	Vitamins A, C, E, urine Vitamin C
____	Bone Health	Vitamins A, C, E, B_5, D, DHEA-S, serum Calcium, Phosphorus, Red Blood Cell Magnesium, Copper, Manganese, urine Vitamin C urine Boron & Strontium
____	Brain Health*	Vitamins A, C, D, E, B_1, B_3, B_5, B_{12}, Folic Acid, Fatty Acids, CoQ10, Homocysteine, Essential Amino Acids plus Taurine and Glutamine, Lipid Profile, hsC-Reactive Protein, Red Blood Cell Magnesium, Selenium, Zinc, urine Vitamin C & Pyrroles
____	Breast Health	Vitamin A, C, D, E, B_6, folic acid, CoQ_{10}, Lycopene, Red Blood Cell Selenium, Urine Vitamin C.
____	Eye Health	Vitamins A, C, E, B_2, B_5, Lutein, Beta Carotene, Red Blood Cell Selenium, Zinc, urine Vitamin C.
____	Heart Health*	Vitamin A, C, D, E, B_5, Homocysteine, CoQ_{10}, Lycopene, Lipoprotein (a), hsC-Reactive Protein, Lipid Profile, Red Blood Cell Magnesium, Selenium, urine Vitamin C.
____	Inflammation Health***	Vitamins A, C, D, E, Fatty Acids, hsC-Reactive Protein, Hemoglobin, A1C, Basic Cytotoxic Food Allergens, urine Vitamin C, urine Potassium/Sodium Ratio.
____	Pre-Conception/Fertility	Vitamins A, C, E, B_6, B_{12}, Folic Acid, TSH, Free T3, Homocysteine, Essential Amino Acids, Red Blood Cell Magnesium, Manganese, Selenium, Zinc, urine Vitamin C.
____	Prostate Health	Vitamins A, C, D, E, Lycopene, Red Blood Cell Selenium, Zinc, urine Vitamin C (PSA can be added, please inquire).
____	Skin, Hair, & Nail Health	Vitamins A, C, E, B_2, B_3, B_5, B_6, Fatty Acids, Free T3, Red Blood Cell Manganese, Zinc, urine Vitamin C.
____	Mega-Health (Basic)**	Includes all tests contained in the Antioxidant, Brain, Eye and Heart Health Panels.
____	Mega-Health (Comp.)**	Includes all tests contained in the Mega-Health Basic plus Free T3, TSH, serum Calcium, Phosphorus, DHEA-S, Red Blood Cell Copper, Manganese, Urine Boron & Strontium.

Prices vary according to panels. If a Health Hunter (see web site www.brightspot.org) a 30% discount is allowed off the base price. These tests cannot be filed with any insurance provider, Medicare , or any other provider.
** = Requires a minimum of 14 hours fast
*** = A blood drawing time must be schedule and a 14 hour fast is required.

The general public is looking for personal health data. The aging boomer population is determined to have actionable data that they can translate into a longer, happier and more productive life. What better way to provide service than by reaching out to the community and interacting with people before they become patients?[7]

We continue to monitor the results and modify or adjust the panels as data becomes available. Of particular interest, a business in Kansas has enrolled its employees in this program and the Bio-Center Laboratory staff travels to the factory every year, collects the blood and returns the results to the factory's employees and medical staff. It is a health promotion/incentive for employees. To review an example of a "John/Jane Doe" sample report sheet, go to www.brightspot.org and click on "Beat The Odds."

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Changes In Worker Fatigue After Vitamin C Administration

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Abstract

Objective : In recent research, the role of oxidative stress has been an important factor in fatigue. The principal objective of this study was to evaluate changes in fatigue in workers after vitamin C administration.

Methods : We consecutively examined 44 workers who work regularly. They were orally administered 6 g of vitamin C daily for 2 weeks. We then investigated the demographic data and assessed any changes in the patients' fatigue scale (VAS, FSS) and blood tests (vitamin C, HgA1c, CRP, AST, ALT, r-GTP, cortisol).

Results: In fatigue, both VAS and FSS improved after vitamin C administration ($p<0.005$). In blood tests, AST, ALT, r-GTP, HgA1c, CRP, and cortisol were reduced after vitamin C administration ($p<0.005$).

Conclusions : Vitamin C administration reduced fatigue symptoms and improved blood tests with fatigue in workers.

Key words : fatigue, vitamin C, workers, visual analog scale, fatigue severity scale

Introduction

Fatigue is extremely common in both primary and secondary care patients. Everybody experiences this symptom during life, even in the absence of any disease. However, doctors, as well as the general population, tend to neglect symptoms of fatigue, attributing it not to illness but to a normal response to the exertions of life.

The relevant rates of fatigue prevalence vary considerably, depending on whether the fatigue being examined is characterized by tiredness, weakness, or exhaustion. The phenomenon of fatigue is usually divided into fatigue, chronic fatigue, and chronic fatigue syndrome. The boundary between fatigue, chronic fatigue, and chronic fatigue syndrome is also fairly arbitrary, as these are obviously subjective terms.[1]

According to many researchers, the prevalence of fatigue was more than 27%, whereas chronic fatigue had a prevalence of 1-10%, and chronic fatigue syndrome evidenced a prevalence of 0.2-0.7% in the general population.[2-6] In Korea, Kim et al. reported that the prevalence of chronic fatigue was 8.4%, and that chronic fatigue syndrome occurred in 0.6% of the general population.[7]

The prevalence and severity of fatigue in workers is substantially higher than in the general population, due to the stress inherent to the modern work environment. Also, many workers have many diseases or risk factors of many diseases. If workers don't take early steps to reduce their fatigue, they may experience serious difficulty and reduced work efficiency.

Despite considerable worldwide efforts, no single etiology has been discovered to explain fatigue symptoms, and the pathophysiology of fatigue remains unclear. It appears likely that multiple factors promote its development, sometimes with the same factors both causing and being caused by fatigue.

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A great number of recent studies have demonstrated that oxidative stress may be involved in its pathogenesis. The role of oxidative stress in fatigue is an important area for current and future research, as it suggests the use of antioxidants in the treatment of fatigue. Specifically, the dietary supplements glutathione, N-acetylcysteine, alpha-lipoic acid, oligomeric proanthocyanidins, Ginkgo biloba, vitamin C, and Vaccinium myrtillus (bilberry) may exert beneficial effects.[8,9]

Vitamin C is a powerful antioxidant, and exists in a variety of fruits and vegetables. Fatigue is the initial symptom of experimental scurvy, and a marginal vitamin C deficiency may induce fatigue, lassitude, and depression, all of which have been shown to respond to supplementation.[10-13] Although some early reports have failed to find any evidence of decreased serum levels of vitamin C in chronic fatigue syndrome (CFS) patients, no current assay technique for the measurement of ascorbic acid is entirely satisfactory; therefore this single report of serum vitamin C levels arguably does not eliminate the possibility that a subset of chronic fatigue syndrome patients may be vitamin C-deficient.[14,15]

The principal objective of this study was to evaluate changes in fatigue in workers after vitamin C administration.

Materials and Methods

Study subjects

We consecutively examined 44 workers who work regularly from 9 am to 6 pm. The exclusion criteria included the following: pregnancy, cancer, cardiovascular diseases, and infection.

Method

Written consent was obtained from all study subjects. They were orally administered 6 g of vitamin C daily for 2 weeks. We then investigated the demographic data and assessed any changes in the patients' fatigue scale and blood tests.

The demographic data included the sex, age, and exercise status of the patients. The fatigue scales used included both a fatigue severity scale (FSS) and a visual analogue scale (VAS).[16] The blood tests conducted included: vitamin C, Hemoglobin A1c(HgA1c), C-reactive protein (CRP), aspartate aminotranferase (AST), alanine aminotranferase (ALT), r-GTP, cortisol.

Statistical analysis

The fatigue scale and blood test levels prior to and after vitamin C administration were compared via paired t-tests. A p-value of less than 0.05 was considered to be statistically significant.

Results

Demographic data

The demographic data (sex, age, smoking, alcohol, and exercise) are shown in **Table 1** (opposite). The subjects included 27 males (67.5%), 13 females (32.5%). The patients' mean ages were 33.83±5.63 years. No patients were excluded due to side effects of vitamin C.

Fatigue scale

The fatigue scales prior to and after vitamin C administration are shown in **Table 2** (opposite). VAS improved from 5.60±2.13 to 4.72±1.96 after vitamin C administration ($p=0.001$). Also, FSS improved from 5.04±1.41 to 3.44±1.06 after vitamin C administration ($p<0.005$).

Blood tests

The blood tests prior to and after vitamin C administration are shown in **Table 3** (opposite). The vitamin C level in the blood increased from 42.9±12.4 μmol/L to 68.60±26.57 μmol/L after vitamin C administration ($p=0.001$). In liver function tests, the subjects reported significantly lower levels of AST, ALT, and r-GTP following vitamin C administration ($p<0.005$).

Table 1. Demographic Data.

Demographic factor	No(%)	
Sex	Male	27.0(67.5%)
	Female	13.0(32.5%)
Age(mean±SD)		32.83±5.63 years
Smoking		20.0(50%)
Alcohol		32.0(80%)
Exercise		25.0(62.5%)

Table 2. Fatigue Scale after vitamin C administration.

	before vitamin C	after vitamin C	p-value
Fatigue Severity Scale	5.04±1.41	3.44±1.06	0.000
Visual Analogue Scale	5.60±2.13	4.72±1.96	0.011

Table 3. Blood test after vitamin C administration.

	before vitamin C	after vitamin C	p-value
Hemglobin A1c (%)	5.46±0.38	4.88±0.33	0.000
Cortisol (μg/dL)	11.64±3.83	8.80±2.75	0.000
Aspartate aminotranferase (U/L)	28.09±19.92	23.85±7.65	0.000
Alanine aminotranferase (U/L)	28.45±20.66	25.12±17.75	0.011
r-GTP (U/L)	32.59±28.92	25.93±18.05	0.000
C-reactive protein(mg/L)	0.11±0.20	0.05±0.07	0.033
vitamin C (μmol/L)	42.90±12.4	68.60±26.57	0.000

The cortisol levels in the blood were reduced from 11.64±3.83 μg/dL to 8.80±2.75 μg/dL, and CRP levels were reduced from 0.11±0.20 mg/L to 0.05±0.07mg/L after vitamin C administration ($p<0.005$). Also, HgA1C levels were reduced from 5.46±0.38% to 4.88±0.33% after vitamin C administration ($p<0.005$).

Discussion

Fatigue is a common experience, and most people experience feelings of fatigue during their regular lives. Thus, fatigue is a property both of normal experience and of certain diseases. We believe that fatigue should be considered a symptom or disease in cases in which the fatigued person perceives him- or herself to be ill. If an individual experiences fatigue symptoms for an extended period, that individual may be suffering from a disease of which fatigue is a symptom. Particularly in workers, the prevalence of fatigue symptoms is now growing at a rapid rate, due principally to the heavy stress inherent to the modern work environment.

The etiology of fatigue remains unclear; however, a number of recent studies have demonstrated that oxidative stress may be involved in its pathogenesis.[17] The role of oxidative stress in fatigue is an important area for current and future research, as it suggests that antioxidants might prove useful in the management of fatigue.[18]

In this study, the subjects reported significant improvements in fatigue following vitamin C administration. Vitamin C is a powerful antioxidant and an essential cofactor for carnitine biosynthesis.[19] Also, according to American reports, approximately 15% of American adults are deficient in vitamin C.[20] Twenty-five years ago, this percentage was far lower, at approximately 3-5% of American adults.[21] Thus, modern people appear to have an unfulfilled vitamin C requirement.

In this study, subjects evidenced improvements in some blood levels (AST, ALT, r-GTP, cortisol, CRP, HgA1c) after vitamin C administration.

AST, ALT, and r-GTP, which are associated with liver function and cortisol, were all hormone-related. Reduced blood levels of these compounds on these tests were associated with improvements in subjects' fatigue.

C-reactive protein (CRP) is an acute phase reactant which is secreted by the liver in response to inflammatory cytokines. It was identified recently as a stronger predictor of cardiovascular events than LDL cholesterol.[22] Recently, a meta-analysis indicated that individuals in the top third of CRP plasma concentrations (2.4 mg/L) were 2 times as likely to have coronary heart disease (CHD) as compared to those in the lowest third of CRP concentrations (1.0 mg/L).[23] In our study, the blood levels of subjects' CRP decreased after vitamin C administration. This result was reminiscent of several other studies showing that the antioxidant components in fruit and vegetables, i.e., carotenoids, vitamin E, vitamin C, and flavonoids, may contribute to this anti-inflammatory effect.[24,25] The consumption of a diet low in antioxidants was shown to result in inflammation, whereas antioxidant supplementation has been shown to ameliorate inflammation.[26]

HgA1c is an integrated measure of plasma glucose, and is intended to represent glucose concentrations in blood averaged over a 2-3 month period. In 1987, Cerami et al. summarized the interaction of glucose with protein and its association with human aging and diabetic disorders.[27] Additionally, a reduction in glycation has been suggested to prevent diabetic disorder and to retard the aging process. Although the duration of this study was only 2 weeks, the blood level of HgA1c was decreased by 0.58%. These results were reminiscent of those of other studies.[28,29] In the report of Khaw et al., a lowering of 0.2 in hemoglobin glycation in the population would reduce total mortality by 10%.[30]

In workers, fatigue is a very important problem. If workers can resolve this problem at an early time, they can help prevent fatigue-associated diseases and increase their work efficiency. We believe, after reviewing the relevant results, that antioxidants such as vitamin C may serve to reduce fatigue in workers.

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"Nutrition and the Mind" Congress in the Netherlands

Congress in session *(photo: Hans Roes, Ortho Institute)*

Mental disorders? Don't forget the body. This was the message in four words of the congress, Nutrition and the Mind, which took place November 1 in Utrecht, Netherlands.

The well-attended congress (200 people) consisted of many psychiatrists and psychologists, who were not particularly familiar with the subject, but who obviously wanted to know more about the orthomolecular approach for mental disorders. To appeal to this group, the subtitle of the congress was "food supplements or psychotropic drugs." The first presenter was Trudy Dehue, professor of science history and theory of psychology at the University of Groningen. Her task was to substantiate this subtitle. Earlier in the year her best-selling book *Depressie-epidemie (The Depression Epidemic)* was published. In her search as theoretical scientist for causes for the rapid increase of depression, she became aware of the influence of the pharmaceutical industry on the prescription behavior of psychiatrists and other MDs. Included in her presentation was the change of the definition of depression in the course of time, depending on what was convenient for certain groups in several eras. In this way she put the connection of psychiatry and drug industry nowadays into perspective.

Also in the Netherlands, vitamin D is in the spotlight. Psychiatrist and professor Witte Hoogendijk performed one of the first studies on the relation between depression and vitamin D deficiency for Neurogenomics and Cognitive Research at the VU University Medical Center, Amsterdam. The outcome of his large population-based study was an association of depression status and severity with decreased serum 25(OH)D levels and increased serum PTH levels in older individuals. Though the outcomes gave a clear benefit from vitamin D in depressive persons, he was still reluctant to prescribe the vitamin. In his view, the data were too preliminary. For this, more research was needed, especially clinical trials. This was the inducement for a discussion about evidence-based medicine.

The functioning of the brain is, like all

life processes, dependent on the supply of proper nutrients. These are indispensable to an integrated approach of body and spirit. This orthomolecular concept was covered by psychiatrist dr. Bo Jonsson of the Karolinska Insitute in Sweden, the Dutch biochemist dr. John Kamsteeg and the Belgian neuropsychiatrist dr. Michael Maes. Jonsson gave a general review on the effects of nutrients on anxiety disturbances. Kamsteeg demonstrated that treatment of a serious disease like schizophrenia is much more than just prescribing medication. He discussed the application of the orthomolecular approach of schizophrenia as described by Harold Foster in his book *What Really Causes Schizophrenia*. Kamsteeg also stressed the importance of the role of the thyroid gland in mental disorders.

Trudy Dehue *(photo: Hans Roes, Ortho Institute)*

Maes discussed the psychological and neurological symptoms that may go along with the chronic fatigue syndrome (ME/CVS). He opposed the view that this illness is just "in the head", and explained the etiology of CFS by infection, leaky gut, oxidative stress and auto-immune reactions. He emphasized the role of nuclear factor kappa beta (NFkb), a biomarker for inflammation in the body. Elevated concentrations of NFkb is related to fatigue, irritability and depressed feelings. NFkb inhibitors can improve symptoms. He considers curcumin as one of the strongest NFkb inhibitors.

Maes also mentioned the stubbornness of the psychiatric/psychological circles in his country, referring to the fuss in Belgium around the so-called CVS Reference Centers, which, for years, offer the standard treatment, which is limited to cognitive behavioral therapy and graded exercise therapy. This was the reason for him to write an open letter to the Belgian Minister of Public Health just two days before the congress. He stressed the importance of measuring biomarkers in order to treat these patients with specific immunetherapies and food supplements.

Annelies van Ommeren, orthomolecular MD/acupuncturist, gave an overview of nine psychiatric cases in her practice with mental disorders. She presented a Moroccan man with depressive symptoms who drank much very sweet tea on a daily basis. After this cultural tea use was removed from his daily habits–along with all the sugar and lactose–and was prescribed supplements (probiotics, oregano, zinc and B vitamins to strengthen the immune system) he recovered almost instantly. With the pleasant side effect: his intestinal complaints and fatigue disappeared.

Perhaps the gap between the orthomolecular and mainstream medicine is probably most illustrative when listening to the reactions in the corridors. In a reaction to the presentation of the cases by van Ommering, an experienced orthomolecular doctor said he had heard little new. On the other hand, a conventional psychotherapist shook his head in despair, acknowledged his need to move beyond his own ideas, but did not know where to begin.

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Another Hatchet Job on Vitamin E

A recent article in the *American Journal of Respiratory and Critical Care Medicine*[1] concludes that the use of vitamin E supplements over a prolonged period of time increases the risk of lung cancer. Not too surprisingly, considering the general media bias against supplements, the article was widely quoted in the press, on the BBC and in at least one popular medical newsletter. They all seem to have swallowed the conclusions of the study "hook, line and sinker" and concur with the authors' recommendation that vitamin E should only be obtained from food.

So what is wrong with that? Plenty as it turns out. First of all, the benefits of vitamin E supplementation are primarily associated with its proven effectiveness in preventing cardiovascular disease and the evidence that it does so is indeed impressive.

The hypothesis that vitamin E can prevent lipid peroxidation caused by free radical reactions was first advanced in 1983 and has since been proven correct by numerous, credible, scientific investigations. There is now general agreement that vitamin E is the most powerful antioxidant in the body's lipid (fat) phase and that its ability to protect cell membranes from oxidation is of crucial importance in preventing and reversing many degenerative diseases. Vitamin E also inhibits blood clotting (platelet aggregation and adhesion) and prevents plaque enlargement and rupture.[2-10]

The evidence that vitamin E can prevent and reverse heart disease is now incontrovertible. In 1992 researchers at the University of Texas reported that vitamin E protects against atherosclerosis (hardening of the arteries) by preventing oxidation of the low-density lipoprotein fraction of blood.[11] In 1993 researchers at the Harvard Medical School released a study showing that vitamin E supplementation prevents heart disease. Nurses who took more than 100 IU/day of vitamin E for more than two years reduced their risk of heart disease by 41%. A related study involving almost 40,000 male health professionals showed that men who supplemented with between 100 and 250 IU/day reduced their risk of heart disease by 37%. Vitamin E is also highly beneficial in the treatment of intermittent claudication and recent research has confirmed its ability to prevent and, in some cases, reverse the progression of atherosclerosis.[10,12-15]

Vitamin E is also highly effective in warding off a heart attack. Researchers at Cambridge University in England reported in 1996 that patients who had been diagnosed with coronary atherosclerosis could lower their risk of having a heart attack by 77% by supplementing with 400 IU or 800 IU/day of natural source vitamin E.[16] Researchers at the Toyama Medical University in Japan have reported that patients with unstable angina can reduce their risk of angina attacks by a factor of six by supplementing with vitamin E (300 mg/day of alpha-tocopherol acetate).[17] Supplementation with vitamin E has also been found useful in preventing complications after heart surgery and helps slow the restenosis (reblockage) of arteries subjected to angioplasty.[13,14,18] More recently, researchers at the Harvard Medical School reported that supplementing with a combination of vitamin E and vitamin C reduced stroke risk in women by 31%.[19]

Secondly, most people do not get anywhere near the amount required for cardiovascular protection from their diet.

In 1959 the average North American diet provided about 20 mg/day of vitamin E, so based on the observation that very few people suffered from any of the more or less obscure vitamin E related deficiency diseases recognized by the medical establishment, the RDA (Recommended Daily Allowance) for vitamin E was set at

30 IU (20 mg) per day. In 1974 this level was lowered to 15 IU/day when the FDA realized that the average diet now only provided 10 IU or less per day.[20] In other words, the RDA was adjusted to conform to the inadequate and steadily decreasing level of vitamin E in the American diet. The absurdity of this whole situation can perhaps best be illustrated by the fact that an eminent scientist and member of the RDA panel, who in 1974 supported the contention that a vitamin E intake of 10-30 mg/day would be adequate for an adult, publicly stated in 1991 that he was himself taking 400 IU of vitamin E every second day. To quote "...The knowledge that undesirable products of lipid peroxidation in human tissues can be decreased by taking vitamin E have persuaded me to personally take a 269 mg (400 IU) supplement of d-alpha- tocopherol every other day."[21,22]

Thirdly, the University of Washington study reported in the *American Journal of Respiratory and Critical Care Medicine* contains several serious flaws:

1. The number of study participants who supplemented with vitamin E and had never smoked was not enough to conclude anything about the effect of lung cancer risk in this group. The report clearly states this: "Because there were few never-smokers with lung cancer, we did not analyze this group."

2. There was no association between vitamin E intake and lung cancer risk in former smokers. Again, the researchers state this clearly: "We found no significant association between incident lung cancer and supplemental vitamin E for either group of former smokers."

3. The researchers did indeed observe a significantly increased risk of lung cancer among current smokers who supplemented with more than 215 IU/day of synthetic alpha-tocopheryl acetate over a period of 10 years. They somehow equate this with a 28% increase in lung cancer risk when supplementing with 400 IU for 10 years.

4. The study participants were followed for 4 years until the end of December 2005 and their intake of vitamins over a previous 10-year period was determined between 2000 and 2002. Lung cancer has a very long latency (incubation) period, probably around 30 years, so determining vitamin intake for only the last 10 years of progression to full-blown disease is not really relevant. Antioxidants such as vitamin E and vitamin C act to prevent the initiation of degenerative disease, but in normal doses are less effective, if effective at all, in slowing or halting progression of existing disease.

5. During the time period in which the lung cancer developed, the powerful effect of passive smoking (exposure to second-hand smoke) was not known or at least not taken seriously. It is now generally accepted that even short-term, second-hand exposure to tobacco smoke is just as detrimental as smoking itself when it comes to lung cancer risk (hence the rapid proliferation in smoking bans).[23-32] In view of the fact that 20-30% of the US population smoked during the period in question it is conceivable that at least some and perhaps quite a few of the never and former smokers would have been exposed to second-hand smoke and therefore, as far as lung cancer risk is concerned, should have been classified as smokers. Not doing so would seriously skew the data so as to show a greater risk of lung cancer among never smokers and former smokers. It is indeed curious that the researchers corrected their results for confounding variables such as age, sex, race, marital status and education, but failed to include correction for perhaps the most important confounding variable of all–exposure to second-hand smoke

This study is seriously flawed and there is no evidence that its findings apply to anyone but current smokers.

Nevertheless, it should be kept in mind that vitamin E should always be taken in its natural ("-d") form and should be a mixture of the four commonly occurring tocopherols and tocotrienols with gamma-tocopherol being the main component. In order to avoid any possible pro-oxidant effects of vitamin E combined with a diet high in polyunsaturated fats vitamin E supplementation should always be accompanied by supplementation with vitamin C (200-500 mg three times daily).[33-35] It would be nice if appropriate amounts of vitamin E could be obtained from a normal diet, but that really is not practical as most foods are very low in this essential vitamin. To obtain a daily vitamin E intake of 400 IU it would be necessary to consume 200 cups of brown rice, 10 cups of almonds, 80 cups of cooked spinach or 12 tablespoons of unrefined, fresh wheat germ oil every day. Supplementation is clearly necessary and no credible medical evidence has ever been published to the effect that supplementing with 400-600 IU/day of natural vitamin E is unsafe except perhaps for current smokers.

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Plasma Vitamin C and Stroke

The paper by Myint et al.[1] demonstrates an inverse correlation between plasma vitamin C and incidence of stroke. The findings of this study are of major importance, since stroke has a high incidence in North America and Europe, and is third in the mortality statistics. Here, we suggest that the benefits result from a direct action of vitamin C.

As Myint et al. explain, their study was limited: plasma levels were based on a single sample, and estimation of diet and supplement use on a questionnaire, at the start of the study. Over a ten-year period, such single measures are poor indicators of behaviour and plasma levels. The weakness of these methods can be confirmed by examining the plasma ascorbate measurements. Supplement takers were split into quartiles (plasma levels <41, 41-53, 54-65, ≥66 μM/L). Generally, as the paper notes, intakes above 100 mg per day result in large changes in (baseline) plasma concentration. Thus, people supplementing with vitamin C at 100 mg per day or above should have plasma levels in the top quartile (>=66 μM/L).[2] However, less than half the paper's supplement takers (559/1138) showed this expected plasma level. Since the most common vitamin C supplements in the UK are 500 mg and 1000 mg, the plasma results provided for supplement users are inconsistent with the questionnaire responses.

The questionnaire, administered a year before the blood samples were taken, asked whether subjects had taken vitamins regularly "during the past year". During the interval between taking the vitamins and giving the blood sample, subjects may have stopped or started supplementing. We suggest that only the top quartile (>=66 μM/L is consistent with regular supplementation, hence the analysis underestimates the effects of supplementation. A caveat to this statement is that if subjects were chronically ill, they might require additional ascorbate to achieve minimal plasma levels; such subjects would remain ascorbate deficient.

Even in the top quartile, subjects had relatively low levels of vitamin C compared to other groups of supplement users. Phar-

macokinetic modelling predicts plasma minimum plasma vitamin C concentrations of 220 μM/L, for a dose of three grams every four hours.[3] Such frequent doses can maintain a dynamic flow of vitamin C through the body.

The inverse relationship between plasma vitamin C and stroke, noted by Myint et al., was consistent across the population, irrespective of lifestyle factors. Specifically, Myint et al. point out that this relationship was independent of fruit and vegetable consumption. The paper's conclusions, suggesting that vitamin C plasma levels are a "biological marker of lifestyle or other factors," are inconsistent with these findings.

Myint et al.'s results were predicted by a pre-existing hypothesis: that inadequate vitamin C is the cause of stroke and heart disease.[4] Since Linus Pauling popularized the claims for vitamin C,[5] there has been a general resistance to direct experimentation or interpretation of results. Considering the implications for population health, further research is essential, to see if Myint's findings extend to higher plasma levels.

If higher vitamin C levels are directly related to avoidance of stroke, the implications are immense. Following a single dose of vitamin C, plasma levels can reach or exceed 250 μM/L, before declining to baseline. Moreover, people supplementing with liposomal vitamin C formulations can achieve plasma levels in excess of 400 μM/L. Clinical data is not established for these levels, but there is no a priori reason to assume that the reported reduction in stroke risk (17% for each 20 μM/L increase in plasma concentration) is limited to low intakes and plasma levels below 70 μmL. Increasing the plasma ascorbate level from, say, 70 μM/L to 230 μM/L would produce a further predicted reduction in risk of 77%.

Empirical work is urgently needed, to determine whether Myint et al.'s inverse relationship between vitamin C level and incidence of stroke extends to the high levels produced by dynamic flow supplementation. If the relationship holds, sustained high plasma vitamin C could reduce the risk of stroke to negligible levels. Failure to carry out clinical trials of dynamic flow vitamin C supplementation for prevention of stroke and cardiovascular disease could thus mean overlooking a one of the biggest advances in medical treatment since the discovery of penicillin.

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Mercury Causes Autism in One Case

The Federal Government has very quietly acknowledged, for the first time, that mandated vaccination of children can cause autism.

David Kirby of the *Huffington Post* reported that the first of about 4,900 cases, claiming that vaccines containing mercury were responsible for causing normal children to become autistic, had been decided in favor of the plaintiff. The name of the child was unknown because the case had been sealed by the court. However, later information indicated that her name was Hanna Poling. She was represented by Clifford Shoemaker of Shoemaker and Associates of Vienna, VA.

Peter Keisler, US Assistant Attorney General, disclosed that the child's claim, that mercury containing vaccines were the cause of her autism, was reviewed by medical personnel of the Department of Health and Human Services Division of Vaccine Injury Compensation (DVIC) who concluded that compensation was appropriate.

The record is said to show that the child was healthy and developing normally until her 18 month well baby office visit when she received vaccinations against 9 different diseases all at once. Two of them contained thimerosol. Days later she began deteriorating in a cascade of illnesses and, within a few months showed symptoms of autism spectrum disorder (ASD). Response to verbal directions ceased, she no longer said mom and dad, lost relatedness, developed insomnia, screamed incessantly, arched and watched fluorescent light during examination. Dr. Andrew Zimmerman, a leading neurologist at the Kennedy-Kreiger Children's Hospital Neurology Clinic diagnosed "regressive encephalopathy with features consistent with ASD" seven months after her vaccinations.

The written DVIC concession statement said that the child had a pre-existing mitochondrial disorder that was aggravated by her shots on July 19, 2000, which predisposed her to deficits in cellular energy metabolism and manifested as regressive encephalopathy with features of ASD. Although rare in the general population this disorder shows up frequently in autistic children. An article co-authored by Dr. Zimmermann in the *Journal of Child Neurology* states that researchers at the Kennedy-Kreiger Hospital found that 38% of autistic patients had been found to have one marker of this disorder and 47% had another one.

Kirby reports that an informal survey of seven families of children with pending cases revealed that all of the autistic children had markers for this disorder.

It should be noted that children who died from topical applications of thimerosol to umbilical cord infections had little mercury in their fingernails and hair. Those who survived had a lot of it in their fingernails and hair. This indicates that those who are not able to eliminate it from their bodies are most affected by mercury. It is said to burrow into cells and require a lot of glutathione to remove it. It is eliminated mainly through the digestive system. The fact that poor food digestion and bowel problems are often associated with this mitochondrial disorder and the disorder with autistic children is not surprising.

The connection between mercury and brain damage however is far more important. Neurons in cultures are extremely sensitive to mercury. Nanomolar concentrations of mercury, infinitesimally small amounts, kill them. When thimerosol is injected into a small child it quickly disappears because it breaks down to form mercury compounds. Some of the mercury makes its way into the child's brain and causes damage. Female children are less susceptible to this damage than male children because female hormones are protective. This explains why many more boys are afflicted with ASD than girls. The ratio is said to be four to one. What is not much discussed is the

damage which doesn't manifest as ASD. A whole generation of our children have had mercury injected into them in amounts far in excess of what the EPA claims are dangerous if ingested through the mouth. Is there evidence that the children who escaped ASD may also have been damaged? Sadly, the answer is yes.

Unfortunate things have been happening to our boys and young men which have not received the attention that they deserve. They have experienced substantial changes in personality and intellectual capabilities. The January-February 2008 issue of *Harvard* magazine carried an article on "Girl Power" which extolled the capabilities of young women of today and relegated young men to "control group" status. Comments on this article in the March-April 2008 issue of Harvard are illuminating: "What needs research is not the expanded self esteem and confidence of young women, but the depression, dropping out and lethargy of males…the huge disparity in outcomes suggests something bizarre and worth investigating". Also noted was the fact that some classes at Harvard contain 69% of women, a big change from prior years when men predominated.

Nutrition & Mental Health, the International Schizophrenia Foundation's Autumn 2007 newsletter, reports that there have been substantial increases in prescriptions of psychiatric drugs for children between 1995 and 1999. They found a 23% increase in stimulants, a 580% increase in drugs like Prozac, a 300% increase in drugs like the antipsychotic Risperdal and a 4000% increase in mood stabilizers other than Lithium. Only 2 of the most frequently prescribed medications, Luvox and Zoloft, have FDA approval for use in children. Psychiatrists in other countries are bewildered by the pharmacological "Wild West" that the United States is experiencing.

According to the *New York Times* about 1.6 million children and teenagers were given at least two psychiatric drugs in combination, over 500,000 were given three and 160,000 got four or more. There is virtually no scientific evidence justifying these combinations for children although there are a few studies which showed that a combination of two drugs can be marginally better than one for adults. These combinations are given to children at the discretion of a physician, often at the request of courts or school authorities. The pharmaceutical industries' billion dollar marketing machine is undoubtedly responsible for exploiting its opportunity, but how much of that opportunity was provided by the effects of mandated vaccinations? We may never know

Several years ago, Boyd Haley, Ph.D., chairman of the Chemistry Department of the University of Kentucky, stated at a meeting of Doctors for Disaster Preparation, that, at his university, test scores for boys had to be enhanced in order to get sufficient numbers of them into medical and law schools. He ascribed this condition to damage caused by mercury ingested through the mandatory vaccination program. If his analysis is correct, a whole generation of our children have been badly damaged by a Federal Government mandated program and this could have serious consequences for the future of our national defense.

Finally it should be noted that manufacturers of vaccines appear to have avoided liability in these cases. We taxpayers are obliged to pay for the damage done by their products. Who are our supposed servants in Washington serving?

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Book Reviews

Çancer Control by Improving the Genes Biochemical Environment

Cancer is thought to be a disease of aging but it can occur even in infancy. This finding is not a very happy one for those of us who are aging but in reality is a message of hope for everyone. For if a person can be free of cancer for sixty years it means that his/her body has been well endowed with the genetic structure that keeps us free from cancer. In other words no one can blame our genes for causing cancer. We have not looked after our genes properly and they can no longer perform the way they are supposed to. There are no cancer genes that will mandate that we will get cancer. If these genes were present the individual would probably not survive long past birth. An excellent example is that some of the cancers of infancy have decreased significantly in incidence since pregnant woman began to take more folic acid. This B vitamin allowed the genes to perform their job. It does mean that since genes do not live in a vacuum but must live within a very complex chemical environment in which they can operate that something has gone wrong with the system and the environment of these genes has been so corrupted that the genes fail to do their job. The problem is in the biochemical environment and not only in our genes.

In *Vitality* for September 2007 in her article on the history of modern disease, Helke Ferrie describes the multifactorial processes that play a role and how they have been ignored and neglected. Even rogue genes or selfish cells, as described by Hickey and Roberts, can be destroyed by a healthy body if all the required biochemicals are made available.

Since genes change very slowly and since the incidence of the cancers has increased dramatically in the past fifty years this suggests that the problem is in our gene environment in the cells of our bodies. Unluckily, the vast bulky cancer establishment has avoided looking at the environment and has concentrated almost entirely on killing the rogue cancer cells. The modern oncological mantra is slash, burn and poison. Not that oncological doctors want to harm their patients but they have imbibed this mantra as an infant imbibes its mothers milk and it has become their world view of cancer. This method depends upon removing or debulking the tumor mass when possible and often this is helpful. It also means giving radiation and hoping that the cancer cells will be more devastated than the normal cells of the body and finally it means using one or more of a large variety of very toxic poisons in sub-lethal doses. It is hoped that the body will survive and that the rogue cancer cells will not. Vain hope. Various combinations of these big three are used. But where is the evidence? Surgery is probably the most effective, if done in time, followed by radiation and, coming far in the back, is chemotherapy. The latest evidence shows that when all the patients given chemotherapy are lumped together that the additional life span achieved is no more than 3 percent at an enormous cost of discomfort, despair and disability. Isn't it about time we paid more attention to the biochemical environment our genes need.

That is what Orthomolecular medicine is all about. It is based on the brilliant observations of Linus Pauling, whose discoveries form the basis for modern medicine, when he discovered that there was persuasive evidence that vitamin C when used in optimum amounts had anticancer properties. Since the usual doses that can be achieved by oral vitamin C in the blood will not be toxic this means that there is enough vitamin C to allow the cell environment to improve so that the body is once more able to deal with these rogue cells as it had been doing for so many years. But vitamin C given intravenously is even better and may be

as close to a perfect natural chemotherapy nutrient as it is toxic to these cancer cells and completely non toxic to normal cells. Orthomolecular oncology deals with the chemical environment of the cells in which the genes operate. But since oncologists have not been taught even the rudiments of orthomolecular medicine it is essential that the public learn about it so that it can teach their doctors and demand that they become interested.

I therefore welcome the following two new books which, in my opinion, describe the progress that has already been made and published but about which the medical profession remains ignorant or unwilling to recognize.

The Cancer Breakthrough. A Nutritional Approach for Doctors and Patients
by S. Hickey and H. Roberts
Lulu Press, Morrisville, NC, 2007
Paperback, 96 pages

Drs. Hickey and Roberts have previously published books, *Ascorbate: The Science of Vitamin C. (*Lulu Press, 2004, reviewed by Hugh Riordan in *JOM*, 2005, 20: 122-123) and *Cancer: Nutrition and Survival, (*Lulu Press, 2005). In the first half of this interesting book the authors describe in very simple terms what cancer is. It is caused by rogue cells in the body which no longer cooperate with the rest of the body for the good of the organism, They are selfish cells interested only in personal survival. As I see it, following these suggestions, these are cells whose survival has been threatened by one or more deficiencies of essential nutrients or by xenobiotic molecules so that they can no longer behave as normal cells and can only perfom the simple task of growing. Restoring these factors and removing the toxic xenobiotics might persuade these rogue cells to resume their previous normal activities. The rest of the book describes some of the nutrients that have been investigated most thoroughly such as vitamin C, vitamin K, vitamin D, vitamin E, selenium, iodine and many more. Enough information is provided so that the interested investigator or cancer patient can further study what these nutrients have already been shown to do. The last portion of the book describes a few programs that have worked. They are easy to follow, relatively inexpensive, completely harmless and should be considered by every person with any concern about cancer.

Hickey and Roberts are rather critical of the oncological establishment as am I and they let us know their views very early in the book when they quote Linus Pauling who wrote, "Everyone should know that most cancer research is largely a fraud and that the major cancer research organizations are derelict in their duties to the people who support them."

Cancer and The Search For Selective Biochemical Inhibitors, Second Edition
by E.J. Hoffman
CRC Press, NY, 2007
Hardcover, 461 pages

I reviewed Dr. Hoffman's first book published in 1999 by CRC Press (*JOM,* 2000, 15: 224-225). This book not only points out the value of using natural substances in dealing with cancer but contains much more clinical research data and it is a natural book to be read after reading the one by Hickey and Roberts. The first book does an excellent job of whetting one's interest and the book by Hoffman follows up by providing material that would be very hard for any individual to master on their own if they had to go through the literature. It is very thorough. I have been more or less familiar with the history of the environmental treatment of cancer from the first book written by Irwin

Stone when he summarized the literature that suggested that vitamin C had an important role to play. Dr. Stone introduced Linus Pauling to vitamin C and aroused his interest in it. Almost everything I have heard or read (and some I had forgotten) is in Hoffman's book. I can not abstract it as it is such a complex subject but I do hope that the fact that I like it so much will persuade you to read it. Some day books such as these will, to everyone's surprise, become medical school texts. But we do not have to wait until then. We can read, study and absorb as much of the information as possible and can then really become equal partners with doctors with respect to prevention and treatment of cancer. After all, it is a joint effort. But the patient has the most to lose or gain by making the wrong selection of doctor or treatment. Orthomolecular therapy is not dangerous and can be combined with any other treatment that is considered essential.

The confusions suffered by patients and their families is well described in the front page story in the *New York Times,* Sunday, July 29, 2007, entitled "Cancer Patients, Lost in a Maze of Uneven Care: Sick, Scared and Daunted by Complicated Choices". The choices are not that complicated when one avoids Orthomolecular treatment which is not discussed in this front page article by Denise Grady. The choice is between surgery, radiation and chemotherapy. It is clear that none of the options are successful or else there would not be the marked divergence of opinion between specialist surgeons and oncologists. When we really do have an effective treatment this kind of confusion does not exist. All diabetes specialists will agree that to treat diabetes mellitus one needs insulin and the most progressive physicians agree that nutrition control is also needed. Very few specialists will disagree with the use of antibiotics for many bacterial infections even though they will not agree for their use in treating virus disorders. The confusion is the hallmark of the ignorance and failure of the oncological profession. These two books will help clarify some of the issues with respect to the use of gene environmental therapy. In sharp contrast with the use of surgery, radiation and toxic xenobiotics, the use of orthomolecular methods is free of dangerous side effects. A wrong decision with any of the standard treatments may lead to death. This will not happen with the use of orthomolecular substances.

–Reviews by Abram Hoffer, MD, PhD.

Naturopathic Clinical Nutrition
by Jonathan Prousky, N.D., M.Sc.
CCNM Press, Toronto, 2008
416 pages

With its wealth of clinical information, well organized and clearly explained, this insightful text recommends restorative treatments and offers research as evidence. With ten years of clinical experience, seeing patients with various health problems including psychiatric disorders, author Jonathan Prousky, N.D., M.Sc., knows about the healing capabilities of nutritional regimens, even for anxiety, ADHD, autism, alcoholism, bipolar disorder, depression and schizophrenia. While the author did not write this medical text for laymen, Prousky's accessible style makes scientific and medical information understandable to every reader, regardless of their education. Prousky presents clinical pearls about nutrition and nutrients. He encourages readers to learn about naturopathic and orthomolecular care, cooperate with differential diagnostic workups and consider the benefits of regimens of vitamins, trace minerals and amino acids, i.e. supplements.

Abram Hoffer's preface states that readers can trust Prousky's reports. After

meeting Jonathan Prousky and reading many books about orthomolecular medicine, I agree. Prousky's book reminds me of Dr. Hoffer's *Orthomolecular Medicine for Physicians*, published in 1989 and no longer easy to find. Hoffer's book still reads fresh and clear today. Prousky's clinical guide adds current information. Fortunate readers of both books will realize that Jonathan Prousky has carefully studied Abram Hoffer's research and clinical findings. Prousky not only learned how to help his patients restore their health, but he also writes about restorative care and he teaches orthomolecular principles and practices to naturopaths-in-training. Prousky's textbook explains the healing power of complementary naturopathic and orthomolecular practices. He encourages medical students and health professionals to read about orthomolecular medicine and consider nutritional regimens. Some professionals may follow Prousky's example and document the progress of their patients by writing their own books and medical journal articles. Hopefully this will help to sustain orthomolecular medicine for decades to come.

Prousky's important clinical textbook belongs in the libraries of a wide readership where his excellent information can bring clinical help and hope for restoring health to thousands of patients. If sick and vulnerable people trust quick labels and easy shortcuts and only get toximolecular pills, they are unlikely to heal as well as patients whose health professionals read Prousky's comprehensive clinical guide and learn to assess nutritional and biochemical aspects and recommend restorative regimens as complements to other treatment modalities.

As an example, let's consider benign prostatic hypertrophy. What does conventional medicine offer aging men who have trouble with their waterworks? – DRE exams and PSA tests before painful and repeated surgical procedures combined with pills and unwanted side effects. When I had that sort of trouble, I googled and read how Feinblatt and Gant were researching another problem when they noticed that three amino acids–glycine, glutamic acid and alanine–helped a surprising number of patients to restore normal "flow." In 1958, they published their finding in the *J Maine Medical Association* available from the Prostex website. Prousky's 2008 book shares their discovery, which was confirmed by other doctors in 1962, but remained little-known for the past fifty years. Within one day, those three amino's eased my discomfort.

Thousands of trusting patients hope that our health professionals will find, read and apply books about restorative treatments which were researched and found safe and effective by Abram Hoffer and other orthomolecular pioneers. Readers of *Naturopathic Clinical Nutrition* can thank Jonathan Prousky for studying orthomolecular medicine very carefully and then writing this thorough, detailed and documented textbook with more than 400 pages of clinical information about the principles and practices of naturopathic and restorative orthomolecular medicine.

–Review by Robert Sealey, BSc, CA
author of *Finding Care for Depression*
www.searpubl.ca

Corrupt to the Core: Memoirs of a Health Canada Whistleblower
by Dr. Shiv Chopra
KOS Publishing Inc. Caledon, Ontario, 2008

The anti-psychotic drugs which are poisoning huge numbers of unfortunate psychotic patients world wide have the following side effects: diseases such as the metabolic syndrome (diabetes, high blood cholesterol, high blood triglycerides), increased complications from

cardiovascular pathology, neurological disease such as tardive dyskinesia, deterioration of brain function, tranquilizer psychosis, permanent social incapacity, suicide, homicides, serial killers, broken marriages and homes, homelessness, addictions to drugs and alcohol, more people in prison, more people on welfare, more post surgical delirious reactions of the aged on statins after surgery.

Why would any one allow these toxic poisons to be inflicted on any population? The Greek term pharmakos was used to describe compounds which were both therapeutic and poisonous. Pharmacology deals with these compounds. The Greek physicians thousands of years ago did not know nutrients but they were aware that food was not a pharmakos, only chemicials are. Modern medicine maintains the same tradition and remains ignorant of the therapeutic value of nutrients. They can not be called pharmakos, as they are not poisons. Over the past two thousand years, only poisons have been accepted as drugs. This is especially true of the modern treatment of the cancers where poisons or poisonous treatments such as chemotherapy and radiation are used to kill the cancer and very little attention is given to help the body to develop its own defenses against the cancers. Given the right tools, our bodies can do a much better job than any oncologist with their poisons can do.

We also poison our schizophrenic patients with powerful toxic drugs, which have never been shown to be curative but do have palliative properties if one discounts the severe side effects listed above. When I began to treat schizophrenic patients with large doses of vitamin B_3, I did not have to worry about side effects. I took it myself and now have been on niacin for fifty-five years at three grams daily. I would never take any of the antipsychotics unless there were six burly nurses sitting on top of me and forcing it in. This is against the law in Canada but ignored everywhere, except in Ontario. This vitamin is safe, does not kill, and has so many beneficial properties it ought to be classed as an elixir of youth. In fact, it does prolong useful and active life and keeps one out of nursing homes.

When the first tranquilizer, chlorpromazine, was introduced in France by a surgeon, it immediately became very popular because it quickly controlled difficult behaviour and appeared to be safer than the drugs then available. It was soon apparent that this first drug, derived from the anti-histamines, was effective and relatively safe. The side effects were also relatively easy to deal with. They were not addictive and there were no serious withdrawal symptoms. They were so effective, psychiatry with a few exceptions concluded that at last we had found the cure for schizophrenia. It equated improvement in behavior with a cure and paid no attention to the long-term effects. These early drugs were valuable when used very carefully and in low doses. They were especially valuable to staff and hospital administrators. They were not concerned with long-term side effects, as they never expected their patients to get off drugs and become normal. The profits from the sale of these drugs was enormous, and still is, and companies began to compete to develop new ones that they could claim were better. More and more toxic drugs followed. Every new drug released was promoted as being freer of side effects. I became familiar with them all and soon realized that they were no better, that they had as many and worse side effects as the previous drugs, and that they created problems for my patients that I did not have to deal with when using the earlier drugs.

When considering the value of drugs "New" does not mean "Better", as many think. It is not like comparing old cars with newer models. It is more like that

old car dressed up to appear better but actually it is merely much more expensive Modern drugs are much more expensive and much more toxic. Observing the damage done by these drugs to my patients, and more recently to my clients, I marvel that they had been released on an unsuspecting public. For example, a 19-year old girl who was getting along relatively well on haldol, but then was switched to Zyprexa simply because the drug company persuaded her psychiatrist to do so. She gained 60 pounds in six months and was converted from a schizophrenic woman under partial control to a woman who was like a sack of flour, obese, very depressed, and even more psychotic. The change in drugs was not done to help her get better. Or another 16-year old girl whose weight blew up to 300 pounds. Or the patients who are poisoned with toxic drugs and left hopelessly psychotic and addicted. One need see only one of these unfortunate patients to be convinced that any other treatment, or even no treatment, would have been better for them. Pharmakos are acceptable when nothing else is available. Insulin is essential and very toxic if overdosed, but it has been used safely for many decades. If a compound is discovered which has the same benefits but is safer, it will replace insulin. We do have alternative treatment for the mentally ill, called orthomolecular, which is effective and safe. Orthomolecular substances are not patentable and therefore hated by drug companies.

Over the years I have become more and more convinced that Health Canada has been more interested in the welfare of the drug companies than it has been in the welfare of Canadians. Since Health Canada is assumed to be operated by civil servants working for Canadians, not the drug companies, one would surely find this very surprising. I was convinced that this is the intent when I read Dr. Shiv Chopra's book *Corrupt to the Core*. In this memoir of his four decades as a health Canada scientist I found the answer. I was correct. We have in Ottawa a few civil servants whose main concern has been to do their jobs honestly and are not primarily concerned about their own advancement and the need to accommodate the interests of the drug companies. But these few, like Dr. Chopra, were not allowed to do their jobs to protect the health of Canadians. How else can one account for the release of these toxic poisons into medical practice?

I accept that Dr. Chopra's account of his fight against corruption and for the health of us all is accurate. It confirms my observations of what happened to my patients and my own few contacts with Health Canada. Fortunately for us, Dr. Chopra was prepared for his war against corruption by the fact he was born and became a veterinarian in India. He soon discovered, that because of his origins and the prejudice these engendered, that he could not hope for promotion no matter how excellent his work record and that racism was inextricably tied to the corrupting forces against medical science. After a long arduous fight he won his cases against racism in the civil service in Canada's courts. Encouraged and made more determined, he started his second war, perhaps a much more important one, to protect us all against adulterated food and dangerous drugs. One of his major projects was to prevent the adulteration of milk by injecting dangerous hormones into cows, solely to make them produce more milk at the risk of the animals' health as well as the health of the people who would consume that milk.

Over the past 20 years I have seen a surprising increase in the number of milk allergic patients. Has the quality of the milk deteriorated so much? At least one quarter of all the psychiatric patients I have seen were also strangely allergic to all of the dairy products and did not get well until these were eliminated from

their diets.

Dr Chopra was fired in 2004 by then Prime Minister Paul Martin and, along with his fellow Health Canada scientists, sued the government for wrongful dismissal. Lets all hope that he wins this one too. The government should have been placed in charge of all drug applications in veterinary and human medicine, had integrity ruled government policy. I believe that if almost all the new drugs, inflicted on Canada over the past twenty years, were banished we would all be very much better off, and we would halt the destruction of schizophrenic patients with toxic poisons which do not permit them to get well. I recommend that every one read this book and learn of what our civil servants and politicians have been doing to Canadians. The recent major concern about the Harper government's proposed Bill C 51 is another example of our Health Canada in action against, not for, the people. Recently, I recommended that the current Health Canada should be restructured so that their true and only concern is a healthy Canada. Big Pharma is well able to speak for itself.

–Review by Abram Hoffer, M.D., Ph.D.

Detoxify for Life, How Toxins are Robbing You of Your Health and What You Can Do About It
John Cline, M.D., B.Sc. with Patrick Grant
More Heart Than Talent Publishing Inc.
Stockton CA. 2008
Paperback, 275 pages

John Cline reminds me of Dr. Brown who was the municipal physician in Saskatchewan when I lived on a farm six miles north of the US border at the intersection of Montana and North Dakota. He was the only doctor in a very large area and was our surgeon, taking out my tonsils, our internist, treating me for pneumonia with mustard plasters, delivering babies and if necessary driving patients to hospital in the closest town fifty miles away. I even saw him set a dislocated shoulder in our living room with my father's help. In other words, he was a real general practitioner using what was then known as treatment with limited resources. Since then medicine has changed, becoming wealthy, specialized, rigid, intolerant and more like a church than a learned profession. Specialists have become so specialized they know more and more about less and less until too many have forgotten why they are physicians–to heal their patients using any method available that Will Do No Harm.

Modern general practitioners do not do surgery nor would we want them to unless it was an emergency. But with the vast explosion of information specialties have developed each jealous of ts own turf, and more and more disinterested in anything outside their own specialty. Specialists knew more and more about their own specialty and less and less about about the rest of medicine. When I began to practice in 1950, most of the psychiatric patients were treated by GP's and only the really very difficult patients who were mostly psychotic were referred to psychiatry. Psychiatry was just beginning its career in treating patients with drugs. Before 1950 there were none. The two standard treatments were insulin coma coming into disfavor and Electro Convulsive therapy (ECT) called shock treatment which is still used and has some value wen used carefully and in combination with niacin. Psychiatry grew with the drug industry but it has not looked any further into the causes of so many of the mental illnesses. Psychiatrists became a specialty which depended primarily upon drugs. This role is being taken over by a new type of psychiatrist, called orthomolecular, who have amassed an amazing amount of evidence

that malnutrition, deficiencies and dependencies in calories and nutrients is one of the major factors. Clinical ecologists found that unusual reactions to foods and chemicals also caused mental disease. It failed to investigate these biochemical and psychosocial factors s causes. Perhaps this is a defense against the fact that when real causes are discovered those patients are taken from psychiatry and become patients of other specialties. Some of the major advances in psychiatry were made by non psychiatric physicians. Of the four major psychoses described in a 900 text book of psychiatry pellagra was cured by vitamin B_3, scurvy was cured by ascorbic acid and general paresis of the brain was cured by antibiotics. The fourth disease, dementia praecox, was removed from the field by renaming it schizophrenia which remained the main burden of mental hospital psychiatrists.

Dr. Cline's book describes the impact of toxins as a major cause of disease. After introducing us into the impact of these toxic chemicals and how to deal with them he gives special attention to some of the very common and very toxic minerals that we almost all have in our bodies with the consent of our governing health bodies. Mercury in our fillings in our teeth has been defended by dentists for decades, as would any dedicated members of a church defending their beliefs. This battle is almost won and soon all mercury will be banned from use in dentistry. Lead is another poisonous chemical which entered our bodies from the air after being exhausted by cars. It was quite a battle but we won that one too. This is a small beginning since most of the toxins all about us are additives allowed in our food for cosmetic or other non health related properties. As this is a clinical book there are many case histories in which Dr. Cline describes what was wrong, how the condition was treated and the recoveries. Dr. Cline and I have shared patients and I can attest to the value of his treatment.

Dr. Cline is also concerned about the quality of our water and our air. He is concerned about the enormous amount of electromagnetic radiation all about us, about the bacterial composition of our gastro-intestinal flora and more. It is clear that maintaining good health is much more than handing out prescriptions of toxic drugs while ignoring all the other factors. Dr. Cline also pays attention to nutrition and the use of vitamin supplements. For those of us struggling with elimination diets the book ends with a number of very interesting recipes.

I recommend this book as a textbook for all medical students but do not expect to see this enlightened new policy. Our medical colleges who teach their students how to deal with the walking wounded are content with handing prescriptions for drugs. Every second Canadian has one or more serious condition. This will not change until the practices of clinical ecologists and orthomolecular physicians are adopted and become part of orthodox medicine. Until this happens modern medicine will remain dysfunctional, costly and in the mustard plaster stage of treating pneumonia.

–Review by Abram Hoffer, M.D., Ph.D.

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2. Williams RJ: *Biochemical Individuality.* New York. John Wiley & Sons. 1973; 32–36.

For papers cited from books:
3. Cameron, E: Vitamin C, Carnitine and cancer. In. eds. Bland J. *A Year in Nutritional Medicine.* New Canaan, CT, Keats Publ. 1986; 115-123.

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