Alzheimer's disease (AD) is the Number 4 Killer of Americans, causing over 100,000 deaths each year in the USA alone. More than half of nursing home beds are occupied by AD patients.

More and more often, it seems, drugs that were widely thought to be effective against serious illnesses turn out to show little or no value when tested in large, impartial clinical trials insulated from drug company influence. Last week the New York Times published an article about a study from the New England Journal of Medicine titled *Alzheimer's Drugs Offer No Help, Study Finds*. The drugs most commonly used to soothe agitation and aggression in people with Alzheimer's disease are no more effective than placebos for most patients, and put them at risk of serious side effects, including confusion, sleepiness and Parkinson's disease-like symptoms, researchers are reporting today. This was the third major study in the last year to cast doubt on the atypical antipsychotics, which were supposedly a significant advance over the first generation of antipsychotics.

The use of atypical antipsychotics in the elderly accounts for an estimated $2 billion in the annual sales of the drugs, much of the cost paid by Medicare and Medicaid.

Dr. Thomas R. Insel, director of the National Institute of Mental Health, said, “What this study shows is that these drugs are clearly not the answer; they may be helpful for a minority of patients but we need to come up with better medications.”[i] Interesting enough another study published this month revealed a natural medication that was much more effective and safe than the drugs most commonly used.

New research from the Scripps Research Institute in La Jolla, California, reveals delta-9-tetrahydrocannabinol (THC), an active component in marijuana, can block the formation of brain clogging amyloid plaque in parts of the brain important for memory and cognition.[ii] Even more surprising, is that THC's blocking power is possibly more effective than some prescription Alzheimer's drugs. The test-tube studies show that THC blocks an enzyme called acetylcholinesterase (AChE), which speeds the formation of amyloid plaque in the brain of people with Alzheimer's disease.

Dr. Kim Janda and colleagues used laboratory experiments to show that THC preserves brain levels of the key neurotransmitter acetylcholine. Janda's group reports in an article in the current (Oct. 2) issue of the journal Molecular Pharmaceutics. Their experiments show that THC prevents formation of the amyloid plaques that are a hallmark of AD and its damage to the brain. Senescent (old) Astrocytes are believed to be responsible for the production of the endogenous Proteins (such as Amyloid-Beta Protein)(A²) that comprise the Senile Plaques that are fundamental to Alzheimer's Disease.

Prescription Alzheimer's drugs such as donepezil (Aricept) and tacrine (Cognex) both work on the same enzyme-blocking principal. When researchers compared drugs to twice the concentration of THC, Aricept blocked plaque formation only 22 percent as well as THC. Cognex blocked plaque formation only 7 percent as well.

The starting point for drastic changes in medical treatment of AD comes with the admission that present treatments are not safe or effective. The above studies leave us with no doubt that doctors are wasting more than time and money prescribing antipsychotics for the elderly. They are adding to their patient's toxic loads risking further complications and an earlier arrival of death. Thus medicine has to take a serious look at what can be done to help the 4.5 million Americans who suffer from the progressive dementia of Alzheimer's disease. Alzheimer's is the leading cause of dementia among
the elderly and the cost of caring for Alzheimer’s patients is at least $100 billion annually, according to the National Institute of Aging.[iii] Alzheimer’s cases are expected to triple over the next fifty years. Society and civilization itself is in desperate need for effective new treatments for Alzheimer’s.

Alzheimer’s Symptoms are as follows:

A chronic, progressively worsening problem accompanied by disorientation, problems with judgment, concentration, language and mathematical skills, physical coordination, and sleeplessness, the repetition of the same ideas or movements, the tendency to wander off and get lost, "sunsetting" or restlessness and wandering off in the late afternoon and night, dramatic personality changes, and eventually the loss of the ability to perform basic self-care functions.

In 1907, Dr. Alois Alzheimer, a German psychiatrist and neuropathologist, first described a new ailment now known as Alzheimer's Disease. Dr. Alzheimer’s discovery occurred approximately twenty years after aluminum was introduced and became a widely used product. Dr. Michael A. Weiner, while doing research work in Japan learned that Dr. Yoshira Yase had long held the opinion that aluminum may be a key player in Amyotrophic lateral Sclerosis (ALS), also known as Lou Gehrig's Disease. ALS is prevalent among the people on the Kii Peninsula of Japan and in certain groups on Guam. In many respects, ALS is similar to Alzheimer’s. The soil and water in Guam and other areas in Japan where ALS is found, is high in aluminum and manganese and low in calcium and magnesium.

Autopsy reports on Alzheimer’s patients found 70% more aluminum in the brain.

Aluminum is just harmful to life. Aluminum is a protoplasmic poison and a deadly, persistent neurotoxin. Aluminum is a known toxin that can cause encephalitis, bone disease and anemia in susceptible people. Though aluminum is less toxic than mercury, arsenic, lead or cadmium, it is a persistent poison that increases the toxicity of other heavy metals. Dr. Chris Shaw found in animal studies that aluminum hydroxide shows statistically significant increases in anxiety (38 percent); memory deficits (41 times the errors as in the sample group); and an allergic skin reaction (20 percent). Tissue samples after the mice were “sacrificed” showed neurological cells were dying. Inside the mouse’s brains, in a part that controls movement, 35 percent of the cells were destroying themselves. Dr. Shaw shows a link between the aluminum hydroxide used in vaccines, and symptoms associated with Parkinson’s, amyotrophic lateral sclerosis (ALS, or Lou Gehrig’s disease), and Alzheimer’s.[iv]

Since 1934, aluminum hydroxide has been used as an adjuvant to boost the immune response from vaccines.

Dr. Russell Blaylock, neurosurgeon, speaking of the recent explosion in neurodegenerative diseases, says, “Things that used to be rare, we’re seeing all the time now. It's just frightening. And when you look through the neurosciences literature, they have no explanation. They don't know why it's increasing so rapidly. This is ridiculous. They have no explanation for the disease because medical science is not interested in curing anything, as Dr. Alan Greenberg reminds us when he says, 'Despite the investment of hundreds of billions of dollars of research, not even a single degenerative disease has been cured in the last hundred years.'"

Dr. Blaylock states clearly that the epidemic is here because we have such a large combination of toxins converging, simultaneously attacking the cells of our bodies. For instance, we know that cellular neurodegenerative diseases are connected to mercury, aluminum, pesticides and herbicides, and the way they produce brain damage is through an excitotoxic mechanism. So, we are all
exposed to those toxins, and then when you add MSG and excitotoxins (aspartame) to the food, you tremendously accelerate this toxicity. That's why we're seeing this explosion in neurodegenerative diseases; Alzheimer's and autism and ADD and Parkinson's – all these things are increasing so enormously because we are exposed to carcinogenic toxicity from all these different things and this huge exposure to excitotoxins, which is the central mechanism, states Blaylock.

Pesticides can cause brain damage and trigger conditions such as epilepsy, multiple sclerosis and Parkinson's disease, according to scientists. A new landmark study claims that chemicals routinely used by farmers in the UK and around the world can result in neurological diseases. The controversial findings will be challenged by the agro-chemical industry, of course, which continues to insist exposure levels for humans are well within safety limits. Greenpeace sponsored a study in India which also found large neurological consequences to pesticides, which are, after all, designed to kill. The largest basic assumption throughout the world of allopathic medicine is that all chemical exposures are within safety limits. Thus doctors are not prepared to address multiple toxic insults and the treatment for them.

Excessive levels of non-essential toxic elements, such as lead, cadmium, mercury, and aluminum have an "unbalancing" effect on essential trace element balances in the body's cells.

Many researchers, with good reason, feel that the actual cause of Alzheimer's disease is due to toxic metal that leaches from mercury-silver amalgam dental fillings. Dr. Boyd Haley, Dr. Murray Vimy, a dental researcher from the University of Calgary, Canada, and member of the World Health Organization (WHO), and Dr. Fritz L. Lorscheider reasoned that because mercury vapor from amalgam fillings is absorbed into the sinuses and goes through the blood stream directly to the brain, they might obtain a stronger result by exposing the rats to mercury vapor.

The team calculated a dose of mercury vapor that would be the rat equivalent of humans inhaling the vapor from fillings. They exposed six rats to these carefully-measured quantities over a period of 7 days to 24 days. The result was stunning: all six experimental animals treated with mercury vapor deteriorated markedly. When their tissues were examined, all six rats had brain aberrancies like those found in human Alzheimer's patients. In Dr. Haley's words, "The results of this experiment are terrifying. I'm getting the rest of my mercury fillings taken out right now, and I've asked my wife to have hers replaced too." Dr. Haley reminds us that:

"In a human autopsy study, brain tissues from people with AD at death were compared with an age-matched group of control brains from subjects without AD. The only significant difference in metal content between the two groups of brains was mercury, being considerably higher in the AD group. Mercury concentration was prominent in the hippocampus, the amygdala and particularly in the nucleus basalis, all brain structures involved in memory function. Dr. Fritz L. Lorscheider exposed a neuron in culture to 0.1 nanomolar mercury and filmed through a microscope. The result was that the axon broke open and the tubulin and tubulin associated proteins abnormally aggregated into a body that was "indistinguishable from a neurofibriary tangle" the second "diagnostic hallmark" of AD on pathology."

Clauberg and Joshi, 1993, have published in vitro evidence indicating that aluminium may accelerate proteolytic processing of A² precursor protein by suppressing the inhibitory domain on proteolytic inhibitors, thus contributing to the accumulation of A².

In 1998 Julie Varner and two colleagues published research on the effects of aluminum-fluoride and sodium-fluoride on the nervous system of rats. They concluded, "Chronic administration of aluminum-fluoride and sodium-fluoride in the drinking water of rats resulted in distinct morphological
alterations of the brain, including the effects on neurons and cerebrovasculature." Fluoride, lead and aluminum together could be thought of as a devil's triangle that act not only to reinforce each other's toxicity but to greatly amplify the toxicity of mercury.[v]

What is happening with Alzheimer's in the United States is not typical of what is going on in the rest of the world writes Lynn Landes, an investigative reporter. Americans account for 25% of all Alzheimer's cases, even though we represent only 4.6% of the world's population. Europe is experiencing half our rate of disease. For Americans over 85 years of age, 50% are thought to have Alzheimer's. Fluoride is possibly the missing link that does greatly accelerate the progression of the disease. America's drinking water is now over 60% fluoridated. Fluoride appears in many processed foods and beverages made with fluoridated water. Keep in mind, Europe has half our rate of Alzheimer's. They don't fluoridate their water supplies, but they do use fluoride supplements and dental products.

Undoubtedly the trigger mechanism of Alzheimer's is the accumulation of heavy metals in the nervous system causing free radical damage leading to DNA and Mitochondrial DNA (mtDNA) damage. Yet according to the current level of medical science, most cases of Alzheimer's disease cannot be diagnosed with 100% certainty until a brain autopsy has been performed after death.

The first half of the etiology of Alzheimer's disease is an increased profile of heavy metals, specifically mercury and aluminum and other toxic chemicals, especially pesticides which are designed to destroy the life forms they encounter. The other half of the equation is the profile of massive magnesium deficiencies, which compromise cell health and physiological function on both sides of the blood brain barrier. It's not just magnesium but a general malnutrition that accelerates the slide in neurological function. Magnesium though is the crucial nutrient/medicine that makes a big difference in prevention and treatment of Alzheimer's disease and associated disorders like ALS, Parkinson's, and the full range of autism spectrum disorders.

Add to this formula the increased vulnerability of neurological tissues and nerve synapses brought on by neurotoxic substances like MSG and aspartame and we have the general diagnostic picture that health officials are incapable of understanding or appreciating. It is impossible for them given their basic assumptions that all the following are safe: fluoride in dental products and drinking water, MSG, aspartame, mercury and aluminum in vaccines, mercury in dental amalgam, and the spreading pollution of mercury in the air water and foods we eat.

Although basic medical science already recognizes the dramatic physiological problem with widespread magnesium deficiencies, health and medical officials cannot form a basic conclusion about this and recommend magnesium treatments. They seem to be busy looking after their pharmaceutical financial interests, which would crumble if the truth about magnesium and the full dangers of medicine and dental products were ever widely made known.

Blood Brain Barrier and Magnesium in Alzheimer's

There are few bio-medical researchers who will argue that aluminum is good for you. It is neurotoxic even in minute quantities. You simply do not want it in the body or in the brain. Normally, the brain is protected from toxic substances by a membrane, the blood-brain barrier. However, because aluminum seems to be concentrated in brain tissue of Alzheimer's victims, it is assumed that there must be a defect in the barrier system permitting aluminum to enter.

Aluminum given to a healthy subject will bring on symptoms of tremors, forgetfulness, disorientation, a very dry, or weeping eczema and skin rashes, as well as other nerve and brain tissue disorders.
The symptoms listed of aluminum poisoning go on endlessly as they do with mercury.

The integrity and function of the BBB is *mission critical* for overall brain function. Changes in permeability often reflect alterations in BBB transport systems. Toxicological causes of generalized changes in BBB permeability include organic solvents, enzymes, and heavy metals. Some agents like mercury induce selective changes in BBB transport at very low doses.

**Brain barrier integrity is compromised by free radicals.**

Magnesium has been seen to attenuate increased blood-brain barrier permeability during insulin-induced hypoglycemia in animal studies. Magnesium has its important role at the BBB and researchers think that this metal protects brain tissue against the effects of cerebral ischemia, brain injury and stroke through its actions as a calcium antagonist and inhibitor of excitatory amino acids.

“When the magnesium level is low, the glutamate receptors become hypersensitive.”  

Dr. Russell Blaylock

Magnesium is essential in regulating central nervous system excitability, thus magnesium-deficiency may cause aggressive behavior, [i] depression, or suicide.[ii] Magnesium calms the brain and people do not need to become severely deficient in magnesium for the brain to become hyperactive. One study[iii] confirmed earlier reports that a marginal magnesium intake overexcites the brain's neurons and results in less coherence – creating cacophony rather than symphony – according to electroencephalogram (EEG) measurements.[iv]

“When communication between cells in the brain depends on specialized molecular receptors that conduct charged particles, or ions, between the outside and inside of cells.”  

Dr. Jon W. Johnson

Memory and the overall functioning of our minds and brains happens to depend on proteins in our brains called NMDA receptors, which allow our neurons to communicate with each other. Dr. Jon W. Johnson, University of Pittsburgh associate professor of neuroscience, has discovered how different types of NMDA (N-methyl-d-aspartate) receptors perform varied functions. His findings are published in the current issue of the Journal of Neuroscience in a paper titled Permeant Ion Effects on External Mg2+ Block of NR1/2D NMDA Receptors. An understanding of the strategic importance of magnesium at these crucial NMDA receptor sites confirms the medical view that heavy magnesium supplementation would lead to better treatments for schizophrenia, Alzheimer's disease, and stroke.

Of all the macronutrient minerals in the human body, magnesium is the one most likely to be deficient. Dr. Lewis B. Barnett, head of the Hereford Clinic and Deaf Smith Research Foundation in Hereford, Texas, reported that children of all ages, stricken with epilepsy who failed to respond or responded only slightly to modern anti-seizure drugs and therapy, when placed on high doses of magnesium, experienced stunning improvement. In the same study, all participants were shown to have marked magnesium deficiency. "Within a matter of weeks the blood magnesium level returned to normal, and in every case, except one, there was definite clinical improvement" reported Dr. Barnett after providing oral doses of magnesium and a normal diet to the 28 children in the study.

The lower the magnesium levels the more severe was the seizure activity.

The Department of Family Medicine, Pomeranian Medical Academy, states that dietetic factors can play a significant role in the origin of ADHD and that magnesium deficiency can result in disruptive behaviors.[v] Even a mild deficiency of magnesium can cause sensitiveness to noise, nervousness,
irritability, mental depression, confusion, twitching, trembling, apprehension, and insomnia. A low level of magnesium overexcites the brain's neurons and results in less coherence.

Magnesium deficiency or imbalance plays a crucial role in the symptoms of mood disorders. Observational and experimental studies have shown an association between magnesium and aggression,[vi],[vii],[viii],[ix] anxiety[xi],[xii] ADHD[xiv],[xv],[xvi] bipolar disorder[xvii],[xix] depression [xx],[xxi],[xxii] and schizophrenia [xxiv],[xxv],[xxvi]. The two most basic requirements for the normal operation of our brain are a sufficient energy supply and an optimal presence of biochemicals involved in transmitting messages. Magnesium is crucial in both the production of energy and neurotransmitters and the integrity of the blood brain barrier. It is bedrock science that connects magnesium to neurological disorders.[xxviii]

"Mg depletion, particularly in the hippocampus, appears to represent an important pathogenic factor in Alzheimer's disease. It is associated with high aluminum incorporation into brain neurons."

Dr. Jean Durlach

Dr. Jean Durlach, of Hôpital Saint-Vincent-de-Paul in France, recognized fifteen years ago the importance of magnesium in the development of Alzheimer's[xix] saying, "Among the recent studies concerning the difficult problem of the pathogenesis of Alzheimer's disease numerous studies have revealed the increased presence of aluminum (Al) in brain tissue obtained from autopsies of Alzheimer disease patients. However, while Perl et al. stressed the significance of their findings concerning Al in hippocampal tissue, they ignored practically any discussion of their findings concerning magnesium."

"Mg values are found to be significantly decreased in brain regions of diseased patients compared to the controls."[xxx]

Dr. E Andrasz Institute of Inorganic and Analytical Chemistry

Dr. J. L. Glick in 1990 showed a significant decrease in the frequency of intracellular magnesium deposits in neurons of Alzheimer disease patients as compared with control patients.[xxxi] Dr. Glick suggests that Alzheimer's disease involves a defective transport process characterized by both an abnormally low Mg incorporation and an abnormally high Al incorporation into brain neurons. The origin of this disturbance rests on an alteration of serum albumin, forming a species which has a greater affinity for Al than for Mg, in contrast to the normal protein which binds Mg better than Al.

"Magnesium infusion reduces the need for other drugs to control muscle spasms and cardiovascular instability in adults with severe tetanus."[xxxii]

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[i] http://www.nytimes.com/2006/10/12/health/12dementia.html?_r=1&th&emc=th&oref=slogin
Blood Brain Barrier

[i] Bernard Rimland. While no patient has been cured with the vitamin B6 and magnesium treatment, there have been many instances where remarkable improvement has been achieved. In one such case an 18-year-old autistic patient was about to be evicted from the third mental hospital in his city. Even massive amounts of drugs had no effect on him, and he was considered too violent and assaultative to be kept in the hospital. The psychiatrist tried the B6/magnesium approach as a last resort. The young man calmed down very quickly. The psychiatrist reported at a meeting that she had recently visited the family and had found the young man to now be a pleasant and easy-going young autistic person who sang and played his guitar for her. http://www.autism.org/vitb6.html


[iii] This is the first experimental study in which magnesium intakes were tightly controlled and EEG measurements were analyzed by computer so they could be statistically compared.


Page 8 – New Approaches to Alzheimer's Disease

[xxviii] Murck H. Magnesium and Affective Disorders.  Nutr Neurosci., 2002;5:375-389: Murck showed many actions of magnesium ions supporting their possible therapeutic potential in affective disorders. Examinations of the sleep-electroencephalogram (EEG) and of endocrine system points to the involvement of the limbic-hypothalamus-pituitary-adrenocortical axis because magnesium affects all elements of this system. Magnesium has the property to suppress hippocampal kindling, to reduce the release of adrenocorticotropic hormone (ACTH) and to affect adrenocortical sensitivity to ACTH. The role of magnesium in the central nervous system could be mediated via the N-methyl-D-aspartate-antagonistic, g-aminobutyric acid A-agonistic or the angiotensin II-antagonistic property of this ion. A direct impact of magnesium on the function of the transport protein p-glycoprotein at the level of the blood-brain barrier has also been demonstrated, possibly influencing the access of corticosteroids to the brain. Furthermore, magnesium dampens the calcium ion-protein kinase C related neurotransmission and stimulates the Na-K-ATPase. All these systems have been reported to be involved in the pathophysiology of depression. Murck et al. also demonstrated induced magnesium deficiency in mice to produce depression-like behavior which was beneficially influenced with antidepressants.

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