Biochemical Imbalances and Behavior Disorders

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by

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In 1972 when I was a young chemical engineer working at Argon National Laboratory, I started doing volunteer support work at the local penitentiary. In three years I found myself coordinating the efforts of about 125 volunteers. We did the standard kinds of counseling with the inmates - helping them with rehabilitation, adjustment to the outside community when released and finding jobs. But a pattern began to emerge. Often the criminal was from a competent family with caring, loving parents and normal, well-adjusted siblings - the story of the criminal being one of heartbreak and not background environment channeling them to aberrant behavior.

We started testing these individuals chemically in 1975 often using equipment at Argon, but for several years this effort was to no avail. There didn't seem to be any correlation between aberrant behavior and things we could think of to test in body chemistry. But then one day Dr. Carl Pfeiffer gave a talk at Argon in which he described finding correlations between schizophrenia and the trace minerals Cu, Zn, Mg, Li, La and Pr. I was able to have a meeting with him the next day, and he encouraged what we were trying to do and suggested that we, too, should include trace minerals tests. When we did this we finally found correlation between aberrant behavior and anomaly of body chemistry.

Our first analysis of case results was a double-blind study using 24 family pairs of sibling partners, one normal and one with aberrant behavior. This is not a large sample size, but the outcome was definitive. The correlation between aberrant behavior and Zn and Cu being either high or low was 95 %.

The present not-for profit treatment center was started in 1998 and named after Pfeiffer both because of his early work and because he had agreed to review all our cases medically. Unfortunately, he died six months after the center opened, so we were not able to participate with him in collaboration.

After a couple of decades of this work, we have seen, tested and treated many thousands of individuals. The approach is to measure body chemistry imbalances and then to treat them to correct those imbalances. The biochemistry therapy regime usually takes about a year to get these individuals back to normalcy. It consists primarily of either leaching chemicals, often trace minerals, from the body or else of adding extra supply of deficient chemicals to the body over an extended period of time.

We have done several statistical studies over the years and by now have a rather large data base that is being analyzed. Approximately 100 separate chemical analyses have been done on each individual, far more than just the trace mineral measurements, and the data is for the following types of patients:

6000 behavior disoriented children
750 prison residents and former convicts
28 sexual killers

We see a definite pattern of correlation between four categories of behavior and specific classes of body chemistry imbalances. Materials describing this and additional references are given on our web site. Recent statistical analyses of our data base are being reported in journal articles this summer. These are:

"Elevated Blood Cu/Zn Ratios in Assaultive Young Males," by W. J. Walsh and H. R. Isacson, Psychology and Behavior, July, 1997.

"Autism and Chemistry Imbalances," W. J. Walsh et. al, Journal of Applied Nutrition, late summer, 1997

BIOCHEMICAL TREATMENT: MEDICINES FOR THE NEXT CENTURY

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INTRODUCTION

During the past 20 years, research aimed at development of advanced drugs has intensified. This has been especially true for psychiatry and the behavioral sciences, which have experienced a radical revolution. Recent research has shown that innate chemical imbalances, rather than, as previously believed, disordered environments or disturbing life experiences, are responsible for most mental disorders. Many doctors trained in psychotherapy and counseling in medical schools have had to adjust to the realization that these techniques have limited effectiveness for biochemical disorders. The net result has been a massive shift to drug therapies, often applied on a trial-and-error basis.

An alternative to drug therapy is biochemical treatment, which uses natural body chemicals rather than "foreign" drug molecules. This approach is based on the pioneering work of Drs. Roger J. Williams, Abram Hoffer, Carl C. Pfeiffer, and many others. Williams originated the concept of "biochemical individuality", focusing on the enormous complexity and variability of molecular biology in human beings. This model leads to the belief that many diseases result from disordered body chemistry, whether genetic or acquired, and that healing is best achieved through correction of these chemical imbalances. Hoffer pioneered the treatment of schizophrenia and other illnesses with vitamins, minerals, and amino acids. His impressive successes demonstrated the therapeutic effectiveness of these natural chemicals, previously regarded as relatively unimportant in clinical practice.

Pfeiffer established clinical procedures for the identification and treatment of nutrient deficiencies, toxic overloads, and other aberrant biochemistry. His system involves the subdivision of schizophrenia, depression, behavior disorders, learning disabilities, and other conditions into well-defined chemical categories. Once a patient's chemical anomalies are established through laboratory analyses, his or her body chemistry may be balanced using

biochemical treatment. To the extent possible, natural medicines are used instead of drugs.

BIOCHEMICAL TREATMENT OF SCHIZOPHRENIA

Pfeiffer found that 90 percent of schizophrenics have either histapenia, meaning low histamine (histamine is an essential protein metabolite); histadelia, meaning high histamine; or pyroluria (disordered vitamin B6 metabolism) as their principle disorder, with hypoglycemia (low blood sugar) often a complicating factor. In addition, many histapenics and histadelics are also pyroluric. The remaining 10 percent of the schizophrenic population are afflicted by a variety of "splinter" disorders, including cerebral allergies, wheat gluten intolerance, homocystineuria (an inborn error of sulfur amino acid metabolism), celiac disease, polydypsia (excessive thirst), prolactin (a hormone that stimulates and sustains lactation) overabundance, and thyroid deficiency.

Nearly 50 percent of schizophrenics have histapenia as their major chemical imbalance. Symptoms commonly include paranoia, suicidal depression, auditory or visual hallucinations, religiosity, and a sleep disorder. The classic biochemical signature of histapenia involves depressed blood histamine and basophils (a class of white blood cells) and elevated serum copper. Treatment usually revolves around vitamin B3 as either niacin or niacinamide; folic acid; cobalamine (part of the vitamin B12 group); vitamins B6 and C; zinc; and manganese. Most histapenics experience major improvement within six weeks, but a year of treatment is commonly required before the last symptom (usually paranoia) can be overcome.

Histadelia represents the chemical antithesis of histapenia in that it involves elevated blood histamine. This condition (involving about 20 percent of schizophrenics) is characterized by delusions, severe depression, obsessive/ compulsive behavior, and blank-mindedness, and often results in a diagnosis of schizo-affective disorder. Treatment revolves around anti-folates such as calcium, methionine, and the prescription drug DilantinRegistered along with augmenting nutrients. Histadelia treatment requires great patience, because six to ten weeks are often needed before the beginning of significant improvement. The treatment usually takes twelve months to complete.

Approximately 20 percent of all schizophrenics have pyroluria as their primary imbalance. Pyrolurics typically have light skin, poor wound healing, absence of dream recall, high internal tension, photosensitivity, severe depression, assaultive behavior, delusions, and hallucinations. This condition is caused by an overproduction during hemoglobin synthesis of kryptopyrrole, which chemically combines with vitamin B6 and zinc, resulting in their excretion and a severe deficiency of both of these essential nutrients. Most pyroluric individuals never develop schizophrenia symptoms.

Biochemical treatment of schizophrenia is far less expensive than traditional treatment and often results in a complete recovery. Biochemical testing and treatment for one year costs about as much as one day of hospitalization. Most schizophrenics, over the course of their lives, spend several months in mental hospitals, with numerous episodes of recurring mental illness. Moreover, drug treatment usually offers little hope for a real recovery.

BIOCHEMICAL TREATMENT OF DEPRESSION

Most depressed persons were born with a biochemical predisposition for depression, which renders them particularly vulnerable to traumatic events and difficult circumstances. Contributing to their depression are a wide variety of biochemical imbalances, including elevated histamine, zinc deficiency, copper overload, thyroid deficiency, low histamine, pyroluria, and many others.

Symptoms and medical history are often helpful in identification of specific chemical imbalances. Depressed persons with elevated histamine commonly exhibit frequent headaches, allergies and obsessive/compulsive/addictive tendencies. Those with zinc deficiency may report poor wound healing, impaired taste acuity, amenorrhea, stress dyscontrol, delayed growth, and/or premenstrual syndrome. Persons with elevated copper are prone to tinnitus and postpartum depression. Low-histamine depressives often report anxiety/panic attacks, upper-body pain, and paranoia. Pyroluric depressives usually suffer from rage attacks and severe inner tension.

Effective biochemical treatment requires identification of specialized clinical testing. Treatment varies widely, depending entirely on which imbalances are present. Biochemical treatment appears to be about 85 percent effective in combating depression.

BIOCHEMICAL TREATMENT OF BEHAVIOR DISORDERS

A 12-year collaboration between Carl Pfeiffer and myself resulted in classification of behavior disorders into four chemical categories, based on trace metal patterns. Pfeiffer developed drug-free treatments for each of these conditions, and more than a thousand patients have been treated under this system.

Type A individuals are characterized by a high copper/zinc ratio, depressed hair sodium and potassium, and a sensitivity to lead, cadmium, and other toxics. Type A boys commonly exhibit Jekyll-Hyde behavior with episodes of fighting or severe tantrums interspersed with periods or excellent behavior. Type A girls are prone to oppositional behavior, mood swings, promiscuity, and nonviolent delinquency. Biochemical treatment benefits 85 percent of Type A persons, with 25 days usually required for significant improvement. Examples of persons afflicted with severe Type A chemistry are mass-murderers Richard

Speck and Patrick Sherrill. About 40 percent of all behavior-disordered children exhibit mild or moderate Type A chemistry.

Type B chemistry involves depressed hair copper, pyroluria, elevated histamine, depressed blood spermine (a protein found in almost all tissues, but first found in sperm), and elevated toxic metals. The principle symptoms include frequent assaultive behavior, absence of remorse, pathological lying, fascination with fire, and cruelty to animals. This condition is relatively rare (estimated at 0.3 percent of the population), but Type B individuals are very prone to criminality. It appears that most career criminals and serial killers have this disorder. Examples of Type B individuals are Charles Manson, serial killer Henry Lee Lucas, and mass-murderer James Huberty (McDonald's massacre). Type B persons usually respond to biochemical treatment within seven days. Treatment is most effective for younger Type B persons without a history of drug or alcohol abuse. [Editors' note: Dr. Walsh did hair analyses of all five mass-murderers.]

Type C and D persons usually exhibit nonviolent delinquent behavior. Eighty percent of Type C persons are slender, and clinical studies reveal most to be malabsorbers. Usually impulsive and oppositional, they are seldom able to maintain a valid driver's license. They underachieve in school and have great difficulty keeping jobs. Type D persons have depressed manganese and chromium levels, and clinical studies reveal hypoglycemia as the principal imbalance. Biochemical treatment of Type C and D persons is usually effective, but it often requires one to three months for significant improvements.

BIOCHEMICAL TREATMENT OF LEARNING DISABILITIES

Biochemical treatment has been shown to be an effective alternative to the prescription RitalinRegistered, CylertRegistered, DexadrineRegistered, and NorpraminRegistered, which are frequently administered to underachievers. The Carl Pfeiffer Treatment Center has measured a success rate of over 70 percent, based on treatment of 500 children with learning disabilities, hyperactivity, attention deficit disorder (ADD), and dyslexia. In contrast, developmental disabilities, autism, and Down's syndrome are seldom improved following biochemical treatment. The Carl Pfeiffer Treatment Center is organizing a controlled, double-blind study to measure treatment effectiveness for ADD and learning disabled children.

A wide variety of chemical imbalances are present throughout the population of children with academic dysfunctions. Many underachievers exhibit disordered metal metabolism, resulting in copper intoxication, zinc and/or manganese deficiency, and/or overload of lead, cadmium, mercury, or other toxic metals. In addition, learning dysfunctions often involve pyroluria, histamine disorders, cerebral allergies, amino-acid anomalies, or malabsorption.

Effective biochemical treatment of learning disorders involves correction of the specific chemical imbalances afflicting each child. Indiscriminate supplementation with multiple vitamins, minerals, and amino acids usually results in worsening of hyperactivity, ADD, and learning disabilities. Nutrients which can adversely impact learning disorders include calcium, folic acid, niacin, pantothenic acid, methionine, histidine, iron, and copper. These same nutrients can be beneficial to children with different body chemistry.

Biochemical treatment of children who are taking RitalinRegistered, CylertRegistered, or DexadrineRegistered requires continuation of these medications until body chemistry is balanced. In most cases, the amphetamine drug can be withdrawn after two to three months of treatment without adverse effects. Biochemical treatment appears to be about 85 percent, 70 percent, and 60 percent effective for children with learning disabilities, hyperactivity, and ADD, respectively.

CLINICS

The principle clinics specializing in biochemical balancing are all in the United States: the Princeton Bio Center (Skillman, New Jersey), the Edna Garvey Center (Wichita, Kansas), and our Carl Pfeiffer Treatment Center (Naperville, Illinois). The Princeton Bio Center is best known for treatment of schizophrenia, depression, and allergies, whereas the Garvey Center specializes in environmental illness. The Carl Pfeiffer Treatment Center concentrates on the treatment of behavior disorders, learning problems, depression, and schizophrenia.

The present medical focus on drug therapy may not last the test of time. It is entirely possible that future progress in molecular biology may elucidate the basic mechanisms and causes of most diseases. It seems likely that the next century's treatments will implement natural body chemicals that restore the patient to a normal condition, rather than drugs that result in an abnormal condition. The world may eventually learn the wisdom of Pfeiffer's Law: For every drug that benefits a patient, there is a natural substance that can achieve the same effect.

ZINC DEFICIENCY, METAL METABOLISM, AND BEHAVIOR DISORDERS

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INTRODUCTION

Most Americans receive all the zinc they need if they have a reasonably well-balanced diet involving the major food groups. However, many persons are born with a metal-metabolism disorder which results in zinc depletion regardless of diet.

Zinc is a component of more than 80 enzymes. High concentrations have been found in brain hippocampus, and many medical researchers believe that zinc is a neurotransmitter. Low zinc levels at these sites could reduce the inhibition of neuron activity, thus leading to abnormal behavior. The discovery of zinc "finger proteins" in the past decade has led to a vastly improved understanding of how cells replicate and divide. There role in behavior is not yet clear, but could be involved in the transport or availability of zinc. Recent research has shown zinc to be far more important than previously believed and low levels of zinc are associated with behavior disorders.

Many of the patients of the Carl Pfeiffer Treatment Center suffer from behavior disorders. The most common ones are attention deficit hyperactive disorder (ADHD), oppositional defiant disorder (ODD), obsessive compulsive disorder (OCD), and conduct disorder (CD). These patients typically have a history of extensive counseling and multiple medications and many have experienced residential care. They represent a narrow and rather uncharacteristic segment of the general population.

A high percentage of behavior disordered persons exhibit abnormal levels of copper, zinc, lead, cadmium, calcium, magnesium and manganese in blood, urine, and tissues, based on chemical analysis results from thousands of patients. With regard to zinc, this condition appears to involve a malfunction of the metal-binding protein metallothionein. Most of these patients have symptoms of zinc deficiency along with depressed levels of zinc in their blood plasma.

The high incidence of zinc deficiency in assaultive young males was illustrated in a recent study1 which found elevated serum copper and depressed

plasma zinc concentration, compared to normal controls. This study confirmed our clinical observations of zinc depletion in more than 4,000 behavior disordered patients.

Our clinical observations and research have indicated that the copper/zinc ratio appears to be more decisively important than either of the individual metals alone. Zinc deficiency often results in elevated blood levels of copper, due to the dynamic competition of these metals in the body. Elevated blood copper has been associated with episodic violence, hyperactivity, learning disabilities, and depression.

DIAGNOSIS OF ZINC DEFICIENCY

Zinc deficiency is difficult to diagnose since no single laboratory test or combination of tests is decisive in every case. For example, blood levels are sometimes normal in zinc deficient persons due to homeostasis. Urine and hair tissue levels are often elevated in zinc deficiency because of "short circuiting" of zinc through the body and high rates of excretion.

The two principal factors which lead our Center's physicians to a diagnosis of zinc deficiency are: 1) depressed plasma zinc, and 2) presence of clinical symptoms of zinc depletion which are alleviated by zinc supplementation2, 3, 4, 5, 6, and 7. Since zinc tolerance tests show plasma levels to be affected for 6 hours following zinc supplementation8 and 9, zinc supplements are avoided for 24 hours prior to sampling of plasma.

The clinical symptoms associated with zinc deficiency or depletion include the following:

* Eczema, acne, and/or psoriasis10, 11, 12, 13, and 14,
* Poor wound healing, including leg ulcers and oral lesions15 and 16,
* Lines of Beau on the fingernails17,
* Growth retardation18, 19, 20, and 21,
* Delayed sexual maturation22,
* Hypogeusia or poor taste acuity23 and 24, and
* Chronic immunodeficiency and frequent infections25 and 26.

A "working diagnosis" of zinc deficiency can be made if clinical symptoms of zinc deficiency are clearly evident from the initial physical examination and medical history. Usually more than one or the above symptoms are present in zinc deficiency. This initial diagnosis is later supported or negated by laboratory analysis for plasma zinc along with observed response (or non-response) to zinc supplementation.

The Carl Pfeiffer Treatment Center generally retests plasma zinc and evaluates symptoms after 4-6 months of treatment to determine if dosages need adjustment.

TREATMENT OF ZINC DEPLETION

Zinc depletion is corrected by supplementation with zinc (picolinate or gluconate) along with augmenting nutrients including L-cysteine, pyridoxine, ascorbic acid, and vitamin E. Manganese is also useful in promoting proper metallothionein function. If copper levels are elevated, effective treatment must also enhance the release of copper from tissues and copper excretion. L-cysteine helps mobilize and excrete copper while enhancing zinc absorption. Correction of zinc deficiency is best accomplished under the care of a physician or nutritionist who is experienced in metal metabolism disorders. Indiscriminant dosages of zinc to persons who do not need it can cause anemia and imbalanced trace metals.

Treatment of mild or moderate zinc depletion can take months to complete. Some cases of severe zinc depletion require a year or more to resolve. Achievement of a proper zinc balance is slowed by growth spurts, injury, illness, or severe stress. In addition, persons with malabsorption or Type A blood respond to treatment more slowly.

DISCUSSION

We find that zinc deficient individuals usually respond well to inexpensive supplementation with zinc and augmenting nutrients. Many patients who previously experienced years of counseling, psychotherapy, aggressive medication programs, and/or residential treatment become greatly improved and respond to less intensive (and less expensive) therapies. Zinc deficiency can be corrected, but not cured. If treatment is discontinued, the prior zinc deficiency will reemerge with all symptoms gradually returning. Zinc deficiency, like diabetes, requires life long treatment. Fortunately, it is a simple, low cost, safe treatment.

The Center involves the collaboration of biochemists and medical doctors. We believe that this coupling of disciplines provides an ideal capability for biochemical evaluation and medical treatment.

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