

# Editorial

## Types of Biochemical Imbalances in the Schizophrenias

Biochemical imbalances can be of many types, ranging from simple unitary deficiencies of a nutrient to complex over or under production of a key metabolite or even multiple deficiencies. The exact measurement of the level of trace elements, vitamins, nutrients, or metabolites provide the objective keys to disease processes both in the body and the brain. These measurements are the basis of a burgeoning field of Orthomolecular psychiatry.

### I. Deficiency or excess of a single hormone

Examples

- a) Lack of thyroid produces the well known "Myxedematous Madness"
- b) Excess prolactin produces a schizophrenic-like psychosis

### II. Deficiency of a single vitamin

Examples

- a) Lack of niacin ( $B_3$ ) produces Pelagrin psychosis — hallucinations and paranoia
- b) Lack of vitamin  $B_{12}$  produces anemia and psychotic behaviour
- c) Lack of pyridoxine ( $B_6$ ) produces convulsions and psychosis

### III. Intolerance to an amino acid

Examples

- a) Phenylketonuria is caused by the inability of the body to use phenylalanine; hence, this neurological disease responds to diets devoid of phenylalanine

### IV. Need for optimal supplements for amino acids

Examples

- a) L-lysine controls herpes infections
- b) L-tryptophane allows normal sleep and relieves some depression
- c) Methionine lowers elevated blood histamine and decreases depression

### V. Need for optimal supplements of vitamins

Examples

- a) Vitamin C helps eliminate heavy metals, an excess of which produces learning disabilities
- b) Pyridoxine ( $B_6$ ) produces normal dream recall which is a quick test of your short-term memory
- c) Niacin lowers both triglycerides and cholesterol
- d) Folic acid/ $B_{12}$  raise blood histamine
- e) Inositol, a vitamin, produces natural sleep
- f) Biotin prevents convulsions
- g) Vitamin A and zinc prevent acne
- h) Deanol increases acetylcholine and alertness
- i) GTF (chromium containing glucose tolerance factor) helps insulin to burn sugar

These examples are as simple to understand as "No gas, No go" since there is a correlation between two single factors. We know, however, that trace elements (TE) are involved in enzyme activity, and each TE may be present in one to 100 enzymes. At present, cobalt is only known to be needed in vitamin  $B_{12}$ , a vitamin most effectively made by bacteria. Thus, we have listed above "No  $B_{12}$  = anemia and psychotic behaviour," again a cause and effect relationship as simple as "No work, No pay!" But nutrients do pay off handsomely in that they know exactly where to go in the body and what to do! Drugs do not! Drugs flood the body to produce many side effects.

### VI. The Need for Trace Elements

- a) Selenium is a trace element needed by one enzyme. Selenium is an essential element in glutathione peroxidase which promotes the destruction of tissue hydrogen peroxide. This is its only proven enzyme function in the human body. However, if deficiency of selenium is spread among the organs of the body, this small but vital role is sufficient to produce fatal heart disease, fatal cancer, and many less lethal lesions of tissues, including the brain.
- b) Molybdenum is needed by four known enzymes in the body. These deal with the use of the amino acid, methionine, the detoxification of sulfite, and the formation of uric acid. If intravenous amino acids are given to the molybdenum-deficient patient, coma results.

- c) Manganese is known to be needed by four important enzymes in the body. These deal with the formation of red blood cells, the making of an important neurotransmitter, cyclic AMP, and the formation of cartilage. Manganese prevents auto-immune disease, allergy, and psychiatric depression. Manganese occurs in tropical fruits and is difficult to absorb orally.
- d) Copper deficiency (while almost unknown in the human adult) can affect eight oxidizing enzymes in the body. Amazingly, the only two systems that are practically affected by deficiency are the formation of red cells and the conducting system of the heart.
- e) Zinc is involved in twenty to one-hundred enzymes in the human body and a deficiency of zinc produces a myriad of diseases from acne, total loss of hair, and one of the schizophrenias. When combined with Pyridoxine (B<sub>6</sub>), zinc is a sure cure for one-third of the patients presently labeled schizophrenic (pyroluria). Since zinc is involved in such a multitude of enzymes, we can count 65 diseases where in zinc deficiency plays a prominent role.

Thus, a biochemical imbalance can be a simple vitamin, hormone, amino acid, or trace element deficiency. A biochemical deficiency can involve a vitamin and a trace element such as selenium — vitamin E, zinc-pyridoxine, or iron-folic acid. With malnutrition produced by jiffy foods and soft drinks, the human biochemical imbalances can be excessive with the patient truly a physical and mental basket case. Often such imbalances can only be diagnosed by a therapeutic trial of the needed nutrients. From the standpoint of disease, TE deficiency is the most basic of tissue needs and provides the most dramatic cure when the deficiency is relieved.

### **The "DSM III Schizophrenia" Is Too Simplistic**

The present official system of diagnosis (The DSM-III) is based on observation of the patient's thoughts and behaviour. A mechanistic analogy would be the car that behaves erratically, emits blue exhaust, and goes "pocketpit" instead of pocketa pocketa — the James Thurber standard noise for mechanical devices. Behavioural

symptoms are less reliable and harder to measure than objective criteria such as blood sugar, platelet enzyme activity or trace elements.

Chronicity of the disease is a frequently slighted criterion. In the DSM-III system of diagnosis for schizophrenia the abnormal behaviour must be present for six months. In scientific reports, the authors blithely report on "schizophrenia" in newly admitted patients. There may be 100 biochemical ways to go mad and be labeled schizophrenic. None of these biotypes will be discovered as long as the DSM-III is available to define that singularly unique behavioural state called schizophrenia. The least we can do is to refer to the syndrome as the schizophrenias and realize the limitation of the DSM-III diagnosis. The simplistic straw man erected by behavioural criteria will be most difficult to fit with a single biological heart.

In the meanwhile, let's listen to and try to accommodate the patient who thinks that a biochemical imbalance may be the cause of his madness.

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