

# Psychiatric Hospital vs. Brain Bio Center in Diagnosis of Biochemical Imbalances

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## INTRODUCTION

For the diagnosis of somatic disease, the hospital is usually better than the outpatient clinic. This is not true for the psychiatric hospitals where frequently even the diagnostic tests of the general hospital are not immediately available. Samples of blood and urine from the psychiatric hospital are usually transferred to the automated laboratory at the nearby medical center. The psychiatric hospitals need to develop and use tests which will allow the more exact diagnosis of the biochemical imbalances in schizophrenia, depression, and mania.

(1) THE HOSPITAL AS A HOLDING TANK: In some instances, the psychiatric patient is committed to the hospital in order to protect society and allow for a period of observation. Frequently the observation does not materialize, and the patient is merely in limbo rather than going through an inspection station. In any hospital, the inspection and testing

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should proceed at a regular and measured pace to ascertain the exact nature of the psychiatric disorder. If time is wasted, the hospital becomes a holding tank, only slightly more elegant and much more expensive than the local jail. This applies to all psychiatric hospitals, whether they be one of the Boston Bigs or the Toonerville Trivial.

(2) THE HOSPITAL AS A DISSECTING BOARD: The hospital has the dubious advantage of tying the patient down to the dissecting board as the diagnostic process proceeds. The tie-downs may be subtle and range from "no street clothes" to "locked doors" or "no bathroom privileges." With the tie-downs enforced, the professional staff can leisurely proceed to dissect the patient with numerous blood, urine, x-ray, and gastric or spinal fluid samples. Even worse, the patient may stay in the tied-down position for days while nothing is done or until the tests of the first day are slowly executed and reported as much as one week later. Sometimes this is justified, but the practice is all too frequently unjustified.

With hospitalization, the patient has a greater liability to the following untoward changes.

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A. Lack of Exercise:

- (1) Loss of nitrogen from muscle
- (2) Loss of calcium from bones (kidney stones)
- (3) Blood clots in legs (and lungs)
- (4) Difficulty in urination
- (5) Loss of appetite
- (6) Constipation
- (7) Insomnia

B. Poor Nutrition:

- (1) Excess sugar and starches
- (2) Excess caffeine
- (3) Inadequate nutrients

C. No Lasting Social Interactions

In psychiatric hospitals, patients with true and diagnosable biochemical imbalances are housed with those who have character disorders and may be treated according to the same muddled model in group therapy sessions. The schizophrenic patient who wants to learn about the cause of personal dysperceptions learns instead about insoluble drinking and marital problems.

D. Hospital Mistakes

The patient frequently is not told about the nature of the required medications. This often causes the patient to develop lack of confidence in the doctor and nurses. It also prevents the double check by nurse and patient on medications needed. The doctor and nurse are conspiring mistakenly against the patient.

(3) **THE USUAL CLINIC--A PINBALL MACHINE:** The usual psychiatric clinic doesn't have the facilities, or the talent, to interpret the special tests needed to subdivide the schizophrenias. Rather than be bothered with a laboratory, they send their bloods and urines to the nearest big hospital for assay. These tests are the same that a patient might get if he were admitted to a general hospital for observation for a backache! The tests will show anemia, diabetes, kidney disease, etc., none of which have ever been known to cause any of the schizophrenias.

The interview depends on the co-operation of the patient and relatives

wherein each answer is fielded by the psychiatrist and placed in pigeon holes which can light up bulbs in the brain to classify the patient as depressed, hypo-manic, paranoid, lack of affect, or thought disorder. The immediate past history may supply the lesser diagnoses of alcoholism, drug abuse, suicidal, homicidal, or mentally retarded. While some interviewers are adept at eliciting symptoms of depression or paranoia, very few have correlated biochemical findings with the various symptoms. Therefore the usual psychiatric clinic is not too different from a pinball machine where exact pressure on the spring lever will produce a display of meaningless lights and a high or a low, but equally meaningless, set of scores.

**THE IDEAL OUTPATIENT CLINIC HAS NO HOLDING TANK OR DISSECTING BOARD:** Outpatient clinics not affiliated with hospitals are without the dubious resources of a hospital. Greater efficiency is expected, and the patient is usually rewarded by having his expectations fulfilled. With precise timing, the new patient may have (1) objective psychiatric evaluation tests, (2) blood samples for the factors which delineate the type of disorder, (3) urine sample for krypto-pyrrole and porphyrins, and (4) brain wave studies (if indicated). All of these tests can be completed in a three-hour period, and a preliminary corrective nutritional and drug program can be written for the patient. This program is based on the careful medical and psychiatric history and examination of the patient. Later, when the laboratory results are available, the more definitive treatment program can be written. In outpatient clinics, the patient retains his freedom, can purchase better nutrients, and continues to get exercise to the greatest extent of his ability. Unfortunately, the insurance companies will pay hospital bills in toto, but balk at paying the charges of the more efficient clinic for outpatient diagnosis. We recently saw a bill for \$56,455.97 for the hospitalization (1974) in New York City of a

schizophrenic patient for a 51-week period. (Clinic case at a reduced rate!) New York Blue Cross paid the entire bill, although the patient was unimproved on discharge. In spite of good and obvious improvement, some insurance companies have frequently declined to pay simple clinic charges of \$150 which incidentally is the average charge for a single day of psychiatric hospitalization in 1975.

**FLOW SHEET FOR  
PSYCHIATRIC DIAGNOSIS:**

A. Preliminary Gathering of Medical Data - by Mail

- (1) Psychiatric and Social History by Patient or Responsible Guardian
- (2) Cornell Medical Index Health Questionnaire
- (3) Psychiatric Health Questionnaire

B. At the Clinic

- (1) HOD (Card Sort) or Experiential World Inventory (EWI) No. 1 and No. 2
- (2) Wang "Quick Depressive Survey"
- (3) Automated MMPI (if patient is aged 15 to 25)
- (4) Eysenck Personality Inventory

C. Differentiation of the Schizophrenias by Means of an Adequate History

(1) **Histapenia**— Low Blood Histamine—Slow Oxidizers

- 1) Dysperceptions
  - 2) Paranoia
  - 3) Hallucinations
  - 4) Stalagmitic Obesity
  - 5) Heavy Beard and Body Hair
  - 6) Few Head Colds
  - 7) Canker Sores
  - 8) Insomnia
  - 9) Poor Pain Sense
  - 10) Stuttering
  - 11) Ringing Ears
  - 12) Many Dental Cavities
  - 13) Slow Orgasm
  - 14) Slow Ejaculation
- (2) **Histadelia**— High Blood Histamine—Fast Oxidizers
- 1) Dysperceptions
  - 2) Suicidal Depression
  - 3) Blank Mind

- 4) High Pain Sense
- 5) Thin, Little Body Fat
- 6) Compulsions
- 7) Abnormal Fears
- 8) Headaches
- 9) Rituals
- 10) Good Teeth
- 11) Frequent Colds
- 12) Insomnia
- 13) Family History
- 14) Drug and Sugar Addiction

(3) **Pyroluria**—Kryptopyrrole in Urine

- 1) Dysperceptions
- 2) Depression - Suicidal
- 3) Neurological Symptoms
- 4) Nausea
- 5) Chills and Fever
- 6) Breath and Body Odor
- 7) Poor Dental Enamel
- 8) Crowded Upper Incisors
- 9) White Spots—Nails
- 10) Opaquely White Nails
- 11) No Breakfast
- 12) Upper Abdominal Pain
- 13) Constipation
- 14) No Dream Recall
- 15) Pallor
- 16) Cannot Tan
- 17) Stretch Marks
- 18) Impotence
- 19) Amenorrhea
- 20) Achy Knees
- 21) Anemia
- 22) Eosinophilia
- 23) Relief with Fasting
- 24) Drug Intolerance
- 25) A Stress-Induced Disorder

(4) **Cerebral Allergy**

- 1) Dysperceptions
- 2) Infantile Colic
- 3) Infantile Eczema
- 4) Coeliac Disease
- 5) Sugar Craving
- 6) Food Addiction
- 7) Excessive Mood Swings
- 8) Rapid Pulse
- 9) Asthma and Convulsions
- 10) Relief with Fasting

**(5) Hypoglycemia**

- 1) Dysperceptions
- 2) Sweating
- 3) Fatigue
- 4) Dizziness
- 5) Sugar Craving
- 6) Muscle Cramps
- 7) Hypothermia
- 8) Low Blood Pressure
- 9) Poor Memory

**D. Laboratory Tests— Proceeding from Simple to Complex**

(1) Urine Test for Kryptopyrrole— discloses pyroluria. Urine is preserved with vitamin C. The same urine should be tested for albumin and sugar. Albuminuria takes out large amounts of zinc.

(2) Hair Testing for Essential Elements and Heavy Metals (Many Different Labs)

- 1) High Copper = Histapenia or Depression
- 2) High or Low Zinc = Pyroluria
- 3) High Calcium and Magnesium — Hypoglycemia

Low Sodium and Potassium— Hypoglycemia

- 4) High Lead = City Dweller and/ or Lead Poisoning
- 5) High Mercury = Mercury-Containing Shampoo
- 6) High Arsenic = Arsenic Poisoning
- (3) Blood Basophil Count

The basophil contains the blood histamine and the actual count is proportional to the histamine level. Normal is 0.5 percent of the total white blood cell count. Histapenic patients may have no detectable blood histamine and no visible basophils in a count of 1,000 white blood cells. Counting is tedious so the absolute basophil count can be substituted.

Automation of the basophil count would be a useful screening procedure for infants and young adults since this test could be done from a drop of finger blood. Automation is expensively available for the total white cell count. If the basophils alone were counted, the analysis should be

cheaper. Inspection of a blood smear stained only for basophils provides the astute clinician with rapid information as to whether the patient is high or low in blood histamine. (4) Serum Trace Metal Analyses

(a) Serum Copper Levels: Serum copper is high in pregnancy, users of birth control pills, pellagra, histapenia, arthritis, hypertension, migraine headaches, epilepsy, and some types of senility. The only normal range is 80 to 110 mcg percent. Normal pregnancy may produce a level of 240 mcg percent. In toxemia of pregnancy, levels above 300 mcg percent are found.

Copper is also high in acute liver disease, and with high intake the copper can be the cause of liver disease. Serum copper is (95 percent) in a blue protein named "ceruloplasmin." This protein protects the body from excess copper absorption from the gut. In Wilson's disease, the ceruloplasmin is low so the patient's tissues become loaded with copper to a toxic degree. The red cells, liver, kidney, and brain suffer the greatest damage, and a copper pigment is deposited in the iris of the eye: "Kayser-Fleischer rings," or "sunflower eyes." The serum copper is low in Wilson's disease because the ceruloplasmin is low. Wilson's disease is a very rare familial disease (rate of 1 in 100,000 or more population). In our survey of 3,000 mental patients, we have not had one case of Wilson's disease—nor have we found a single patient with copper deficiency. Copper is the most constant and also the easiest to determine accurately by means of the Atomic Absorption Spectrograph.

(b) Serum Zinc Levels: The normal range is from 90 to 120 mcg percent. Levels below 80 mcg percent indicate inadequate zinc in the diet. Serum zinc may therefore be *either* high or low in pyroluria. Other clinical states with low serum zinc are numerous.

(c) Serum Iron Levels: The normal range is from 90 to 120 mcg percent. Iron levels may be high in psychiatric depression; but in contrast to high copper levels, the high serum iron level

will return to normal after four to six weeks of zinc therapy. Serum iron may be very low in rheumatoid arthritis (RA), but some tissues must be saturated with iron since with zinc therapy the serum iron rises to a normal level and the iron deficiency anemia is corrected. Oral iron therapy will worsen psychiatric depression, and parenteral iron therapy will worsen the symptoms of RA. We never give iron therapy until after three months of zinc therapy, and then we give iron only if the level is 30 mcg percent or less. Psychiatric patients are routinely receiving 2,000 mg of vitamin C per day so a single tablet of Ferrous Sulfate, 300 mg per day, will provide adequate therapeutic iron. More vigorous iron therapy will frequently cause depression. (5) Polyamine Determinations

The three polyamines which can be easily determined in the human blood are histamine, spermidine, and spermine. These are presently assayed by column absorption using Dowex - 50. A modern amino acid analyzer might be programmed to do these assays as well as the assay of other important amines. Assay of amines on a Dowex Column is laborious and time consuming, but necessary. Histamine, 40-70 ng/ml, is normal in pyroluria, low in histapenia, and high in histadelia. Spermidine (spd) 0.90 mcg/ml, is high in patients with cancer of the pancreas or other cancers, also high in -patients with regenerating liver, ulcerative colitis, and extensive skin disease. Spd is low in vitamin B6 deficiency. Spermine (sp) 1.5 mcg/ml, is normal in males, 1.3 mcg/ml in females. Sp is lowest in senility, 0.30; low in hypoglycemia, 0.80; and high, above 2.0, in many patients who have recovered spontaneously from a psychotic break. Spermine neutralizes the acid phosphate groups of RNA so that more RNA can be synthesized. Recent memory is stored in newly synthesized RNA so patients with low sp usually do not have a good recent memory.

The listed determinations thus far would be planned for the patient's first day of visit at the clinic. The second visit would be planned for several weeks later when the blood, urine, and other tests would all be available to guide the therapist.

(a) If the patient has not improved by the third clinic visit and has a low pulse (70 or below), then thyroid therapy should be tried.

(b) If the pulse is rapid, 80 to 120, then the patient should have specific allergy tests or be advised to go on a four-day fast or a four-day elimination of specific foods in the following order:

1st four-day period - All wheat products

2nd four-day period - All dairy products

3rd four-day period - All corn products

4th four-day period - Individual proteins

The pulse should be taken daily while at rest in order to measure any changes.

(6) Six-hour Glucose-Tolerance Test (GTT)

Laboratories not equipped to determine blood spermine levels will want to do the GTT. Spermine levels, if repeated to rule out low spermine from vitamin B6 deficiency, are sufficiently accurate to avoid the more stressful GTT. We sometimes order a GTT done at an outside laboratory to satisfy the patient's curiosity as to whether the response to glucose is normal now that the symptoms have gone away. Our philosophy at the BBC is not to do any test which can be done at a regular hospital laboratory. However, one advantage of the GTT done at the clinic is that physiological measures such as blood pressure, pulse, and the actual symptoms of hypoglycemia can be more adequately monitored and correlated with the blood sugar levels. On the other hand, some hospital laboratories can, in addition to blood glucose, do fucose and insulin levels which make the GTT much more informative.

Functional hypoglycemia (FH) is an endocrine disorder independent of the schizophrenias which must be diagnosed

# PSYCHIATRIC HOSPITAL VS. BRAIN BIO CENTER

## DIAGRAMMATIC FLOW SHEET

**Procedure:**

	<b>Histapenia</b>	<b>Pyroluria</b>	<b>Histadelia</b>	<b>Cerebral Allergy</b>
<b>ry</b>	No Family History Hallucinations Paranoia Slow Orgasm Many Dental Fillings Stalagmitic Obesity	Family History Pallor White Nails No Breakfast Amenorrhoea No Dream Recall Breath and Body Odor Abdominal Pain Impotence Anemia Poor Dental Enamel	Family History Suicidal Depression Compulsions High Pain Sense Blank Mind Good Teeth Allergies Headaches	Family History Infantile Eczema Coeliac Disease Allergies Daily Mood Swings Relief with Fasting
<b>Lab Tests</b>	High Serum Copper Low Blood Histamine High Hair Copper	High KP-Urine High or Low Serum Zinc High or Low Zinc in Hair	High Blood Histamine Normal Serum Copper	Low Blood Histamine Rapid Pulse Provocative Testing Skin Testing 4-Day Elimination Diets Food and Symptom Diary 4-day Fast
<b>Treatment</b>	Niacin Folic Acid Vitamin B12 Pantothenate Zinc-Manganese 40% Histapenia	Vitamin B6 Zinc  30% Pyroluria	Calcium Methionine Diphenylhydantoin Zinc- Manganese  20% Histadelia	Eliminate Antigen Vitamin B6 Vitamin C Calcium Potassium  10% Cerebral Allergy

## THE FUTURE DIAGNOSTIC CAPABILITIES OF THE BRAIN BIO CENTER

### Separating the Common Factors in the Schizophrenias

I.	Patients may have — A. <b>Histapenia</b> or B. <b>Histadelia</b>	<b>Total 2</b>
II.	Patients may have — 1. <b>Pyroluria</b> or 2. <b>Cerebral Allergy</b> or 3. <b>Hypoglycemia</b>	<b>3</b>
III.	Patients may have— (1 + 2) or (2 + 3) or (1 + 3) or (1 + 2 + 3)	<b>4</b>
IV.	Patients may have— (A + 1) or (A + 2) or (A + 3) or (A + 1 + 2) or (A + 2 + 3) or (A + 1 + 3) or (A + 1 + 2 + 3)	<b>7</b>
IV.	Patients may have- (B + 1) or (B + 2) or (B + 3) or (B + 1 + 2) or (B + 2 + 3) or (B + 1 + 3) or (B + 1 + 2 + 3)	<b>7 23</b>

**Porphyria is omitted because it is a rare complication of pyroluria. Also omitted is the unknown factor of virus infection (Torrey and Petersen, 1973).**

## ORTHOMOLECULAR PSYCHIATRY,

and treated to provide maximal rehabilitation of the schizophrenic. When polyamines are measured in the blood, we find the level of spermine to be uniformly low in the hypoglycemic. This test evolves from the initial blood sample when blood histamine is determined. The incidence of FH in the schizophrenias is estimated at 60 percent of the total four disorders which produce schizophrenic symptomatology.

We estimate cerebral allergy (CA) to be a significant factor, 10 to 15 percent, in the schizophrenias. Unfortunately, we consider this most seriously only when a patient fails to make good progress on a mega nutrient program. The methods for diagnosing CA are less than exact, with the most critical being elimination diets after four days of fasting. Great progress will be made when radio-immune methods are applied to the patient's blood, wherein radio-gluten, radio-casein, and other radio-antigens are tested against the patient's blood serum to give the exact degree of the food allergy.

### SUMMARY

The possible biochemical imbalances involved in the schizophrenias can now confidently be divided into five possible factors. These are (1) low blood histamine (histapenia), (2) high blood histamine (histadelia), (3) pyroluria or malvaria due to the urinary mauve factor kryptopyrrole, (4) cerebral allergy, and (5) hypoglycemia. The

combinations of these five basic biochemical imbalances number 23, which sounds formidable; but since all five basic factors can be measured, the treatment of all combinations is now possible.

### REFERENCES

- HIRSCH, S. R., RIMM, A. A., and ZASTROW, J. E.: The absolute peripheral basophil count. *The Journal of Allergy and Clinical Immunology* 53:303-310, 1974.
- METTLER, L., and SHIRWANI, D.: Direct Basophil Count for Timing Ovulation. *Fertility and Sterility* 25:718, 1974.
- PFEIFFER, C. C.: Blood Histamine, Basophil Counts and Trace Elements of the Schizophrenias. *Rev. Can. Biol.* 31:73-76, 1972.
- VOLUME 5, NUMBER 1, 1976, Pp. 28-34**
- PFEIFFER, C. C.: Does Acid Well Water Erode Plumbing, Vessels, and Sanity? *Journal of Orthomolecular Psychiatry* 4:9-15, 1975.
- PFEIFFER, C. C.: Fingernail White Spots: Possible Zinc Deficiency. *JAMA*, Volume 228, April 8, 1974.
- PFEIFFER, C. C.: Observations on the Therapy of the Schizophrenias. *Journal of Applied Nutrition* 26:29-36, 1974.
- PFEIFFER, C. C.: Observations on Trace and Toxic Elements in Hair and Serum. *Journal of Orthomolecular Psychiatry* 3:259-264, 1974.
- PFEIFFER, C. C., and ILIEV, V.: A Study of Zinc Deficiency and Copper Excess in the Schizophrenias. *International Review of Neurobiology, Supplement 1*, pp. 141-165, 1972.
- PFEIFFER, C. C., SOHLER, A., JENNEY, C. H., and ILIEV, V.: Treatment of Pyroluric Schizophrenia (Malvaria) With Large Doses of Pyridoxine and a Dietary Supplement of Zinc. *Journal of Orthomolecular Psychiatry* 3:292-300, 1974.
- SHELLEY, W. B., and BARNES, H. M.: The Absolute Basophil Count. *JAMA* 192:108, 1965.
- TORREY, F. E., and PETERSON, M. E.: Slow and Latent Viruses in Schizophrenia. *Lancet*, Vol. II for 1973, pp. 22., July 7, 1973.