

Milk and Thought Disorder

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Since the beginning of the neuroleptic era in 1953, the pharmaceutical industry has developed a wide variety of chemical agents that are "good for" depression, anxiety, and psychosis. Unfortunately there has not been equal success in developing agents for character disorders and phobias.

Use of nutritional regulation, vitamins, and minerals, in addition to standard drugs for anxiety, depression, and psychosis has resulted in more rapid improvement, a greater degree of improvement, and prevention of relapses in a way not heretofore possible. With these modern treatments windows have been opened into the nature of patients' distresses which previously could not be seen by an examiner.

Not only do psychiatric patients have depression, anxiety, hallucinations, delusions, acting out and social conflict, they also have poor memory, impaired concentration, difficulty with abstract thinking, poor visual-motor coordination, impaired logic, fluctuating physical stamina, multiple physical

other specific impairments.

It is no longer enough to give an antidepressant for depression, an anti-anxiety agent for anxiety, an antipsychotic for psychosis; we should and can address ourselves to the multiple mental, emotional, and physical disabilities of our patients. One impediment of our patients is disturbed and inefficient thinking, a thought disorder.

Although the original concept of "thought disorder" came from Bleuler's works on schizophrenia, modern conceptions of it are broader. On the one extreme is word salad, but on the other end of the spectrum is inefficient thinking, difficulty with concentration and memory, and an increased effort required to think realistically (Easson, 1979).

To be presented here are five patients, all marginally functioning vocationally, who had varying degrees of thought disorder which persisted in spite of vigorous standard psychiatric treatment until milk was eliminated from their diet. All were on a low carbohydrate diet and had been treated for months to years with overall benefit but not a final elimination of their thought disturbance. Elimination of milk, yogurt, and butter (on the premise that lactose was the offending

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distresses, weakness, ataxias, and a host of

agent) resulted in relief from this thought disturbance. Symptoms reappeared within hours when milk was again used. (The question of the role of yogurt and butter is not so clear.) However, after a period of abstinence, if milk was taken only every few days, the symptom reoccurred in milder form and was transient.

Three patients had been previously given the diagnosis of schizophrenia, and one diagnosed by the author as being narcoleptic and the other as a schizo-affective reaction. Two patients had been hospitalized for their psychotic symptoms, but the hospitalization had been of short duration followed by long periods of disability. Although the diagnosis of narcolepsy and schizophrenia refer to different overall constellations of symptoms and findings, these five patients complained of chronic psychiatric symptoms one of which was being "spacey" or detached. This constellation of symptoms consisted of periods lasting hours to days of mild confusion, detachment, and poor recent memory, some paranoid thinking with poor mental efficiency, all accompanied by fatigue. During this time they were unable to remember simple social encounters, but at the same time were able to function to some degree in their employment. The length of time under the author's care before their thought disorder resolved was three years, seven months, two months, seven days and four months.

In the first four cases the elimination of milk from the diet resulted in the patients being symptom free. The fifth patient began a regular intake of milk after he was in treatment for two months. It took six weeks to discover what had happened. When milk was eliminated the increase in symptoms, apparently due to the use of milk, disappeared but he continues in psychotherapy with considerable psychiatric disability.

The first lady was a 44 year old, single, school teacher who had a history of being a hyperkinetic child. As a young adult she had had a total colectomy for ulcerative colitis. She was first seen in the hospital on her third hospital day, having been admitted on a Friday night in August 1975, in what was described as an acute agitated and paranoid state which

required restraints. Treatment started by her doctor was with Mellaril 100 mg for two doses, then 50 mg four times a day. At the time of the initial psychiatric examination she showed only a resistance to the examination and almost total amnesia for a three day period which antedated the onset of her symptoms. The physical and laboratory examinations were unremarkable. The opinion at that time was that she had had a transient schizophrenic episode, and was a very compulsive person who had become severely fatigued.

At her first outpatient examination conducted one month after the initial brief hospitalization she was not recovering well and was concerned that she was a hopeless mental case. At this time she remembered that three days prior to her hospitalization she and some high school students had been briefly trapped by a small fire, and momentarily fearful of the outcome. She was taken into psychotherapy with pronounced symptoms of fatigue, insomnia, and depression and the diagnosis of compulsive personality.

Psychotherapy proceeded well but her symptoms became cyclic and there was no indication that there was continuing improvement. Psychotherapy was more supportive in reality testing than insightful.

One year after the initial hospitalization she was again hospitalized for a minor obstruction of her colostomy. A month later she was placed in the hospital again, this time for confusion. Her psychiatric examinations showed mainly an incomplete amnesia for a period of one day preceding hospitalization. On physical examination there was a positive left Babinski. She was given Elavil for insomnia and discharged.

A month later she began to describe "spacey" periods in which she was vaguely aware of her surroundings and was avoiding people because she could not remember social contacts of even a few hours earlier. She was, however, able to continue teaching science on a part-time basis. There were accusations that she was alcoholic, and her supervisor was attempting to force her into an alcohol treatment program. She was placed on Stelazine 2mg hs, and continued

in psychotherapy.

In March 1978, because she was in a chronic state that gave no indication of any further improvement, she was fasted for four days, then tested by the ingestion of beef, wheat, banana, chocolate, and milk with reactions to chocolate and milk. She then recalled that during the weeks prior to her first hospitalization she had regular access to considerable chocolate milk which she had not previously had. Three days after testing during which time milk and chocolate were excluded from her diet she became asymptomatic. Her psychotherapy was changed from weekly to monthly. Five months later when her symptoms had not returned she was discharged from treatment. One year later she was seen because of a personal matter and at that time there was a brief return of the symptoms, but no treatment was required.

The second case was a 33 year old, divorced mother working as a bartender who was referred by her surgeon after a mastectomy two months previously. She was being treated by him with daily injections of vitamin B 12 1000mcg for continuing pain at the operative site. On the ROCOM medical and psychiatric questionnaire she answered "yes" to nearly every symptom.

From her psychiatric examination it was evident that she had hypnagogic hallucinations consisting of pink elephants and green giraffes. The blackouts of which she complained were cataleptic attacks. On awakening from sleep she would be briefly paralyzed. During the day she had frequent periods when she would nap for five to ten minutes. Occasionally she would go from one place to another with total amnesia for the trip. Her reaction to alcohol was variable so that one evening she could drink heartily with little adverse reaction, whereas on other evenings with one or two drinks she would "pass out." She had been treated for many years for migraine headaches. Neither apprehension nor depression were familiar to her, but she did complain of alternating periods of restlessness and apathy. In spite of her complaints she worked long hours as a bartender. Because of a marked sweet tooth she was given a five hour

CTT which was bimodal but normal.

Since narcoleptics do better on a low carbohydrate diet, the diet was adjusted accordingly and in addition she was given Dexadrine five mg bid. Her symptoms improved promptly and she lost 30 pounds. However, she continued to feel ill toward the end of a day when she would be shaky, have mild automatic behavior, and have enough confusion so that she had difficulty making change.

Because of these periods of recurrent confusion she was asked to abstain from milk, yogurt, and butter for a period of one week. Her daily periods of confusion terminated rather abruptly and she began to have more energy, although she had not complained of the latter before. Her frequent anxious phone calls stopped and appointments were changed from every three weeks to every two months. She subsequently had a second mastectomy and became moderately depressed but there was no return of her spacey periods and her narcolepsy did not worsen, being under good control with infrequent and mild symptoms.

The third patient was a 27 year old perennial college student who was seen for the written complaint: "A sense of being crushed or weighted down, tend to run low grade fever, but general inability to function properly (or at all)." Also, she complained of chronic fatigue and was hyper-alert. For these latter two symptoms she took codeine to which she was addicted. She had had psychotherapy over a ten year period.

There was excessive daytime sleepiness, questionable hypnagogic hallucinations, and periods of weakness without falling. At the age of 17, she had been hospitalized with the diagnosis of schizophrenia.

Because of her learning difficulties and childhood history of hyperkinesia, consultation with another psychiatrist was obtained as to whether Ritalin might be of benefit to her. The consultant agreed so she was given Ritalin five mg bid. Her ability to do school work improved immediately so she returned to her chemistry studies from which she had withdrawn about the time of her original consultation.

She then began to complain of being

"spacey," that she could not understand conversations well, and parts of her body (especially her brain) seemed distorted. She still used codeine occasionally.

Milk, butter, and yogurt were excluded from her diet. The results were questionable, but she had not entirely conformed to her diet. However, she remained in college. Over a period of a month she conformed better to the diet and finally all of her pre-ceptual and conceptual problems disappeared. Now she was working as well as going to college. Of her ability to study she said that she could accomplish in two hours what formerly required 20 hours of her work. Incidentally, she mentioned that for the first time she could see "the man in the moon."

Subsequently she relapsed with perceptual distortions, confusion, fatigue, and impaired recent memory. Although she initially denied the use of milk, she finally admitted that prior to the return of symptoms she had begun to use skim milk. When this was stopped her symptoms cleared again after a few days.

This fourth patient has been seen on two occasions, one week apart. She is a 37 year old, divorced business woman who was seen at her request when her behavior became unmanageable. She had been given a ticket for speeding, a charge she denied, and when the judge would not see it her way, she created quite a scene in the courtroom. She indicated that she had had visual and auditory hallucinations all of her life. The most recent "hallucination" was that her brain was split in two and she had the sensation that someone was daubing an anesthetic agent over her brain. Also she complained that she was unsure of the direction of travel of other cars on the road. In spite of her symptoms there was no change in her work schedule or responsibilities in a position she had held for seven years.

As a child she performed up to expectations of her academically oriented family in spite of her symptoms. At the age of 32, her "hallucinations" increased so that she became increasingly concerned and finally sought treatment from her family physician. He made

the diagnosis of a schizophrenic reaction. Treatment consisted of a reduction in CHO intake, additional vitamins, and a tranquilizer, resulting in considerable improvement. At some time later she consulted a physician at the Brain Bio Center in New Jersey who made other dietary modifications with considerable symptomatic relief to her. Then for a period of two to three years she felt relatively well until the court room incident ten days previously.

Since she had incidentally mentioned her large intake of milk, yogurt, and butter she was asked to abstain for one week. Also since she had for several years been on a low CHO diet and had recently eaten heartily of the new fruit crop, she was asked to abstain from fruit. No medication was prescribed.

At the next examination one week later, she reported that after an initial increase in her craving for milk for three days, her mental symptoms subsided and have not returned for the three months she has been followed.

A 34 year old electronics engineer, with a history of chronic "depression" for years became increasingly depressed and responded poorly to amitriptyline so he was referred for treatment. In his initial examination he had described some "fuzziness" in his thinking, decrease in abstract ability, and difficulties with memory. Also he had a history of an explosive temper.

He showed some improvement for the first two months of treatment but then decided to take several months off from his work. His aggressive fantasies increased to alarming proportions, he complained of nocturnal headaches and of feeling poorly. On questioning, he indicated that at the time of the beginning of the symptom worsening he had begun to crave milk and drank it almost constantly throughout the day. At his next weekly visit he reported that in four days after abstaining from milk his depression improved, his agitation disappeared, and his thinking improved. Asked to explain his changed thinking he said that it was "perceptual." In college he had been called "Fog-bound" and he had certain learning problems. He illustrated this improvement in thinking, saying that on coming to my office

he was now better organized mentally and that his thoughts were more focused and less scattered. Because of other symptoms psychotherapy continues now but without the aggressive fantasies.

All five of these patients demonstrated some degree of a thought disorder although only three of them had ever been psychotic. Removal of milk, butter, and yogurt from the diet was followed by rapid (four days usually) improvement in symptoms of mild confusion, mild impairment of recent memory, poor mental efficiency, and fatigue. The three patients who had delusions were relieved of that symptom. In one patient, substitution of skim milk after abstinence from whole milk resulted in return of symptoms. Abstinence from milk again was followed by remission in her symptoms.

It is of interest that changes in gastrointestinal function did not appear with use or abstinence of milk. Whether a lactase deficiency can be manifested by gastrointestinal and/or mental symptoms remains to be seen.

It is unlikely that milk is the only agent which when taken by mouth may produce a thought disorder. Toxic agents of various kinds produce similar mental disturbances. The point of this investigation was that a simple food such as milk could be responsible for a partially disabling thought disorder. To discover such a connection requires only that one abstain from milk, yogurt and butter for one week.

The result of this investigation into the effects of milk in psychiatric patients resulted in raising questions about some standard notions we have of psychiatric disorders. Physical symptoms developing in a person with depression often are ascribed to the depression. Hallucinatory experiences in a person suffering from schizophrenia are ascribed to schizophrenia, whatever that is. It is part of the medical concept to attempt to cover all symptoms with a single diagnosis and a single etiology if possible.

In the patients presented here it was possible to distill out of their disturbances a groups of symptoms referred to as a thought disorder that

appeared to be related to the ingestion of milk. Elimination of milk, butter, and yogurt from the diet did appear to relieve this constellation of symptoms without necessarily curing the patient of all distress.

In medicine in general we are faced with the question as to whether some symptoms are part of a basic disorder while others may be due to the effects of self-treatment, adverse reactions to prescribed treatment, or changes due to the progression or remission of the basic disorder. In the case of the electronics engineer it was clear that elimination of sweets as part of the treatment of a schizo-affective reaction resulted in a craving for milk. His use of milk resulted in loosening of association, increased dysper-ception, and eruption of primitive aggressive impulses. In psychoanalytic terms the ingestion of a "toxic" agent had decreased his already impaired ego strength with signs of disintegration and regression.

Although we are more aware of the various factors that influence symptoms during the course of treatment, we ordinarily do not think of multiple etiologies for the variety of symptoms seen in psychiatric disorders. In untreated schizophrenia for instance, might the thought disorder, agitation, and withdrawal stem from different sources? In the patient with the history of colitis and colectomy was her sensitivity to milk responsible for the original colitis which was relieved by colectomy? Could her need for milk have been reduced after the operation, and then her psychotic symptoms precipitated under the stress of the fire at a time when she was consuming amounts of chocolate milk? The longitudinal history of psychic as well as physical events in our patients holds the promise of significant insights into their illnesses.

REFERENCES

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To The Editor:

I thought you might be interested in the case history of a 30 year old woman with a history of borderline mental retardation, schizophrenia, and present problem with obesity. She was tested recently for Vitamin B6 deficiency at the Biosocial Medical Center, Inc. using the 24-hour urine collection for the test for xanthurenic and kynurenic acids and a 3ml sample of blood plasma for the test for pyridoxal phosphate. She was found to have a very low level of pyridoxal phosphate (about 39 percent of average) and urinary excretion of 4.80 and 5.60 mg of xanthurenic and kynurenic acids respectively (normal is .00 to 3.00). A Vitamin B6 deficiency of genetic origin is now believed to possibly be the root cause of her developmental disabilities, problems with mental illness, and obesity. This is the first real clue as to cause that has ever been discovered, though pieces of the puzzle had been picked up from time to time through the years.

CASE STUDY: M.B., female, age 30 years.

Birth History: full term pregnancy; no illnesses of mother during pregnancy; short labor, easy delivery. Birth weight - 7 lbs. 8 oz. No obvious physical anomalies. **Developmental History:** First sign of a developmental delay was at eight months. Child

still unable to sit unsupported. Did not walk alone until 18 to 19 months. Legs and ankles seemed like rubber bands and would not stiffen when baby was placed on feet.

Speech development was slow. Was still talking in three word sentences at age four. Later required speech therapy in public schools to improve articulation and fluency. As an adult will still leave words out of sentences.

Educational History: M.B. attended public school kindergarten. Parents were not informed of any problems. M.B. requested to leave private school after first six weeks in first grade. Reasons given to parents were that M.B. was mentally retarded and that the school did not have the staff or facilities to deal with the problem. M.B. was also described as hyperactive and as a distraction to rest of the class.

M.B. was placed in first grade in public school during November of Fall term.

Mother coached M.B. at home and M.B. managed to keep up with class and was promoted to second grade. School suggested that M.B. enter a special class at beginning of third grade as academic performance progressively fell behind that of peers. M.B. spent entire balance of school years in special education classes with exception of fifth grade (an unsuccessful attempt to

mainstream) and sophomore year in high school. Special education classes were not begun in high school until M.B.'s junior year at which time M.B. returned to special education.

M.B. graduated from high school in 1969 with a special diploma. She attended a local business school for almost a year with poor prognosis given by school for her getting or keeping a job in the business world. M.B. married for the first time in May, 1970.

Psychological History: M.B. had difficulty in controlling emotions from the beginning. However, was very social. Spent a lot of time telephoning or visiting friends and neighbors during growing-up years. Very affectionate. Somewhat withdrawn and depressed during teen years. Low tolerance for stress. Break-up with boyfriend precipitated a nervous breakdown when age 19, which resulted in a 12 day stay at the state mental hospital. At the time of acute illness, M.B. suffered from delusions and perceptual distortions; severe insomnia, and a red, rough, itchy rash on face, arms, and legs. After tranquilizers failed to bring about improvement, M.B. was taken home by mother and placed on niacin and Vitamin C therapy. Niacin in 100 mg doses and Vitamin C in 500 mg doses were given M.B. every two hours. Mother had read book, **How to Live with Schizophrenia** in 1966. It was now 1969 and the only guide she had. Vitamins were bought at a health food store. Fortunately, the response was dramatic and rapid. M.B. was restored to rational behavior within three days and the rash started to fade and was completely gone in less than a week, suggesting that the rash, delusions, and insomnia were perhaps symptoms of pellagra.

Physical History: Strabismus and ambliopia became noticeable and were diagnosed at age four years. Bed wetting continued until age 17. Other signs or symptoms noticed by parents and teachers were: moderate hyperactivity, perceptual problems, poor eye hand and motor coordination (clumsy, difficulty learning to balance on a bicycle and roller skates). Hyperactivity disappeared at puberty and was replaced by depression and withdrawn

behavior. M.B. was a nervous and chronically fatigued person also beginning at puberty and continuing to present. History of chronic sinusitis. Still suffers frequent bouts of bronchitis. Believed to be intolerant to milk at age five when sinusitis was most severe. Problem with weight began at about 10 years of age. Menarche at age 13, and fairly regular menses though some oligomenorrhea present. Problem of weight kept under control through diet during teen years. Weight went out of control during pregnancy at age 20, during which M.B. gained approximately 100 pounds. She has never lost this weight but has continued to gain until weight reached 341 pounds. Some weight loss in recent months due to administration of potassium under doctor's supervision. Problem with edema since pregnancy nine years ago.

Childhood diseases: Hard measles and chicken pox at age seven.

Abnormalities which showed up in laboratory tests through the years:

1. March, 1964. Abnormal albumin/globulin ratio of 1.5 (normal is 2/1). Antistreptolysin 0 Titer up to 833 units (normal 50 or less). Glucose Tolerance test revealed 83 mg percent of blood sugar as the highest reading. Cholesterol - 300. (Cleatis Lemley, D.O.)

2. September, 1966. Impression: Moderately abnormal EEG with a diffuse non-localized dysrhythmia, compatible with diffuse cerebral dysfunction. (Mario J. Camp-agna, M.D.)

3. October, 1964. Another protein fractionization test revealed albumin/globulin ratio down to 1.26.

4. Abnormal phenylalanine/tyrosine ratio of 2.28. (Neal Buist, M.D., Genetics Clinic in Medford, Oregon. Part of Crippled Children's Division of the State of Oregon. Test was processed in the Pediatrics Metabolic Lab at the University of Oregon Health Sciences Services in Portland.) Mother was informed that M.B. was in the carrier range. However, because a B6 deficiency and disorder of the tryptophan metabolism is now known, it is wondered whether abnormal metabolites of tryptophan inhibit enzymes in the phenylalanine metabolism. It appears to be an accepted fact that abnormal metabolites of phenylalanine inhibit enzymes in

the tryptophan metabolism. Please see copy of part of article by Samuel P. Bessman et al, "Amine Metabolism in Phenylketonuria", **Phenylketonuria and Allied Metabolic Diseases**, 1967, U.S. Department of Health, Education, and Welfare. If excess xanthurenic and kynurenic acids inhibit the enzyme, phenylalanine hydroxylase, then perhaps M.B. is not a carrier of PKU, the defect not being present in the phenylalanine hydroxylase enzyme but in the pyridoxal phosphate enzyme. Test was processed in October, 1978.

All other laboratory tests done on M.B. during the years have been normal with the exception of intermittent low thyroid findings.

Psychometric testing has placed I.Q. between 66 and 77, with last test performed at Fairview Hospital Evaluation Center in 1973 scoring 71.

Family History: One brother is profoundly retarded with autistic symptoms. Is resident of Fairview Hospital and Training Center, the State Home for the Retarded in Oregon. A half-brother (son of father by previous marriage) has required treatment in hospital and alcohol treatment centers since age 25. Maternal grandmother required repeated hospitalizations for schizophrenia during lifetime.

Impressions: Vitamin B6 is known to be essential in the synthesis of protein. It is suggested that a long-term deficiency of B6 might result in low albumin which could lead to edema and obesity. Pyridoxine in the form of pyridoxal phosphate is the coenzyme of the decarboxylase step of both serotonin and catecholamine metabolic pathways, both of which have been indicated in cases of hyperactivity. M.B. was tested for plasma serotonin ana was found to be on low end of reference range.

Twenty-five vitamin-responsive genetic diseases are recognized, some of which can lead to mental retardation (Dr. Lynn Fleisher, 1980, of the Institute for Basic Research at Staten Island, New York. "Vitamin Therapy, Screening curb Metabolic Disorders", **The ARC**, Vol. 29,

March/April, 1980. Official newspaper of the Association for Retarded Citizens.) Dr. Leon Rosenberg, Director of Medical Genetics at Yale University, reported in 1970 that genetic research had made it possible to describe nearly 100 inherited illnesses associated with "inborn errors of metabolism", about one dozen of which are related to the body's dependence on vitamins. Vitamin B6 is said to be associated with at least five metabolic diseases. His message to pediatricians, based on current research, is, "If the physician sees a child who fails to thrive or is intolerant to protein...the child should be studied further for inborn metabolic diseases." ("Genetic Research Reveals Many Vitamin-Dependency Illnesses", **Schizophrenia Newsletter**, Vol. 5, No. 1, January, 1971.)

Because of the above case study, we know at the Biosocial Medical Center that tests are available for discovering Vitamin B6 deficiency and disorders of tryptophan metabolism. Excesses of xanthurenic and kynurenic acids also suggest underproduction of niacinamide which is the metabolite if tryptophan travels down its normal pathway and a deficiency of serotonin since the formation of 5-hydroxytryptamine (serotonin) is B6 dependent. These tests are available to all doctors using Metpath laboratories which forward properly prepared samples to Bio-Science Laboratory in Van Nuys, California. Or samples can be shipped directly. Address is: 7600 Tyrone Avenue, Van Nuys, California.

We look forward to greater utilization of these diagnostic tools in cases of mental retardation, hyperactivity, schizophrenia, alcoholism, and obesity. If the medical establishment wants hard data to justify mega B6 and B3 therapy in the young woman described in the above case study, here it is. The fact is that it should have been started 29 years ago.

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