Biotypes of Alcoholism - Bonnie Camo MD

The following paper on nutrition and alcoholism was written by Bonnie Camo, MD, a medical advisor to Suppers for Sobriety. It was originally presented on April 4th, 1982 at the National Council on Alcoholism meeting in Washington, DC. At the time, Dr. Camo was working with Dr. Carl Pfeiffer at the Princeton Brain Bio Center. More recent research has amplified the role of specific nutrients in treating the different biotypes of alcoholic, but the general dietary guidelines remain the same.

The following paper, dealing with nutrition and alcoholism, was first presented over 25 years ago, on April 4th, 1982, at the National Council of Alcoholism meeting in Washington DC, while I was working at the Princeton Brain Bio Center. Those who have studied this topic recently (Dorothy), have come up with pretty much the same information. In other words, apparently, little research has been done on nutrition and alcoholism in the last 25 years.

Alcoholism is a physiological addiction that may develop in about 10% of alcohol drinkers. Studies since the turn of the 20th century have shown that the tendency to alcoholism often runs in families. Many studies on adopted children, twins, and half-siblings show that there is a genetic tendency to alcoholism, not just an abnormal behavior learned by imitation.

How does this inherited tendency produce alcoholism and can anything be done to modify it? According to Roger Williams, the eminent biochemist who discovered the vitamin pantothenic acid (B5), the genetic tendency to alcoholism can be overcome by good nutrition. Dr Williams, who published his book Prevention of Alcoholism through Nutrition in 1951, expressed the belief that no one who followed good nutritional practices would ever become an alcoholic.

Experiments done in Dr Williams' lab show that animals which normally would never drink alcohol can be induced to choose alcohol solutions in preference to water, after being fed a diet high in sugar, or a diet deficient in certain nutrients. When a completely adequate diet is restored, the animals will no longer drink alcohol.

Dr Williams' experiments sought to answer the question of why certain individuals become alcoholic and others don't. He chose rats as an experimental animal to demonstrate individual differences. Twenty rats were put in separate cages and given a choice of water or 10% alcohol.

The individual rats had very different patterns of behavior. Some drank very little alcohol at any time, some drank a little at first, then gradually increased. Some drank heavily right from the beginning. Some drank at periodic intervals separated by a few days of abstinence. After several years of investigations, Dr Williams had some understanding of why individual animals behaved so differently, and why some chose to drink and others did not. He found inborn or hereditary differences in the metabolism of different animals, even though they were from the same inbred strain. Humans, of course, would have much wider variation.

He found that the animals that did not drink alcohol were receiving everything that they, as individuals, needed from their diet. Rats that chose alcohol were found to have some nutritional deficiency, because they had an inborn higher requirement for a certain particular element. Experiments were done omitting one particular vitamin from the diet of a rat; this resulted in heavy drinking. But when the vitamin was restored, drinking dropped suddenly, often in one day, to a very low level.

This experiment was repeated for vitamin A, thiamine (B1), riboflavin (B2), pantothenic acid (B5), and B6. A deficiency of any one of these vitamins caused increased alcohol intake, which returned to normal when the missing vitamin was supplied. These experiments firmly established the close relationship between diet and the biological urge to drink.

Other experiments done by doctors at Loma Linda University in California showed similar results. Rats on a "typical teenage diet", high in carbohydrates and marginally low in vitamins and minerals, drank five times as much alcohol as rats on a balanced diet. When the equivalent of 18 cups of coffee was added, alcohol intake increased by 13%. When vitamins and minerals were added, there was a significant decrease in alcohol intake.

Dr Williams' studies over a sixty year period show that every person has a distinctive metabolism and a unique pattern of nutritional needs. Requirements for specific nutrients may vary by five-fold or more. Some people are more vulnerable to alcoholism because they have greater requirements for nutrients involved in the metabolism of alcohol. When these individuals get inadequate nutrition (which always accompanies heavy drinking), some of their deficiencies become so severe that appetite-controlling mechanisms in the brain become deranged and no longer demand nourishing food, desiring only alcohol.

To prevent alcoholism or help alcoholics recover, Dr Williams recommended education of alcoholics to eat nutritionally superior foods, and avoid not only alcohol, but also sugar and all refined foods. He recommended high potency nutritional supplements emphasizing B vitamins, zinc, and magnesium, known to be deficient in alcoholics, and also special supplements such as l-glutamine, which reduces alcohol as well as sugar craving.

A drinking alcoholic derives a large portion of his caloric intake from alcohol, which supplies only calories, no protein, vitamins or minerals. The average alcoholic consumes 120 - 140 grams (4 - 5 ounces) of alcohol per day, supplying about 1200 calories, half or more of the daily requirement. Even if the other half of the diet were excellent, which is unlikely, the alcoholic would not be able to meet protein vitamin and mineral needs.

In addition, alcohol interferes with the absorption of several nutrients, including B1, B12, and folic acid. Over half of alcoholics have intestinal damage, or deficiency of the pancreatic enzymes needed to digest fats, essential fatty acids, fat soluble vitamins A, D, and E, and protein. In addition, liver damage impairs conversion of vitamins to their active forms.

Deficiency of magnesium and B1 may be responsible for hangover symptoms, insomnia, and withdrawal symptoms such as tremors or shakes. Zinc deficiency causes low testosterone levels, with impotence and atrophy of male sex organs. This will often be restored to normal after several months of abstinence, and is a great incentive for some patients. Zinc is also required for conversion of vitamin A to the active form, retinol, in the eye. Night blindness results from deficiency of zinc or vitamin A, both lacking in alcoholics. Night blindness in alcoholics probably contributes to their high rate of highway crashes, since most alcohol-related crashes occur at night, even though there is less traffic. With impaired night vision and delayed adaptation to darkness, a driver is blinded for a much longer time by the headlights of a passing car.

Some of the earliest practical work in treatment of alcoholism with nutrition was done by Doctors Humphrey Osmond and Abram Hoffer in Canada, who had pioneered the treatment of schizophrenia with massive doses of niacin and vitamin C, in the early 1950's. Realizing that alcoholism could produce behavioral and perceptual changes resembling psychosis, they tried the same treatment on alcoholics. Hoffer and Osmond cooperated with Bill W, cofounder of AA, to develop nutritional guidelines to go along with the spiritual guidance and psychological support provided by AA. Vitamins have been donated to AA by manufacturers and have been used for years as part of the treatment of many alcoholics.

A study on massive doses of niacin in treatment of alcoholism was started by Russell Smith in Michigan in1966, on 507 alcoholics. All were previous long-time treatment failures who had been in state mental hospitals, private psychotherapy, legal punitive therapy and AA. They were

treated with 4000 mg or more of niacin daily, along with vitamin C, 500 mg twice a day. Of 57% who could be reached for follow-up at the end of five years, and had continued on the treatment, 42% had excellent results, with total abstinence for two or more years, emotional stability, and normal psychological state. Not a single patient was without some improvement. A total of 83% had excellent or good results. The niacin treatment was most effective in the more seriously ill chronic alcoholics. Niacinamide, another form of the vitamin, had no effect. This may be because niacin is a smaller molecule, more easily absorbed into the brain. Niacin also almost completely eliminated the "dry drunk syndrome", the hyperexcitable, manic episodes and serious potentially suicidal depressions experienced by many alcoholics on the wagon.

The dry drunk syndrome was first described in AA literature in 1962 and attributed to psychological factors. Hoffer and Osmund had noted that niacin treatment alleviated many of its distressing symptoms, such as irritability, aggressiveness, insomnia, fatigue, and nervousness. They attributed it to hypoglycemia, low blood sugar, which is found in most alcoholics. Alexander Schauss, in his book Diet, Crime and Delinquency, reported a 1973 study of 200 alcoholics aged 13 to 82, in which 97% were diagnosed hypoglycemic by a 5 or 6 hour glucose tolerance test. Only 18% of the controls in this study were hypoglycemic.

Recovering alcoholics frequently continue to overload their bodies with other toxic substances such as tobacco, caffeine, and large amounts of sugar. Meals are too often high in refined carbohydrates, fat and salt, and low in protein, fruits and vegetables, and whole grains. This type of diet produces and maintains the low blood sugar condition. The attempt to stave off alcohol craving by drinking coffee loaded with sugar, smoking tobacco, and keeping candy bars stashed for a quick lift, only aggravates the situation.

Both nicotine and caffeine stimulate adrenalin release, which raises blood sugar levels and gives a temporary lift. The body responds by producing excessive insulin which pushes blood sugar down lower that it was before. When blood sugar drops, the brain is deprived of fuel and cannot function normally. The person becomes confused and emotionally unstable. He sweats, trembles, feels faint, and becomes depressed and anxious. He feels a need to drink to supply quick energy. Since alcohol is absorbed directly into the bloodstream without having to be digested, alcoholics have learned that it gives the quickest relief. Although hypoglycemia due to poor diet is one of the factors that can produce alcoholism, excessive alcohol in turn can cause or aggravate hypoglycemia. The damaged fatty liver is unable to store much glycogen to be converted into glucose, and also has impaired ability to convert fat and protein into glucose.

Changing to a wholesome, high protein diet free of sugar and white flour, with supplemental B vitamins and minerals like zinc, manganese and chromium, stabilizes blood sugar and mood swings, and attenuates the desire for excessive caffeine and nicotine as well as alcohol. Adoption of these principles could fit easily into the framework of AA and make their work much easier.

Dr David Hawkins of the North Nassau Mental Health Clinic in Long Island, New York, has treated over 600 alcoholics (as of 1982) with a good diet and nutritional supplements. He used niacin and vitamin C, 4000 mg or more of each per day, B6 50 mg, and vitamin E, 800 units per day. The majority, 71%, showed marked improvement. Most patients were able to recover and function in the community with little or no professional help. Dr Hawkins encountered three recurrent problems among his patients that tended to complicate recovery. One was the use of drugs such as sleeping pills, barbiturates and tranquilizers. Another was hypoglycemia. On a 6 hour glucose tolerance test, many patients reported familiar feelings which they had had in the past and which usually preceded a bout of drinking. Many patients who had been sober for a long time still had periodic depression, tension, anxiety, and desire to drink. These symptoms were eliminated by correcting the low blood sugar.

The third problem which Dr Hawkins found to complicate recovery was the presence of perceptual distortions - misinterpretations of sensory perceptions of taste, smell, hearing, seeing, perception of body parts, and of space and time. These disperceptions were detected by a psychological test, the Hoffer-Osmond diagnostic test, or HOD, first developed by Hoffer and Osmond as a screening test for schizophrenia. A revised version of this test, called the Experimental World Inventory (EWI), is now more commonly used. These perceptual distortions are alleviated by treatment with niacin, B6, and other vitamins.

Another doctor who has successfully treated a great many alcoholics with nutrition is Nathan Brody. Dr Brody specialized in the treatment of alcoholics for 23 years, at the Lakes Region General Hospital in New Hampshire. He tried every approach but had little success until he began using a nutritional approach. Then, he said, "even the so-called failures respond and do better than the therapeutic successes of the past." He treated more than 500 cases a year and was chairman of the State Advisory Council on Alcoholism. Dr Brody's treatment was based on biochemical analysis and treatment with the specific nutrients required for each individual. It was essentially the same treatment that we used at the Princeton Brain Bio Center, based on blood tests for histamine level, vitamins and trace minerals.

Dr Brody treated many alcoholics as outpatients, but severe cases had to be admitted to the hospital to begin treatment with detoxification. After drawing blood for sugar, alcohol level, histamine, and vitamin and mineral levels, patients were started on intravenous vitamin B complex and additional B6. In very sick patients the amounts were doubled. IV vitamins were continued for at least 5 days, and vitamins by mouth were also given three times a day. When lab tests were completed, additional vitamins such as B12 and folic acid were added if necessary. Since 70% of Dr Brody's patients experienced hypoglycemic symptoms, all patients were given a 5 hour glucose tolerance test and put on a hypoglycemic diet.

In most cases, significant improvement was achieved within 24 hours. Librium or Thorazine were briefly prescribed, if necessary, for withdrawal symptoms. Patients were strongly encouraged to join AA, and AA meetings were held in the hospital. After discharge, patients were maintained on vitamins and good diet. Outpatients received the same treatment, without the IV vitamins. Dr Brody died in 1977, after successfully treating thousands of alcoholics. His effective nutritional treatment drew alcoholics from all over the northeast.

The significance of blood histamine level and trace mineral imbalances in treatment of schizophrenics was discovered by Dr Carl Pfeiffer, while he directed the Bureau of Research in Neurology and Psychiatry at the New Jersey Neuropsychiatric Institute in Skillman, NJ. When the Bureau of Research was closed for lack of funds in 1972, Dr Pfeiffer established the Brain Bio Center to continue his research on the biochemistry of schizophrenia and the development of nutritional treatments to correct the biochemical abnormalities. The same principles were applicable to treatment of alcoholism and many other disorders, and were used at the Bio Center to treat all types of mental illness, alcoholism, stress disorders, hyperactivity (ADD), etc. Since the Brain Bio Center was an outpatient clinic with no facilities for detoxification, we accepted only patients who were not currently drinking. We required all alcoholic patients to be active members of AA.

Patients accepted for treatment at the Brain Bio Center were given a battery of biochemical tests for blood histamine level, B12 and folic acid levels, blood tests for liver and kidney function, cholesterol, blood sugar, electrolytes, trace minerals, including copper, zinc, iron, manganese, and magnesium, urinalysis for sugar, protein and kryptopyrrole, and hair analysis for essential and toxic minerals. A complete medical history was taken, and a self-administered psychological test, the EWI, was given to detect disturbances in thought processes, perception, and mood.

The urinalysis included a test for kryptopyrolle or KP (previously called mauve factor or malvaria). An amount greater than 20 mcg% indicates a tendency to lose zinc and vitamin B6 in the urine, causing symptoms such as nervous exhaustion, emotional instability, nausea, and perceptual distortions, aggravated by stress. This condition, known as Pyroluria, responds quickly to zinc and B6 supplementation. Usually 30 mg of zinc twice a day was given, along with "enough B6 to produce normal dream recall." [since the Bio Center closed in the late 1990's, it is difficult to get this test.]

Trace mineral levels were determined in all patients on both blood and hair samples. Almost all alcoholics were found to be deficient in zinc, and those with cirrhosis had the lowest levels. It is probable that zinc deficiency plays a role in the development of cirrhosis. Copper levels were often very high, especially when zinc was deficient. Copper is excitatory and in excess produces overstimulation of the brain, sometimes causing psychotic symptoms or severe depression. High copper is associated with liver damage and cirrhosis. Common sources of excess copper are copper plumbing, from which copper leaches into water standing in the pipes overnight, and commercial multivitamins with minerals. Zinc and copper are antagonistic, so zinc supplements will gradually bring down the copper level.

Copper forms part of the enzyme that destroys histamine, one of the neurotransmitters responsible for communication between brain cells. Excess copper produces a low histamine condition which Dr Pfeiffer named Histapenia. This biochemical abnormality was found in about 50% of the schizophrenic patients treated at the Brain Bio Center. These patients had the common paranoid type of schizophrenia, with hallucinations, delusions, racing thoughts, paranoia and insomnia.

Alcoholics with low histamine are often subject to cyclic periods of depression and anxiety. They tend to be periodic drinkers who get intoxicated on weekends, as the tension of a job becomes unbearable by Friday night, or they indulge in a once a month binge. All patients at the Bio Center were tested for blood histamine level. 40 to 70 ng/ml was considered the normal range. Alcoholics and schizophrenics with low histamine and high copper were found to respond to treatment with niacin, B12 and folic acid. Niacin was given in amounts from 200 mg to 3 grams or more daily. At least 1 mg and up to 10 mg of folic acid was required. B12 was usually given by injection of 1 mg weekly. These patients also required zinc and manganese to lower the copper level and help build up histamine in the brain.

Dr Pfeiffer's research found that people with the opposite problem, an excess of histamine (Histadelia), were the most prone to alcoholism. Histadelics have a high energy level, and tend to be Type A personalities, hard-driving, compulsive workaholics, with a tendency to depression, sometimes suicidal, and phobias. They have a high tolerance for alcohol and other drugs, and often find that prescription medications don't work unless prescribed in higher than normal amounts. They metabolize drugs and food rapidly and are sometimes compulsive eaters, but they usually accumulate little body fat, due to their fast metabolism.

A preliminary study of characteristics of high and low histamine people was done by Dr Oscar Kruesi of Morristown, New Jersey. 91 low histamine and 97 high histamine people were surveyed. 14% of low histamine and 28% of high histamine people reported having at least one drink a day. Only 2% of low histamine, but 10% of high histamine people were alcoholic. According to Dr Kruesi's survey, high histamine people required less sleep, had a higher sex drive, and were at least twice as high as low histamine people in incidence of allergies, asthma, duodenal ulcers, hypertension, and tension headaches, and 7 times as high in incidence of migraine.

When high histamine people become alcoholic, they are usually hard-core, steady drinkers who seem to hold their liquor well and put away large amounts every day. Histadelia, like allergies, runs in families and may be associated not only with alcohol, but also abuse of other drugs. These people may be self-medicating with alcohol and drugs in an attempt to relieve their chronic depression. Some people subject to depression may have a lower than normal level of endorphin, a natural pain and anxiety-relieving brain chemical similar in structure to morphine. Such people would be easily addicted since drugs or alcohol make them feel more normal.

Dr Pfeiffer speculated that the brilliant American playwright Eugene O'Neill may have been Histadelic. His illness was apparently hereditary. His immediate family tree, from both his paternal and maternal grandparents to his two sons, suffered from drug or alcohol addiction, severe depression, and in two cases, suicide. His mother was a morphine addict for 25 years, beginning at Eugene's birth, when it was prescribed for a very difficult delivery. One of O'Neill's sons became alcoholic and committed suicide. The other was a narcotic addict.

O'Neill harbored a compulsive personality, guilt feelings, and phobias of thunderstorms and crowds. He was preoccupied with a constant fear of insanity, endured deep and prolonged periods of depression, and had a volcanic inner tension. His suicidal tendencies were manifested by his self-destructive hard-core drinking and a single suicide attempt. A biographer described his long, narrow fingers, a physical characteristic of histadelics. (Dr Pfeiffer believed this was an adaptation to dissipate the excess heat of fast oxidation.) At the age of 37, after his brother Jamie died of alcoholism, Eugene suddenly stopped drinking after a brief course of psychotherapy. But the depression (as portrayed in his tragedies) persisted until his death.

Histadelia can be diagnosed by a high blood histamine level or a high basophil count, and a careful metabolic history. Dr Pfeiffer discovered how to lower high histamine with calcium and the amino acid methionine in amounts of 500 mg of each twice a day. In difficult cases the antiepileptic medication phenytoin (Dilantin) was used to bring the histamine down. Folic acid raises histamine so excessive amounts need to be avoided. Zinc and manganese are often needed also.

Another metabolic disorder that can be associated with alcoholism is cerebral allergy, an allergy to certain foods that affects the brain rather than causing the usual sneezing, wheezing, or rashes. One interesting case was a 27 year old unmarried female school teacher who came to us with a history of several hospitalizations for alcoholism. She had joined AA after her second hospitalization, but a few months later she was still fighting hard to avoid her favorite alcoholic drinks. Her histamine and copper were normal. She was not hypoglycemic. She was slightly pyroluric, which was corrected with 250 mg of B6 per day and a zinc supplement morning and night.

She was not aware of having any allergies, but craving a certain food or having a favorite food that is eaten very frequently, (in her case alcohol), is often an indication of an allergy to that food. Skin testing for allergies was done and she was found to be allergic to wheat, yeast, malt and rye, all common ingredients of alcoholic beverages. She did well on a twice weekly neutralizing injection for these foods, and the craving for alcohol soon diminished to a tolerable level.

Suppers for Sobriety does not make specific nutrient recommendations. We do, however, supply articles and links to information prepared by medical professionals whose work includes the body in the recovery equation.