

# A Consideration of Niacin as an Inhibitor of the Predator Response

John P. Cleary, M.D.<sup>1</sup>

## Early Dietary Evolution

Looking at the dietary evolution in human cultures, humans have always fought and tried to kill their competitors for food resources. The Dugum Dani people warred in a ritualized manner, each tribe taking turns killing a member of the neighboring tribe. When anyone was killed from the arrows and spears being launched, the battle for that area was acknowledged as over, until a return attack from the enemy took place at a time chosen by them to resume the battle. The borders of those particular tribes were not firm, it was a continual issue of territory and access to the food available. The battle to maintain a preferential resource, such as a natural rice paddy or water source, is well understood. Monkey groups go to the edge of their defended habitat to scream and gesture, establishing daily that their group is in control of the area. Human establishment of firm "habitat" borders resolved some of that problem, but with the transition to agriculture and the loss of big game hunting, niacin became critically important in the diet of humans. With human metabolism able to digest large quantities of meat alone, (perhaps the human body washed out the excess niacin), the new diet of vegetables and grains caused a niacin deficiency, (as the human body perhaps continued to wash out niacin). Meat contains ten times as much niacin as fruits, vegetables and grains.<sup>1,2</sup> Most animals do not require niacin in the diet since they are able to make it from the amino acid tryptophan. But humans and other predatory animals like dogs and cats no longer are able to effectively convert tryptophan to niacin and thus are almost totally depend-

ent on meat from prey to provide them with this essential substance.

## Introduction of Niacin

Conrad Elvehjem isolated the water-soluble compound niacin from meat that was shown to prevent and cure black-tongue disease in dogs.<sup>3</sup> Black-tongue is the equivalent of pellagra in humans. Dogs were used as test subjects to explore the requirement for this water-soluble compound in meat by creating a deficiency state with a diet of corn. It took about 60 days on the corn diet for dogs to become ill. If not given the water-soluble substance or meat at this time the dogs would become very sick and die. Niacin was then available as a pure chemical from Eastman Kodak and dogs on the corn diet could be kept alive with supplements of this pure chemical.

Doctor Thomas Spies tried the vitamin on humans suffering from pellagra immediately after Elvehjem discovered it cured the dogs and solved a major health problem.<sup>4</sup> In the rural Southern United States every winter and spring poor people who had a diet mostly of corn suffered from pellagra, while in the North, pellagra was a disease found almost exclusively in chronic alcoholics. In both situations, psychosis is present at the terminal phase. This was an early indication that the Nicotinamide Adenine Dinucleotide (NAD) level is a factor in brain function and psychiatric well being. Spies used the pure niacin in doses of 500 mg per day to cure pellagra in both groups. He was named man of the year by *Time Magazine* in 1938.

Niacin, or vitamin B<sub>3</sub>, was added to enriched wheat flour and cases of pellagra declined and medical research went on to solve new problems brought on by World War II. Vitamin research became less in-

1. 4526 Rocky Dell Rd., Cross Plains, WI 53528

teresting as war surgery and the need for antibiotics came to the fore.

### Niacin Therapy for Addiction

The linkage of niacin deficiency and drug addiction would be found again later and was first reported in the *Minerva Medica*, an Italian medical journal, in 1948 by Professor Otenello.<sup>5</sup> He published his discovery that he could painlessly detox morphine addiction with injections of the vitamins niacin and thiamine, while most experts in the addiction field used a program of gradual reduction of the addicting substance over time to detox addicts. The use of a vitamin therapy alone was a radical new idea. How could a vitamin therapy do the job better and in much less time? Could vitamin treatments work on other forms of addiction? The answers to these questions would come later to a number of independent researchers and the tie between addiction, niacin, and the human predatory response would also come into focus.

In Canada, Abram Hoffer and his associates were using niacin and vitamin C in large doses to treat schizophrenia.<sup>6</sup> They found that alcoholic schizophrenics were able to quit drinking on the vitamin treatment. The doctors went on to publish the first double blind study of treatment outcomes in the *American Journal of Psychiatry*. As a result of this report at least three other groups went on to study and publish niacin therapy on addictions. The first was Russell Smith who treated 500 alcohol addicted Catholic Priests for a five-year period and found 50 to 60% had good results.<sup>7</sup>

Bill W., cofounder of Alcoholics Anonymous, tried the niacin therapy as a means of overcoming his craving for alcohol and found it cured him of this life-long problem. Bill W. had not had a drink of alcohol for many years and yet had a craving that never went away until he took niacin. His discovery did not find good reception at AA since it did not fit the 12-step dogma that had been established. In the 1960s, he pub-

lished, at his own expense, three letters to AA physicians on the use of niacin to relieve alcohol addiction. Early editions of the AA handbook had a copy of this letter, but in later editions it was removed. Bill W. was unable to make the cure for alcohol addiction known to the general public.

Some addiction experts used niacin in the detox and recovery programs for alcoholics. A nurse that worked in an HMO with me came back from one such clinic and told me of how niacin had helped so much in her recovery. Later, I was temporary Medical Director of a county detox center and was very much in need of some way to effectively treat the 20 to 30 chronic alcoholics we saw daily. My tour of duty lasted only three months and at that time I was just becoming aware of the niacin treatment, but had not begun my research on the subject. Before I left my duty as medical director, the county board members wanted to know what I felt should be done to improve the program. I said we needed to keep them longer than the five day limit to prevent the immediate relapses that we saw. This was not what the board wanted to hear and the long term contract went to a mental health clinic. I had tried niacin in only a few patients from the detox center and, at the time, I saw no benefit since it takes three to four weeks to see the results, while the patients could only stay five days or less.

In 1980, I was treating a 60-year old man for hyperlipidemia with niacin 500 mg daily and he came back after one month and said he felt much better and had stopped drinking three or four pitchers of beer every night to get to sleep. A pilot study of 12 patients was done with 11 out of 12 getting off alcohol painlessly in three or four weeks on 500 mg daily. A drug addict was treated with similar results; she carried the 250 mg time release nicotinic acid capsules around with her in her pocket and took one whenever the craving for drugs bothered her.

### The NAD DRIP

Dr. Paul O'Holleran of Shick-Shadell Hospital, Seattle, Washington used an intravenous drip of the co-enzyme NAD to detox painlessly over 11,000 alcohol addicts and over 100 drug addicts of all kinds except nicotine.<sup>8</sup> His publication title used the term DPN, the earlier term for what we now call NAD. The title caused his publication to go unnoticed among the younger new physicians. NAD is made in the body from the essential vitamin, niacin. It took three or four days with the NAD treatment given by slow IV drip in doses of one gram or less per day to achieve a cure. The problem was that relapses were common and many addicts had to return to the hospital. O'Holleran did realize his patients would need a lifetime extra daily source of NAD. Attempts to develop an oral NAD daily tablet were not successful at that time.

### Addiction and Predatory Behaviour

C.D. Richards had done work on the NAD receptors located in the rat brain.<sup>9</sup> He found that the hippocampus area of the rat brain had more NAD binding sites than other areas and he went on to study synaptic transmission of the nerve impulse in live slices of rat hippocampus. He found that NAD 5  $\mu\text{M}$  concentration in the incubation media would block nerve transduction completely. Washing the NAD out of the media restored the nerve transduction. NAD was acting as a neural modulator in the rat brain. This could be how NAD was inhibiting predatory behaviour and addiction in human subjects that I had observed in the clinical setting. The hypothesis is that NAD receptors located in the brain are involved in the niacin effect seen in addicts and the predator response. More information about these receptors would be helpful in understanding how this works.

I began to see a potential linkage between addiction and predatory behavior. Animal predatory behavior involves killing the prey without remorse and so it is this

behavior that makes war possible. In animals the level of predation is very high when they are hungry. They seek meat and the niacin in meat. After the kill and the consumption of the meat containing niacin, the animal builds a higher level of NAD in its brain tissue. NAD binds on the receptor sites. In humans, the receptor sites will also bind the chemicals made from addicting drugs. Covering these receptor sites by either types of chemicals, drugs or NAD, will inhibit predatory behavior and cause the predatory behavior to decrease. The niacin effect seen in the treatment of drug addiction seems to be the same as in predatory animals after the digestion of meat, with the increase in NAD levels. Humans appear to respond the same, going from a predatory stage to relaxation after niacin intake. Niacin is seen here, then, as an anti-predatory substance, since addicts are often people with a heightened predator response mechanism, making them great hunters, but hard to fit into modern life. We could assume that since they may not have enough NAD, they are using addicting drugs to cut down on their potentially harmful predatory feelings as well as to remove the nervous discomfort of low NAD levels. In order for NAD to regulate the predator response the brain levels must vary, therefore a mechanism to rid the brain of excess NAD would be present in predators and not in nonpredatory animals. For a biologic control mechanism to regulate brain function there must be a way to allow activation and deactivation of predatory behavior in the animal or human or they would become dormant like a snake after eating a large meal. Drugs and alcohol can suppress the predatory behavior by binding to the NAD receptors in the brain, but this can lead to addiction. The addiction-prone group, with perhaps different metabolism, finds relief from the addiction when given niacin 500 mg daily, (250 mg morning and evening) for 3 to 4 weeks to raise the brain NAD levels or if NAD is given

by slow IV drip in doses of up to one gram daily relief is seen in 3 or 4 days. Subsequently, 250 mg niacin daily is needed for the duration of the patient's life. Now we also have oral NAD tablets available by Alkogen Company in South Africa that will allow long term therapy for addicts and prevent relapses. Theo Verwey and his clinic physicians have published an e-Book on the use of NAD, and have treated over 3,000 patients at their clinic in Pretoria, South Africa.<sup>10</sup> They are treating addictions and energy deficiency diseases with a stabilized form of oral NAD. Will the use of brain NAD enhancing treatments be used to avoid violence and war also?

### Nutrition and Peace

Better nutrition may be the way toward real peace. The first step to recovery is for us all to see the predator that is within us. We really are the problem. War is the outgrowth of the hunter-gatherer lifestyle that requires keeping the adjacent tribes out of your hunting territory. Low niacin in the diet due to limited meat consumption in the population would activate predatory behavior in those individuals inclined to war and result in war. In our present situation we have constructed a separation of general leadership and war leadership. The military men tend to be more predatory than the general population and more likely to suffer from drug and alcohol excess and even addiction. The problem modern men face is that of excluding the predatory men from making decisions that lead to war. The safe guards in our government are designed to prevent the rush to war that predatory men i.e. "the military types," may try to provoke. We try to exclude persons with the history of addiction or abuse of alcohol and/or drugs from holding positions of leadership in matters of war, but at times they are able to slip past the safeguards and then war may result in spite of public opposition. Often we have only to look to other mem-

bers of the family to see the addiction tendency that runs in the candidate's family.

The potential of NAD and niacin therapy to treat diseases is now going forward in South Africa. Theo Verwey and his group of clinicians are now the future of this movement to reform medical therapeutics. It is the concept of NAD as a medicine, which must not be ignored; the needed research must be allowed, encouraged, the results evaluated, acknowledged, and passed on to the young physicians of today.

### References

1. Cleary JP: Etiology and Biological Treatment of Alcohol Addiction. *J Neuro Ortho Med Surg*, 1985; 6: 75-77.
2. Cleary JP: The NAD deficiency diseases. *J Orthomol Med*, 1986; 3: 49-53.
3. Elvehjem C: Letter to the Editor. *J Amer Chem Soc*, Sept 1937.
4. Spies T D, Bean WB: The role of nicotinic acid in the prevention of pellagra, roentgen sickness and increased porphyrinuria. *J Clin Invest*, 1938; 17.
5. Ottenello P: Il Complesso aneurina-vitamina PP nella cura del morfinismo e di altre intossicazioni voluttuarie. *Minerva Medica*. 1948 in Italian (The use of thiamine and niacin in the detoxification of morphine addiction).
6. Hoffer A, Osmond H, Smythies J: Schizophrenia: A new approach II. results of a years research. *J Ment Sci*, 1954;100: 29-45.
7. Smith RF: Status report concerning the use of megadose nicotinic acid in alcoholics. *Orthomol Psych*. 1978; 7:1.
8. O'Holleran P: DPN in the Prevention, diagnosis and treatment of problem drinkers. *West J Surg Ob Gyn*, 1961; 69: 101-104.
9. Richards CD: Nicotinamide Adenine Dinucleotide Depresses Synaptic Transmission in the Hippocampus and Has Specific Binding Sites on the Synaptic Membranes. *Br J Pharmacol*, 1983; 79.
10. Verwey T: Alkogen E-Book published on the internet in 2003, available free. e-mail: [alkogen@global.co.za](mailto:alkogen@global.co.za)