South African Medical Journal : Suid-Afrikaanse Tydskrif vir Geneeskunde

Kaapstad, 11 Julie 1959 Deel 33 No 28 Volume 33 Cape Town, 11 July 1959

A NEW APPROACH TO THE TREATMENT OF DRUG ADDICTION

ARTHUR TREVENNING HARRIS, M.B., CH.B. (EDIN.), *Medical Inspector, Union Health Department, Durban*

Some 3 years ago I was medically treating two friends in Los Angeles, California. Miss Marcia Malsman, B.Sc., a biochemist, was suffering from petit mal and asthenia. Mr. Charles Wylie, LL.B., was a lifelong asthmatic, also with asthenia. Both these patients were treated with intramuscular injections of ethylene disulphonate (ED),* a catalyst and hydrogen carrier, in the high dilution of $1/10^{15}$. The biochemist's petit mal, but not her general debility, vanished. The lawyer's asthma left him, yet he was left with his low threshold of energy-reserve. Because of their major conditions—the petit mal and the asthma—both had become inured to various barbiturates, until they were unable to exist without them.

One day Miss Malsman suggested that, with another series of ED, they should both be given simultaneous injections of adenosine triphosphate (ATP),† a double dose thrice weekly for 1 week. Miss Malsman and Mr. Wylie had deduced biochemically that the combination of this phosphorylating agent with the catalyst and hydrogen carrier would double or even quadruple the advantage of either preparation administered singly.

Instead of their theory proving an over-estimation, it proved, rather, to be an under-estimation. Both patients made phenomenal recoveries, not only from the attendant asthenia, but also from their barbiturate addiction. Miss Malsman, who because of her petit mal had lost her driver's licence, regained that privilege; Wiley, who had ever feared draughts and cold water because of the asthma and sheer fatigue they would leave, took up aqualung deep-sea diving. Both regained an adequate amount of weight in muscle as well as adipose tissue and, with this, strength and endurance.

These two thinkers deduced that, if drug addicts were given a daily injection of the catalyst and hydrogen carrier with the phosphorylating agent, their craving or 'disease' for drugs—not only the minor barbiturates, but also the major morphine and its derivatives, cocaine and other 'caines', even alcohol—would be drowned out without the accompanying agonizing withdrawal symptoms.

They assumed that narcotic alkaloids, by interfering with the metabolism of the nervous system, suppressed nervous response, and that such suppression created the severe reactions when these alkaloids were withdrawn. It was, they deduced, these alkaloids that upset the patient's carbohydrate metabolism—the main source of energy for brain and nervous tissue. Improve the carbohydrate metabolism artificially, and the addict would be spared the grave nervous reactions and agony of drug withdrawal. This would give him a 'spare lifeline', as it were, until the natural one could undergo permanent repair. Brain and nervous tissue would thus be artificially bolstered, and so negate the action of the drug in usurping the natural function of the bodily enzymes whose function was sugar metabolism.

Malsman and Wylie related their theory to Mr. Edward H. Spicer,* who in turn unfolded it to Stuart C. Knox, M.D., Associate Clinical Professor of Psychiatry at the College of Medical Evangelists in Los Angeles. Professor Knox agreed to give the double injection of catalyst and phosphorylating agent a clinical test on one or two of his more stubborn major-drug addicts—patients who were being observed and treated under hospital supervision. Within a very short time, he increased the group under ED-ATP therapy to 15. In his first published paper[1] on this preliminary investigation, Knox wrote: 'Clinical responses to a line of therapy based on a new concept of the chemical mechanisms of addiction have been so positive and dramatic as to warrant dissemination even of early results'.

One to two doses of ED-ATP were administered to these addicts daily, in very severe cases as frequently as every 6 hours. As little as 1, as many as 15, double injections were required to build anew the enzyme balance in the addict.

An injection of ED-ATP acted upon the addict as if he had had a 'stick' of the drug to which he had become addicted—except that there was no later period of depression. Withdrawal symptoms—sniffling, severe cramps, diarrhoea etc.—were immediately relieved for as long as 24 hours. With total abstinence from the drug, this enzyme therapy was shown to have a cumulative beneficial effect: in a week, all patients showed a definite physical and mental improvement, an improvement which was maintained even after the cessation of the ED-ATP injections.

Though no cases of tissue reaction to ED-ATP have been recorded, yet both chemicals give a very painful local reaction that lasts for upwards of 5 minutes. (I have used ED in the successful treatment of all allergies, including paroxysmal tachycardia and ideopathic epilepsy, since September 1943.)

In January 1957, after a conference with Professor Knox, I received a supply of adenosine triphosphate. This new line of therapy was used on 3 patients, 2 of barbiturate addiction and 1 of chronic alcoholism. The barbiturate addicts overcame their need for the drug of their choice within 1 week. The alcoholic, it was found, showed a blank and almost negative response to the therapy for as long as 1 month. Then, almost suddenly, the craving vanished, leaving the patient invigorated and exhilarated. (Professor Knox confirmed this 'delayed reaction' phenomenon of this therapy in the alcoholic.)

* Spicer-Gerhart Company, 8350 Foothill Blvd., Sunland, California.

† Aqueous MY-B-DEN No. 8637, Ames Company Inc., Elkhart, Indiana.

* President of Spicer-Gerhart Company.

CASE RECORDS

Case 1

A man aged 37, motion picture actor, had been addicted to both the barbiturates and alcohol for over 10 years. Through illicit channels, he would clandestinely obtain bottles of 100 1·5 g. capsules of seconal or nembutal. Without troubling to count, he would shake a number (as many as 12, his wife said) into his palm, and swallow them with a 'chaser' of raw liquor. (On one occasion in 1955 he accidentally took a second handful an hour after the first, and was discovered in a comatose state. Only the quick intravenous administration of picrotoxin saved his life.) In this abnormal manner he believed that he was enabled to 'settle his nerves', so that he could obtain sleep. The next day he would be so doped that he would have to imbibe more liquor to pull himself together for his work at the studio. That night the process would be repeated, with larger doses of drug and alcohol over the week-end.

His wife sought aid for him when he was preparing to rehearse for a major lead in an important television show. ED and ATP were administered daily for 5 days. On the 6th day he was offered a bottle of seconal capsules. He glanced at them, tossed them aside, and asked, rather for another of 'those dynamite shots' instead. One week later his TV programme was an outstanding success. He has not needed either barbiturates or alcohol since that time. Apparently, in this case the alcohol addiction was a subsidiary need or adjuvant to accelerate the effect of the barbiturate, for that need died with the craving for the barbiturate.

Case 2

A woman aged 48 had moved from one position to another, losing each job when she absented herself on an alcoholic bout that lasted from 5 days to a week. Every week or two she would appear for treatment—a lacerated lip, a contused eyelid, a bruised and cut arm. Each time she would allege that her husband had maltreated her, and these statements were believed until her son-in-law assured us that she had fallen and injured herself in an alcoholic stupor.

Under pressure from her daughter, she submitted to ED-ATP therapy. A deep intramuscular injection of each preparation was administered daily for 5 days. The following week her behaviour was exemplary. Unhappily, during the second week she succumbed to a return of the craving. Instead, however, of continuing the bout, she pulled herself abruptly together after only a single night's dissipation. Yet it was not until a full month had elapsed from the first injection that she completely lost her need for the stimulus of alcohol upon her temporarily destroyed sugar-metabolism system. After that time, though, her conduct became exemplary.

Apparently, the carbohydrate balance in brain and nervous system had slowly regenerated—in spite of the one act of dissipation—as the normal enzymes began to be manufactured to replace the emzyme-like action of alcohol toxoids.

SUMMARY

1. A new thesis of the cause of drug addiction is outlined, together with a biochemically rational theory for the treatment of addiction.

2. Two chemical preparations—ethylene disulphonate (ED) and adenosine triphosphate (ATP)—are introduced. The former is a catalyst and hydrogen carrier, the latter a phosphorylating agent.

3. These two preparations, used simultaneously, have a very decided effect in facilitating the resumption of carbohydrate oxidation, a function which is, apparently, taken over by the drug itself, an assumed function which has rendered the drug indispensable to the patient's metabolism of sugar.

4. The preliminary record of response of ED-ATP therapy in drug addiction is evaluated at the clinical level, with most encouraging results in all cases treated to date.

REFERENCE

1. Knox, S. C. (1958): Gen. Pract. Clin., **21**, 2.