SOME THOUGHTS ON THE THEORIES AND TREATMENT OF DRUG ADDICTION

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The drug addict has in the past been a much misunderstood individual. He has excited a great deal of attention on the part of well-meaning people bent on saving him or saving the world from him. As a result much has been done for and to him that is socially and medically wrong. Misguided efforts have not been confined solely to medically untrained uplifters and sadistic reformers. Physicians have had a share in it. The addict has been regarded as a shiftless liar, capable of any crime, and he has been treated either as an outcast or with too much pampering by sympathetic relatives and his real needs have been neglected by society.

Much of what has been said about addicts is true, however, especially as it applies to those of the present day. He is as a rule unreliable, and he will lie in order to get drugs or the wherewithal to buy them. He will often steal or commit other crimes for this purpose, but to picture him as always useless and to infer that when he is useless and unreliable some strange effect of the drug he takes is solely responsible is an error. Drug addiction is compatible with honesty and usefulness, but at the present time the user of nar-

cotics is more than likely to be an unreliable citizen, devoting most of his time to securing an illegal supply of drugs. There was a time in this country when many normal people became addicts through unwise medical prescribing of opiates by physicians, or through self-medication. The condition that allowed this practice has been corrected by laws and regulations, so that at present persons with normal nervous constitutions seldom become addicts, or remain addicts for any appreciable length of time. Addicts are therefore recruited from among unstable groups who have certain deficiencies that impel them to do things, including the taking of narcotics, that are not socially approved. The environment that is inseparable from addiction of the present day tends to increase delinquencies, but the direct effect of the narcotics, except in the case of marihuana and cocaine, is not to produce delinquency.

Opium is the most important addicting drug. It is the only drug that has the property of producing a high degree of tolerance along with a necessity for continued use of it in order to maintain comfort. It has made slaves of thousands of people, and it may make a physical slave of anyone. For this reason it is the most dreaded of all drugs; in fact, it is the only one of which physicians need have any special fear. The chronic user of opium or any of its various addicting preparations does not do as much harm to his physical and mental well-being as the chronic user of cocaine or marihuana, but addiction to opiates is in the aggregate much more harmful, be-

cause more people are likely to acquire it and it is so much more likely to become chronic. Opium more than any other drug satisfies a fundamental human urge for peace and calm, and it does this without causing any irresponsible type of intoxication, such as is brought about in so many people by the use of alcohol or marihuana. It is for this reason that the drug is so dangerous, and it is largely because such a type of reaction appeals so strongly to nervously unstable people that opium addiction is so difficult to cure. Physical dependence, however, adds a great deal to the problem, and the physical dependence as expressed by the intense withdrawal symptoms is such a striking thing that more attention has been paid to it. As a result, a large number of treatments directed towards relief for or cure of the withdrawal symptoms have been invented. It has been claimed for a number of these treatments that they are specific, both for the dependence factor and for the psychological factors that were sometimes recognised by the inventors of these treatments.

The specific treatments have been based on erroneous theories of tolerance and dependence. It naturally follows that most of these treatments are useless. Some of them are positively harmful and dangerous, but all of those which provide for the withdrawal of the opium are effective, provided that in the course of treatment nothing is done that kills the patient. This is an accident which has happened a number of times, either because of sure cure poisons given the patient or because of the combined effect of these poisons and the depressing physical effects of withdrawal.

There are several reasons for the invention of so many useless treatments that were supposed to solve the problem. First among these is that any patient from whom the morphine is withdrawn rapidly gets well regardless of what else is done for him, provided he survives the treatment. Another reason is that drug addicts who have strong habits react in different degrees to the effects of withdrawal. Some suffer much and complain very little, while other suffer little and complain very much. Possibly the most important reason for error at the present time is that only about 20 per cent of addicts who present themselves for treatment have strong physical habits. They naturally are easily cured, and too often the treatment is given credit for what nature has done.

Among treatments that have been widely used are various types of belladonna treatment, of lipoid treatments, treatments based on theories of immunity, and the insulin treatment. Several of the belladonna treatments and one of the lipoid treatments, namely narcosan, which treatment is also based on the idea of immune therapy, are harmful. The belladonna treatments have been the most widely used, and it speaks much for human endurance that patients taking some of these treatments survive, and even get well. The gist of these treatments is to take the drug away from the patient within about 36 hours, make him delirious with some belladonna preparation, give drastic purgation for several days, and supplement these measures with numerous other drugs, such as strychnine, pilocarpine,

chloral, and other sedatives, as well as heart stimulants, which were often necessary to protect the patient from the effect of the other drugs. The belladonna delirium, by making the patient more or less irresponsible and helpless, does tend to keep under treatment patients who might otherwise discontinue it. This is the only virtue of it, but this reason has never been given by any of the proponents of belladonna treatments.

This group of drugs is said to have some sort of specific action in relieving the withdrawal symptoms, but in controlled experiments it has been found that the patients receiving no treatment at all suffer less and get along much better than patients who take hyoscine or other belladonna preparations in the large doses that are advised. The purgation incident to this treatment was supposed to eliminate toxins that were said to be responsible for the withdrawal symptoms. It is now definitely known that the withdrawal symptoms are not due to a toxemia, and it is also known that the purgation only adds to the dehydrating effect caused by the vomiting and purgation that take place in practically every patient from whom opium is withdrawn, regardless of whether or not he is purged. As much as one grain of strychnine has been given in the course of eight hours to patients in withdrawal, in spite of the fact that what the patient is chiefly suffering from during this period is extreme hypersensitiveness. Pilocarpine, a drug which causes sweating and outpouring of other secretions, is also given for its detoxicating effect, and with the same result as purgation, namely, collapse, and in some cases death, due to increased disturbance of already disturbed functions.

It has been claimed for some of the belladonna treatments, for the narcosan treatment, and several others, that they not only relieve the symptoms, but that they permanently obliterate the craving for narcotics and create a disgust for them. These claims have all been disproven. They are cited merely to illustrate the uncertainties of deductions made from uncontrolled observations.

Two more specific treatments will be cited. (1) The autogenous serum (blister treatment) has been given to thousands of cases. It is based on the theory that an antibody that is present in high concentration in the skin will neutralize a toxin that has been stimulated through the giving of morphine, and which in the addict is neutralized by the morphine. A blister is made on the skin and injections of the serum from this blister are made at intervals of four days, while the morphine is being gradually withdrawn. This is the least harmful of all the specific treatments, in fact, the blister does very little harm and it may in some cases have a favorable psychological effect by directing the patient's attention towards an irritant that is supposed to be doing him some good. Under controlled experiments made by substituting in the control series of patients, without their knowledge, injections of normal salt solution instead of the serum it was found that the control cases suffered slightly less than the serum cases, but both series of cases were irritated by the blister.

(2) Sakel's insulin treatment for drug addiction is especially interesting, in view of the apparent benefit of insulin in

the treatment of certain mental conditions. Sakel invented his insulin treatment for morphinism before he tried insulin in schizophrenia. He thought that he got excellent results, but he did not make extravagant claims for the treatment, such as have been made for other specific treatments. Sakel invented an ingenious theory to explain morphinism and the supposed beneficial effects of insulin upon it. His theory is simply this. The cells normally have a receptor to which a sensitizing hormone, epinephrine, attaches itself to cause normal sensation. When morphine is injected into the body it attaches to the receptor, displacing the hormone, thereby decreasing sensation and producing a sense of euphoria. The morphine, however, causes the development of other receptors. When morphine is withdrawn the hormone, epinephrine, attaches to the increased number of receptors, causing increased sensitivity and the withdrawal symptoms. When insulin is injected it displaces the hormone from the receptors, bringing about a normal state of feeling again. Sakel thought that during the withdrawal period the patients had hypoglycemia, and he naturally had to work that into his theory. His explanation was that epinephrine, instead of tending to its normal metabolic functions, one of which is to cause the outpouring of sugar into the blood, was busy stimulating the cells through the medium of these increased receptors. Sakel's theory must be in part wrong, because, of thousands of patients tested at Lexington none had hypoglycemia as he states they should have, and all had a very definite hyperglycemia during the withdrawal period. The insulin treatment also

falls down when used along with controls, but it must be said for it that it does not harm the patient, as so many other treatments do. The insulin is not given, however, to the extent of shock, as in schizophrenia. If it were given to this extent it would certainly cause some deaths in drug addicts. The insulin treatment of morphinism and the theory back of it has nothing whatever to do with the treatment of schizophrenia. Insulin may be a valuable remedy for schizophrenia, but I will offer nothing here concerning this treatment.

The withdrawal symptoms of morphinism have been explained as due to an anaphylactic shock, the theory being that morphine, when injected, produces an antigen which causes development of antibodies that on the withdrawal of morphine produce shock. The widely advertised drug, "Nossium," was said to counteract this shock in a specific way. The fact of the matter is that the withdrawal symptoms of morphinism have no relation whatever to anaphylactic shock. In order to prove his theory the author of this treatment, a chemist, claimed that the symptoms of morphinism suddenly started up about the 20th day, and that if after once being cured an addict was given several years later a minute amount of morphine, he would develop all the withdrawal symptoms again from this one dose, provided the morphine was not continued. These two statements have been abundantly disproved, and the wonder is that anyone in any way acquainted with morphinism or anaphylaxis should ever have accepted them, but they

were accepted and "Roesium" for a time was widely used. Under controlled experiments this drug has been proved to be entirely useless, and also quite harmless. The treatment is cited merely to illustrate that addicts will get over the withdrawal period regardless of what is done or not done, and that most any treatment may be thought to be effective if administered by inexperienced people without controls to check its value.

It has been thought by some people, even physicians, to be a sin to give morphine to addicts even in treatment, and this biased idea has led to a number of deaths. Nevertheless, many of the patients who have been subjected to abrupt withdrawal of morphine would doubtless have died if they had been given the benefit of some of the scientific treatments mentioned above. Abrupt withdrawal of morphine without drug medication has been used in prisons extensively and effectively, but it causes unnecessary suffering and is dangerous to persons with strong habits or weak hearts. This treatment can, however, be successfully used in healthy young persons who have only weak habits, but it should always be supplemented by some supportive measures. It has been found by experimental work at Lexington that one dose of morphine given after forty-eight hours of abstinence causes a marked decrease in the withdrawal symptoms, which is maintained to the end of the treatment even if no more morphine is given. We have also concluded that no physically healthy patient who gets as much as three grains of morphine spread over the first four days of the withdrawal period will collapse.

In our experience the treatment that gives the best effect with the least danger is a rapid withdrawal in from four to ten days, the morphine being supplemented in some cases by the use of codeine, in doses of as much as four grains per day towards the end. One thousand c.c. of five per cent intravenous glucose three times per day prevents dehydration, reduces the weight loss, and eases the sense of restlessness for about two hours after each injection. Fifteen to thirty grains of bromide four times daily for the first three days also reduces restlessness, but bromides must be carefully watched and never continued beyond the fourth day. A hypnotic before bed time is always desirable, and paraldehyde, from ten to 20 c.c. in oil by rectum, is one of the most effective and least harmful. Diarrhoea is controlled by bismith subcarbonate in five-grain doses. The patient is allowed to get out of bed and walk around whenever he cares to. Under this treatment recovery from the symptoms is rapid, in fact, the physical symptoms remaining four days after the last dose of morphine are very slight, and the patient begins to gain weight. Doubtless there are other treatments that would be effective in morphine withdrawal, but there is none that will eliminate all of the distressing symptoms during the withdrawal period.

A prolonged withdrawal for a period of forty days has been tried. In this treatment there is practically no suffering, but the patients are restless during the entire period and some of them, seeing other patients more strenuously treated quickly get well, have asked to have the treatment terminated by a more rapid withdrawal so

that they might be quickly relieved. In sanitariums it is, of course, necessary to temporise more with patients than in public institutions where they can be controlled, but even here the withdrawal that is prolonged is likely to be ineffective because the patient is likely eventually to get tired of the treatment and discontinue it.

The withdrawal treatment is, as has been stated, not the most important element of treatment insofar as permanent cure is concerned. Addicts relapse with distressing frequency. Some relapse because they discontinue treatment immediately after the withdrawal treatment and before all of the body functions have fully readjusted themselves to abstinence. Experiments made at Lexington indicate that some physical functions have not returned entirely to normal after as much as four months, even though the patient apparently is not suffering. More important than this as a cause of relapse is the innate disposition of the patient which impelled him in the first place to adjust to life by blotting out his inadequacies through the use of narcotics. This use is a protective mechanism which for the time being is effective, but which always fails in the long run.

The average psychopathic or neurotic addict normally feels inferior, discontented, and restless. Morphine at first causes this triad to be replaced by feelings of confidence, contentment, and ease. The change is so striking in psychopathic patients that it is interpreted by them as genuine pleasure and they are impelled to continue with the drug in order to maintain the relief that it gives. But I

will not here attempt to explain what type of analysis or psychotherapy should be attempted to rid the patient of the inherent inadequacies that make narcotics so attractive to him.

There is developed, however, along with physical dependence, a psychic habit connected with the taking of morphine that adds greatly to the difficulty of permanent cure that will be briefly explained. The addict relieves himself from oncoming discomfort by the injection of morphine so often in the course of years, and he has used it so often in pleasurable social settings, that he is conditioned by many unavoidable happenings to return immediately to the drug. He may leave an institution fully intending to abstain from narcotics, but unless he has been unconditioned to meeting pleasure and pain in an abnormal way he is impelled imperceptibly to the same type of reaction that he had so often before, namely, solution by narcotics. He is cheered by meeting a friend or he is depressed by catching a cold, or by some other minor detail, and in both instances gravitates towards narcotics. It is this reaction that gives virtue to time in the treatment of addicts. They should when possible be kept in a reasonably protected environment away from narcotics until, by adjusting normally to both pleasurable and painful situations a number of times, a new habit pattern is formed. It is, of course, necessary to have cooperation both for this and for more subtle types of psychotherapeutic treatment. Force is not effective, but that type of force implied in imprisonment of an addict who knows he has violated the law is apparently not detrimental when

he is treated as a patient, with a sympathetic psychiatric approach.

In order to uncondition addicts to the use of narcotics and build up new habit patterns in them it is the aim at Lexington to keep them busy doing something useful or interesting during their entire waking hours. For this purpose out door work on a thousand-acre farm is provided for a large portion of the patients. Others work in shops and in various institutional activities, their work being changed according to indications. Above all, it has been found to be important to trust patients, if they cooperate and show that they are worthy of trust. Too many addicts in prisons have been treated as good-for-nothing criminals worthy of nothing but punishment, with the result that they have reacted both in prison and after they leave it as they were expected to react. We have had prisoner patients relapse immediately after being discharged and then return as voluntary patients and remain cured.

There is an element of diminishing returns in the treatment of drug addicts of the present day, because the more stable are being eliminated by cure, leaving the less stable to relapse and return for further treatment, but in spite of this the results have been good. Thirty per cent of the patients that have been discharged are known to be well; thirty per cent have relapsed; and information is not available for the remainder. Some who have been in prison half a dozen times because of narcotic addiction have remained cured after two years. We know, however, that some of the types treated there are not likely ever to be cured, regardless of what is done for them.

They started off with rather poor personal equipment and their deficiencies have been increased to such an extent by dissipation and the unfavorable environment of prisons that they have lost hope and do not cooperate. Nevertheless, these people are all suffering with a weakness for which they should be treated rather than punished. Hope of cure should never be abandoned, regardless of previous failures.

Cocaine and marihuana do not cause physical dependence that brings about distressing withdrawal symptoms when these drugs are discontinued. The withdrawal treatment of addicts to these drugs is, therefore, quite simple. All one has to do is to take away the drug. But the background of chronic users of these drugs is the same as the background of chronic users of opiates, and the treatment designed to cure permanently cocaine and marihuana addicts does not differ essentially from the treatment of opium addicts. An effort must be made to reorient the personality and build up new habits of adjustment.

There are certain characteristic symptoms and signs following the withdrawal of morphine or other addicting opiates. I will now show a slide which gives in a graphic way some of these signs, and also pictures of the Lexington and Fort Worth hospitals.