

Addiction to Methadone Among Patients at Lexington and Fort Worth

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METHADONE is a synthetic analgesic first produced at the I. G. Farbenindustrie in Germany during the Second World War, as a byproduct of research on meperidine (1). There was a morphine shortage in Germany at the time, but methadone was not used, apparently because the large doses studied resulted in a substantial incidence of side effects.

After the war the U.S. State Department's Technical Industrial Intelligence Committee investigated this research program and was more favorably impressed by methadone than the German authorities had been. The drug was subsequently studied in this country, and its potent analgesic properties confirmed. It was placed on the market under the trade names Dolophine, Adanon, Methadon-Lilly, Amidone, and Amidon.

Preliminary studies of its addiction liability were performed under the auspices of the National Research Council's Drug Addiction Committee, and it was demonstrated experimentally that methadone produced drug dependence of the morphine type (2-5).

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In addition to its use as a narcotic analgesic, methadone has been used to treat narcotic addicts during withdrawal. It is used because it substitutes for heroin and morphine, and the methadone withdrawal syndrome, although somewhat protracted, is less intense on a daily basis than that of heroin or morphine. Recently, the drug has been used to treat narcotic addicts in a maintenance program (6-8).

We studied persons who habitually self-administered methadone without medical supervision. We sought to determine if methadone abuse exists, what the clinical characteristics of methadone addicts are, and if methadone abusers are different from abusers of other narcotic analgesics.

Materials and Methods

Discharge records for drug addicts leaving the Lexington, Ky., or Fort Worth, Tex., Public Health Service Hospitals during fiscal years 1962-66 were reviewed. We found that 227 discharges involving 214 patients with a first drug diagnosis of methadone addiction occurred during this 5-year period. Sample 1 was comprised of 72 methadone addicts discharged from the Lexington hospital during fiscal year 1962. This sample was chosen, on the basis of controlled data from that year for 3,229 nonmethadone addicts. This allowed evaluation of differences between methadone and nonmethadone narcotic addicts (9).

Sample 2 was selected from all men dis-

charged from the Lexington hospital during the 32-month period ending August 1967 with a first drug diagnosis of methadone addiction. It consisted of 25 patients after others whose charts had incomplete or conflicting information were eliminated.

Results

Of the 72 methadone addicts in sample 1, 18 percent were women, as were 17.8 percent of the 3,229 patients in the control group. The mean age of the 59 men in sample 1 was 46.6 years. The mean for men in the control group was 35.5 years, and 45.7 years in sample 2.

Fifty-seven men in sample 1 were white. This unusually high incidence of white patients compared to the control population ($\chi^2=49.9$, $P<0.005$) was observed for the entire period 1962-66. Only one patient in sample 2 was nonwhite.

Male methadone addicts per male population 21 years and older were calculated for each State in this study. In sample 1, 15 States—Nevada, Arkansas, Virginia, Mississippi, Massachusetts, Alabama, New Mexico, Colorado, Tennessee, Michigan, Louisiana, South Carolina, Georgia, Oklahoma, and North Carolina—had a methadone addiction rate among men at least twice that predicted on the basis of their known male addict rate (9). For the period 1962-66, five States—Nevada, Virginia, Oklahoma, Mississippi, and South Carolina—had methadone addict rates for men at least triple their predicted rates. These States are concentrated in a "methadone belt" centered in the Southeast. The results are not the product of a low total rate of narcotic use among men in these States, since 11 of the 15 States with highest methadone rates in 1962 were among the 20 States ranked highest for male narcotic addicts per male population 21 years and older.

Of the 72 methadone addicts in sample 1, 70 were volunteer patients; of the 3,229 addicts in the control group, 2,723 were volunteers. There was a comparatively greater propensity for methadone addicts to volunteer for treatment ($\chi^2=8.03$, $P<0.05$). Similarly, 96 percent of the 214 patients with first drug diagnosis of methadone addiction in 1962-66 were volunteers, as were 96 percent of those in sample 2.

In sample 1, 81.4 percent of the methadone addicts who voluntarily entered the hospital left against medical advice without completing treatment. This high incidence of early sign-out among volunteer methadone addicts was also seen for the other years of the study period, averaging 84.8 percent for the 5-year study period and 80 percent for sample 2. Thus, less than one of five methadone addicts who volunteered for treatment completed the program. This is even more striking since the mode for length of stay throughout this entire period was 7 ± 2 days for the methadone addicts. Patients being readmitted made up 69.5 percent of sample 1 and 80 percent of sample 2.

A review of additional diagnoses entered on the charts of all methadone addicts discharged from 1962 to 1966 revealed no instances of painful disease for which methadone might be legitimately prescribed by a physician. In sample 2 all prior admissions were also reviewed, and although several patients began receiving drugs in a medical setting, there were no instances of painful disease for which continued analgesia would be required.

During the entire 5-year period, 42.2 percent of the methadone addicts discharged had a second drug diagnosis and 5.7 percent had a third drug diagnosis. These data confirm the clinical impression that use of methadone per se does not lead to the cessation of alternate drug-seeking behavior. Of the 96 second drug diagnoses, 52 were for depressants (sedatives, hypnotics, and alcohol), 22 for opiates (synthetic and naturally derived narcotic analgesics), and two for amphetamines. Of the 13 third drug diagnoses, 10 were for depressants and three for opiates.

Eight physicians and four nurses were among the 214 methadone addicts. This contrasts with the high representation of health professionals among meperidine (Demerol) addicts (10). Assuming that health professionals have a choice of any legally available drug, there does not seem to be any functional consensus that methadone has clear advantages over other synthetic narcotic analgesics.

Of the 25 male methadone addicts in sample 2, the mean number of years of opiate addiction was 17, with age at onset 28 years (mean = 28.8, median 26.9, range 15-66 years). Methadone had been abused for an average of 5.9 years; use

History of 25 male methadone addicts at the Lexington Public Health Service Hospital

Case No.	Occupation	Age	Route of methadone administration	Source of methadone	Years of methadone use	Years of opiate use	History of heroin use	Arrest history	Number of admissions to Lexington hospital
1	Odd jobs	35	Intramuscular	Physician	8	11	Yes	Yes	8
2	Farmer	56	Intravenous	do	3	36	No	No	15
3	Cook	73	Oral	do	1	50	Yes	Yes	15
4	Illegal	31	do	do	15	15	Yes	Yes	5
5	Driver	30	Intravenous	do	3	7	Yes	Yes	5
6	Illegal	29	do	Pusher	1-3	12	Yes	Yes	3
7	Unemployed	44	Oral	Physician	1-5	24	No	Yes	3
8	Retired	75	do	do	9	9	No	No	2
9	Truck driver	35	Intravenous	Pusher	6	14	Yes	Yes	4
10	Illegal	50	do	Physician	3-6	17	No	Yes	3
11	do	56	Oral	do	4	25	Yes	Yes	10
12	do	36	Intravenous	Pusher	5	8	Yes	Yes	4
13	Salesman	46	do	do	8	8	Yes	Yes	2
14	Illegal	27	Oral	do	1	10	Yes	Yes	2
15	Retired	70	Intravenous	Physician	2	53	Yes	Yes	6
16	Physician	51	do	Drugstore	1	2	No	No	1
17	Unemployed	53	Intramuscular	Physician	14	24	No	Yes	10
18	do	40	Intravenous	Pusher	2	2	No	Yes	1
19	Disabled	35	Intramuscular	Physician	3	3	No	No	2
20	Unemployed	46	do	do	1	2	No	Yes	1
21	do	36	Oral	do	7	7	No	Yes	1
22	Illegal	36	do	do	6	13	Yes	No	2
23	Plumber	54	Intramuscular	do	1	4	No	Yes	2
24	Clerk	43	do	Pusher	9	16	Yes	Yes	4
25	Unemployed	55	Oral	Physician	1-3	18	Yes	Yes	1

started as early as 1950, with the range in methadone use being from 1 to 15 years.

Nine of these addicts administered their drugs intravenously; nine, orally; and seven, subcutaneously. Seventeen obtained methadone from physicians, seven from pushers, and one from a drugstore.

Twenty had from one to 14 previous hospitalizations for drug addiction (see table). In addition to a history of unsuccessful treatment for opiate addiction, the methadone addicts of sample 2 had engaged in antisocial behavior. Twenty patients had an arrest history. The first arrest, at a mean age of 21 years, commonly preceded opiate addiction. Three had been Federal prisoners, and 12 had a history of venereal disease. Eighteen of the 25 had smoked marihuana, and 14 had abused heroin. At the time of last hospitalization, eight patients were divorced or separated. Finally, most terminated treatment at Lexington against medical advice; only six stayed more than 19 days.

Nine of the 25 methadone addicts were engaged in fairly steady employment, seven were principally in illegal endeavors, six were unemployed, and three were disabled or retired.

The marginal character of their employment was not because of lack of education, as their median education was 10.3 years as compared to 10.9 years for the U.S. white population 25 years and older in 1960.

Discussion

Although methadone is not the drug of choice among American narcotic addicts, 214 methadone addicts have been admitted to the Lexington and Fort Worth hospitals in recent years. Methadone addiction appears to be discomforting enough to prompt persons to seek treatment, as evidenced by the significantly higher voluntary admission rate of these addicts compared with the entire narcotic addict population. This was true even though most methadone addicts had been unsuccessfully treated on at least one other occasion.

There was no evidence to support the belief that methadone abuse per se facilitates subsequent rehabilitative efforts since during the period of study more than four of five methadone addicts who voluntarily requested treatment at the Lexington hospital left against medical advice. Not only did they not complete the course

of therapy, but some of them were probably not completely detoxified since the mode for their length of hospital stay was 7 ± 2 days for each year in the study period.

Summary

During fiscal years 1962-66, 214 patients at the Lexington, Ky., and Fort Worth, Tex., Public Health Service Hospitals had a first drug diagnosis of methadone addiction. Compared to all other narcotic addicts, methadone addicts tended to be older, white, and residing in States of the "methadone belt" (Virginia, Tennessee, Georgia, Alabama, Mississippi, Louisiana, Arkansas, Oklahoma, New Mexico, and Nevada).

No evidence was found to support the theory that nonmedical use of methadone decreases drug-seeking or antisocial behavior. Methadone addicts had about twice as many second and third drug diagnoses as the general narcotic addict population.

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Injury Control Research Laboratory

The Public Health Service will study, for the first time in its own laboratory at Providence, R.I., ways to reduce the 48.5 million injuries (58,000 of them fatal), which occur every year in American homes or places of recreation.

The activities of the laboratory, studies on automobile driving behavior, will be expanded to study human behavior as it relates to consumer products—how people handle equipment, materials, and appliances at home and at play. The studies will be designed to reveal situations in daily life that result in injuries such as burns, falls, and electric shock. The research could suggest safer designs and additional standards for products or more comprehensive instructions for people using the products.

To aid in the research, a room with a controlled environment—temperature, humidity, lighting—will be added to the laboratory. It can be set up as a kitchen, bathroom, or workshop where people can be observed clinically as they perform daily tasks. To preclude any actual risks, the participants in the study will be using specially designed equipment and appliances. For example, an electric saw for the workshop will look and operate like its standard counterpart, but any hazardous feature will be controlled.

To reflect the new activities, the name of the facility has been changed from the Driving Research Laboratory to the Injury Control Laboratory. However, research on driving will continue at the laboratory.