

Factors predicting retention in treatment: 10-year experience of a methadone maintenance treatment (MMT) clinic in Israel

Einat Peles^{a,*}, Shaul Schreiber^{a,b}, Miriam Adelson^a

^a Dr. Miriam & Sheldon G. Adelson Clinic for Drug Abuse, Treatment & Research, Tel-Aviv Elias Sourasky Medical Center,
6 Weizman Street, 64239 Tel-Aviv, Israel

^b Department of Psychiatry, Tel Aviv Sourasky Medical Center (affiliated to the Sackler Faculty of Medicine Tel-Aviv University), Tel-Aviv, Israel

Received 9 July 2005; received in revised form 20 September 2005; accepted 20 September 2005

Abstract

The aims were to identify predictors of treatment retention in an Israeli methadone maintenance treatment (MMT) clinic, and to compare the findings to other international settings. We prospectively studied 492 patients admitted since 1993 through 10 years to an Israeli MMT clinic associated with a university-affiliated tertiary care medical center. Analyses (Kaplan Meier and Cox regression) included methadone dose and urinalysis results (for methadone, cocaine, opiates, benzodiazepines, THC, amphetamines) of each patient in the first month and after 1 year in treatment (or during the last month if the stay was >3 months and <1 year) and patients' characteristics (modified ASI). The 1-year retention rate was 74.4%; 65.8% stopped opiate abuse after 1 year in treatment. On admission, 13.6% of patients had used cocaine: there was a net decrease of 61.6% after 1 year. Factors predicting prolonged retention in MMT treatment (Cox regression) were daily methadone dose of 100 mg or greater, negative urine for opiates after 1 year, and being a parent on admission. We conclude that our good outcome results (high rate of retention after 1 year (74.4%), high proportion of opiate abuse cessation (65.8%), and net reduction in cocaine abuse, similar to normal standards in other MMT clinics elsewhere in the world, justify the expansion of the MMT clinic network in Israel in order to make treatment available to all those who need it. A protocol favoring higher methadone dosage as appropriate is recommended.

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Keywords: Methadone maintenance treatment; Kaplan Meier survival analyses; Retention; Predictors

1. Introduction

Methadone maintenance treatment (MMT) is the most effective pharmacotherapy for heroin addiction (Dole et al., 1966; NIH Consensus Statement, 1997). Good MMT programs include psychosocial as well as medical therapy, the importance and contribution of which are well established for therapeutic success (McLellan et al., 1993). In Israel, MMT has been available with various restrictions for opiate-dependent patients since 1973. The Israeli Ministry of Health decreed in 1992 that all MMT clinics should be under the jurisdiction of the Ministry, and that only medical doctors associated with these clinics are permitted by law to prescribe methadone. There are 10 MMT clinics in Israel: 8 are located in community settings while the 1 reported here (established on 25 June 1993) is located within a large, municipal,

university-affiliated medical center. It is estimated that there are approximately 20,000 heroin addicts in Israel (Israel Anti-drug Authority, 2004) of whom only about 3000 (approximately 15%) are receiving MMT.

In the United States, 170,000 of the estimated 810,000 opioid-dependent individuals (~21%) are in MMT programs (Office of National Drug Control Policy, 1999). The guidelines for conducting MMT programs in Israel were adopted from those used in the US (detailed in Adelson et al., 2000).

MMT programs are generally similar worldwide. Nevertheless, the patients' characteristics, the levels of drug abuse and the rates of hepatitis C and HIV infection are reported to be higher in the US compared with the Israeli patient population. Therefore, 10 years after its establishment, as was done 4 years after its inauguration (Adelson et al., 2000), outcomes for the present program were examined. Since no accurate data on 1-year retention rates and drug abuse in other Israeli MMT clinics are available (Adelson et al., 2000; Bleich et al., 2002; Weizman et al., 2004), it is assumed that the present clinic is representative

* Corresponding author. Tel.: +972 369 732 26; fax: +972 369 738 22.
E-mail address: einatp@tasmc.health.gov.il (E. Peles).

of all the MMT clinics throughout the country. The current report describes the results of an in-depth evaluation of the outcome of all patients admitted to the present MMT clinic during its first 10 years of operation by

- evaluating retention in treatment after 1 year and cumulative retention up to 11 years;
- evaluating discontinuation of drug abuse;
- characterizing methadone dose;
- identifying variables that predicted retention in treatment.

2. Methods

2.1. Study population

A total of 492 patients >18 years of age were admitted to the MMT clinic between its establishment on 25 June 1993 and the closure of this study on 24 June 2003. They met criteria similar to those of the US Federal Regulations for entering methadone treatment (i.e., DSM-IV criteria of dependence on multi-self-administrations of heroin for 1 year or more) at admission, and arrived to the MMT clinic either on their own or via referral from the affiliated hospital's wards or emergency room. On admission, each patient read and signed the policy of the clinic, which is in full accordance with the Israeli Ministry of Health guidelines. In brief, each patient drinks the individual methadone dose every day in the clinic, and attends regular appointments with a personal therapist (i.e., a social worker, a clinical criminologist, a physician, and a psychiatrist), as well as diverse therapy groups (focusing on themes such as women's issues, cocaine use, violence, and 12-steps). A patient may accumulate "rights" (up to 14 "take-home" doses of medication), if he/she stops illicit drug use and presents acceptable behavior. Violent behavior or selling drugs within the clinic may result in immediate discontinuation of treatment. Patients are required to pay for treatment (around 70 US\$ per month), and are asked to undergo periodic (once a year) blood tests for infectious disease (hepatitis C (HCV), HIV antibodies and HBV antigens, VDRL), X-ray for tuberculosis, and recently electrocardiography (ECG). Demographic data were collected from the patient's charts that routinely include a modified ASI questionnaire (McLellan et al., 1984).

2.2. Capacity of the clinic

There were 71 patients in treatment by the end of the clinic's first year, and the number gradually increased to 319 by the end of the ninth year (the clinic's full capacity is 300 patients).

2.3. Urine toxicology and methadone

At least one randomized observed urine test per week (range 1–11 per month, mean four samples per month [one sample per week]) was provided by each patient throughout his/her entire course of treatment (range 1 day–10.8 years). All urine samples were analyzed for opiates, methadone, cocaine metabolite (benzoylecgonine), benzodiazepines (BDZ), cannabis (THC), methadone (up to 2002) or its metabolite (since 2002) and

amphetamines, using enzyme immunoassay systems (DRI[®] for the first 6 and CEDIA[®] for the last 2) (Hawks, 1986). A patient was classified as being "positive" on admission if at least one urine sample for the drug was positive during the first month of treatment. For patients who remained in treatment for at least 13 months (Group A), at the completion of 1 year of treatment the patient was defined as being "positive" for a drug if there had been at least one positive urine screen for that drug during month 13 (Group A).

For patients who remained in treatment for 4 months or more but less than 13 months (Group B), illicit drug use during the last month in treatment was recorded. Methadone dose was recorded daily, and the doses administered at the beginning of month 13 were recorded for Group A and at the beginning of the last month in treatment for Group B. Patients ($n = 50$) who left MMT before 4 months had elapsed, were excluded from the analyses used for compiling cumulative retention to be sure that methadone dose during the last month was a stabilized one and not a temporary midway dose during the stabilization process. Sixty-five of the 492 patients (13.2%) had more than one admission, however, the data for all analyses were taken from each patient's first admission.

2.4. Statistical analyses

Proportional differences between groups were analyzed by the Chi-square or Fisher's Exact test. Pearson Chi-square test was applied for evaluating significant trends. The methadone dose and other continuous variables were analyzed for significant differences using the analysis of variance (ANOVA). The number of days in clinic from first admission until the patient quit treatment or until the end of follow-up (11 years) was taken for calculating cumulative retention in treatment using survival analyses (Kaplan Meier) with log-rank. To evaluate the time effect, patients were divided into those admitted during the early period (1993–1997) or in the late period (1998–2003) of the study. Variables that were significantly associated with retention in the Kaplan Meier analyses ($p < 0.05$) were included in the Cox regression multivariate analyses and presented in odds ratio (OR) and 95% confidence interval. All analyses were done using the SPSS-12 package.

3. Results

3.1. Socio-demographic characteristics

The patients' characteristics are detailed in Table 1. The number of newly admitted patients varied between the years (16 patients in 1999 and 78 patients in 2002). The majority of patients were males (72.8% compared to 27.2% females). Their mean age on admission was 36.7 ± 8.5 years (range 18–67 years) and their reported mean age at the start of opiate abuse was 23 ± 7.4 years. The mean interval between starting opiates and entering MMT was 13.8 ± 8.3 years (these data were missing in 24 patients). Over one-third ($n = 181$, 36.8%) of the total number of patients were immigrants (mostly from the former USSR: $n = 109$, 60.2%). Notably, 63.4% had at least one child when

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