The practice of office-based buprenorphine treatment of opioid dependence: is it associated with new patients entering into treatment?\footnote{This work was presented at the Annual Meeting of the College on Problems of Drug Dependence, June 14–19, 2003, Bal Harbour, Florida.} \footnote{Corresponding author. Tel.: +1 203 688 9105; fax: +1 203 688 4602. E-mail address: lynn.sullivan@yale.edu (L.E. Sullivan).}

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Abstract

Office-based buprenorphine holds the promise of bringing patients who have never received pharmacotherapy into treatment. In a cross-sectional and longitudinal analysis, we compared patients entering a clinical trial of buprenorphine in a Primary Care Clinic (PCC) and those entering a local Opioid Treatment Program (OTP) and we compared the clinical characteristics and treatment outcomes of PCC patients with no history of methadone treatment (new-to-treatment) to those with prior methadone treatment. PCC subjects (N=96) were enrolled in a 26-week randomized clinical trial of office-based buprenorphine/naloxone provided in a PCC. OTP subjects (N=94) were enrolled in methadone maintenance during the same time period. PCC subjects compared with OTP subjects were more likely to be male (77% versus 55%, \(p<0.01\)), full-time employed (46% versus 15%, \(p<0.001\)), have no history of methadone treatment (46% versus 61%, \(p<0.05\)), have fewer years of opioid dependence (10 versus 15, \(p<0.001\)), and lower rates of injection drug use (IDU) (44% versus 60%, \(p=0.03\)). The new-to-treatment PCC subjects were younger (36 years versus 41 years, \(p=0.001\)), more likely to be white (77% versus 57%, \(p=0.04\)), had fewer years of opioid dependence (7 versus 14, \(p=0.001\)), were less likely to have a history of IDU (35% versus 54%, \(p=0.07\)), and had lower rates of hepatitis C (25% versus 61%, \(p=0.002\)) than subjects with prior methadone treatment. Abstinence and treatment retention were comparable in both groups. The results suggest that office-based treatment of opioid dependence is associated with new types of patients entering into treatment. Treatment outcomes with buprenorphine in a PCC do not vary based on history of prior methadone treatment.

Keywords: Buprenorphine; Pharmacotherapy; Methadone; Treatment

1. Introduction

Heroin and prescription opioid abuse have increased substantially, widening the gap between the number needing and receiving treatment for opioid dependence. Limited access has contributed to the discrepancy between those needing and receiving treatment. In the U.S., the Drug Addiction Treatment Act (2000) allows qualified physicians to provide buprenorphine from their office. In 2002, buprenorphine was approved for the treatment of opioid dependence (\textit{Jaffe and O’Keefe}, 2003). These moves were designed to broaden access to care by bringing new patients into treatment (\textit{Fiellin and O’Connor}, 2002a,b). Little is known about whether office-based buprenorphine is associated with new patients entering treatment. Similarly, the differences in clinical characteristics and treatment outcomes of patients receiving office-based buprenorphine who have not received methadone maintenance (new-to-treatment) versus those who have received methadone (previously treated), remain uncharacterized.

The purpose of this study is to evaluate whether the practice of office-based buprenorphine treatment in a Primary Care Clinic (PCC) is associated with a different patient population receiving treatment compared to patients enrolling in methadone maintenance in an Opioid Treatment Program.
met the following criteria: age ≥ 18, DSM-IV criteria for opioid dependence, opioid positive urine, FDA criteria for methadone maintenance, no dependence on alcohol, benzodiazepines or sedatives, no acute medical or psychiatric conditions, able to understand English, and agreeing to adequate contraception and pregnancy monitoring. Recruitment was via word-of-mouth, pamphlets and flyers, and from individuals on the OTP waiting list. During the study period, 71 patients were contacted but never entered the study. Thirty-one were ineligible, 13 of these due to psychiatric conditions. Of the remaining 40 patients, 13 refused entry, 14 were referred to other treatment, and 13 were lost to further contact. The study was approved by Yale’s Human Investigations Committee and written informed consent was obtained.

2.4. Subjects—OTP

The OTP sample were patients enrolling in methadone treatment meeting the following eligibility criteria: age ≥ 18, FDA criteria for methadone maintenance including opioid dependence for ≥ 1 year, with exceptions to these criteria including release from a penal institution, pregnancy, and a history of previous opioid agonist treatment. During the 6-month study period, there were approximately 130 admissions, and with the exclusion of re-admissions and admissions with missing data, the final sample size was 94.

2.5. Data collection

Data collected for the PCC and OTP subjects included self-report of demographic characteristics, substance use history, history of methadone treatment, illicit drugs used in prior 30 days in the PCC group, and primary drug of choice in the OTP group. We categorized patients based on a history of methadone treatment (previously treated) or not (new-to-treatment). Data collected for the PCC subjects alone included self-report of hepatitis B and C status and laboratory evaluation of hepatitis B surface and hepatitis C antibodies. Weekly urine samples were analyzed for opioids and cocaine using the CEDIA procedure on a Hitachi 747 system.

2.6. Data analysis

Analysis of baseline characteristics and outcomes included descriptive statistics, chi-square and Fisher’s exact for categorical data, and t-tests for continuous measures. Analyses were conducted on all patients enrolled and randomized in the PCC study and patients enrolled in the OTP within a similar time period. We performed a cross-sectional analysis to compare the clinical and substance use characteristics of these two groups. We subsequently stratified the PCC sample based on whether they were new-to-treatment and determined the differences in these characteristics between these two groups. Finally, we compared treatment outcomes in these two subgroups and assessed for abstinence, as determined by weeks of opioid-free urines, and duration of treatment retention. All analyses used two-tailed tests of significance and were performed using SPSS 12.0 (SPSS Inc., Chicago, IL). p-Values < 0.05 were considered statistically significant.

3. Results

Patients enrolling in the PCC (N = 96) and in the OTP (N = 94) were similar in age, race, and education, but a greater proportion of the PCC samples were male (77% versus 55%, p = 0.002) or full-time employed (46% versus 15%, p < 0.001) (Table 1). The PCC group had a lower proportion of patients with a history of methadone treatment compared to those entering the OTP (46% versus 61%, p < 0.05). The proportion using heroin as the primary opioid was similar in the two groups (94% versus 90%). Patients enrolling in the PCC reported a lower mean years of opioid use (10 versus 15, p < 0.001). Onset of opioid use was within the past 1–5 years for 38% of patients enrolling in the PCC versus 15% of those entering the OTP (p < 0.001), while a larger proportion of patients enrolling in the OTP reported greater than 10 years of opioid use (61% versus 36%, p < 0.001). A lower proportion of patients enrolling in the PCC compared to the OTP reported a history of injection drug use (IDU) (44% versus 60%, p < 0.05).

Within the PCC, patients new-to-treatment (N = 52) were similar to those previously treated (N = 44) with
Age, years, mean (range) 38 (18-57) 37 (19-57) 0.33
Male (n/N) 77% (74/96) 55% (52/94) 0.002
White (n/N) 68% (63/96) 69% (63/94) 0.83
Full-time employed (n/N) 46% (43/96) 15% (14/94) <0.001
High school education or greater (n/N) 75% (70/96) 75% (67/94) 0.54
Heroin as primary opioid (n/N) 94% (90/96) 95% (88/94) 0.40
Opioid use, years, mean (range) 18 (1-34) 15 (2-40) 0.001
Years of opioid use (n/N)
1-5 38% (35/92) 15% (14/94) <0.001
6-10 26% (24/92) 24% (23/94) 0.83
>10 36% (33/92) 61% (57/94) <0.001
History of IDU (n/N) 44% (40/92) 69% (56/94) 0.03
Prior methadone (n/N) 46% (44/96) 60% (56/94) 0.05

Characteristics shown in bold are significantly different (p ≤ 0.05) between the PCC and OTP settings.

### 4. Discussion

This study suggests that buprenorphine maintenance in a PCC may be associated with provision of treatment to a different patient population than is currently receiving methadone. Patients enrolling in office-based treatment were more likely to be male, employed, have fewer years of opioid dependence,

### Table 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Prior methadone (N=52)</th>
<th>No prior methadone (N=44)</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years, mean (range)</td>
<td>38 (18-55)</td>
<td>41 (25-75)</td>
<td>0.001</td>
</tr>
<tr>
<td>Male (n/N)</td>
<td>75% (37/50)</td>
<td>64% (37/44)</td>
<td>0.13</td>
</tr>
<tr>
<td>White (n/N)</td>
<td>77% (40/52)</td>
<td>57% (25/44)</td>
<td>0.04</td>
</tr>
<tr>
<td>Full-time employed (n/N)</td>
<td>49% (24/49)</td>
<td>43% (19/44)</td>
<td>0.60</td>
</tr>
<tr>
<td>High school education or greater (n/N)</td>
<td>80% (30/38)</td>
<td>71% (10/44)</td>
<td>0.31</td>
</tr>
<tr>
<td>Current heroin use (n/N)</td>
<td>90% (45/50)</td>
<td>95% (45/44)</td>
<td>0.14</td>
</tr>
<tr>
<td>Current prescription opioid use (n/N)</td>
<td>21% (12/52)</td>
<td>9% (4/44)</td>
<td>0.07</td>
</tr>
<tr>
<td>Current cocaine use (n/N)</td>
<td>39% (20/52)</td>
<td>36% (16/44)</td>
<td>0.83</td>
</tr>
<tr>
<td>Current alcohol use (n/N)</td>
<td>54% (28/52)</td>
<td>41% (18/44)</td>
<td>0.21</td>
</tr>
<tr>
<td>Opioid dependence, years, mean (range)</td>
<td>7 (1-25)</td>
<td>14 (1-34)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>History of IDU (n/N)</td>
<td>35% (17/49)</td>
<td>54% (23/43)</td>
<td>0.07</td>
</tr>
<tr>
<td>Prior methadone (n/N)</td>
<td>49% (33/68)</td>
<td>75% (33/44)</td>
<td>0.51</td>
</tr>
<tr>
<td>HIV + self-report (n/N)</td>
<td>0% (0/47)</td>
<td>17% (7/42)</td>
<td>0.004</td>
</tr>
<tr>
<td>HIV + antibody (n/N)</td>
<td>24% (10/42)</td>
<td>31% (12/39)</td>
<td>0.48</td>
</tr>
<tr>
<td>HCV + self-report (n/N)</td>
<td>10% (5/48)</td>
<td>19% (8/42)</td>
<td>0.24</td>
</tr>
<tr>
<td>HCV + antibody (n/N)</td>
<td>25% (10/40)</td>
<td>61% (23/38)</td>
<td>0.002</td>
</tr>
<tr>
<td>Completing induction (n/N)</td>
<td>85% (44/52)</td>
<td>82% (36/44)</td>
<td>0.71</td>
</tr>
<tr>
<td>≥3 weeks opioid-free urines (n/N)</td>
<td>57% (25/44)</td>
<td>61% (22/36)</td>
<td>0.70</td>
</tr>
<tr>
<td>≥6 weeks opioid-free urines (n/N)</td>
<td>56% (16/29)</td>
<td>56% (16/29)</td>
<td>0.50</td>
</tr>
<tr>
<td>Mean weeks opioid-free urines (range)</td>
<td>5.8 (0-26)</td>
<td>5.4 (0-25)</td>
<td>0.73</td>
</tr>
<tr>
<td>Mean days treatment retention (range)</td>
<td>111 (18-167)</td>
<td>122 (13-167)</td>
<td>0.36</td>
</tr>
</tbody>
</table>

Variables shown in bold are significantly different (p ≤ 0.05) between patients with and without prior methadone treatment.
lower rates of IDU, and have no history of methadone treatment, compared to contemporaneous controls enrolling in a nearby methadone clinic. Within the PCC, new-to-treatment patients were younger, had fewer years of opioid dependence, lower rates of IDU, and lower rates of hepatitis C, compared to previously treated patients. Opioid abstinence and treatment retention did not differ between patients with and without a history of methadone treatment.

The clinical characteristics of the OTP and PCC groups in our study were consistent with those found in similar cohorts of opioid dependent patients enrolling in drug treatment in the U.S. and trials of office-based buprenorphine internationally. When comparing our OTP cohort to the treatment episode data set (TEDS) (Substance Abuse and Mental Health Services Administration, SAMHSA, 2003), they were comparable in age, gender, employment and education, current heroin use, and history of IDU. Similarly, the PCC group was comparable to patients enrolled in a national trial of office-based buprenorphine (Fudala et al., 2003) in terms of age, race, employment status, and treatment history. French and Australian samples receiving buprenorphine have been similar to the PCC group as they are young, mostly male, with low mean years of opioid dependence, and a low proportion with prior opioid agonist therapy (Auriacombe et al., 2004; Vignau et al., 2001; Lintzeris et al., 2004).

Our results support that office-based buprenorphine can expand access to treatment for patients who may not enroll in methadone clinics and facilitate earlier access to treatment for patients who have more recently initiated opioid use, providing an opportunity to prevent hepatitis C and HIV (Sullivan and Fiellin, 2004).

Potential limitations of our study include that it is exploratory. It compares a research patient population with those enrolling in a regular clinical program. Our study does not prove causality but makes the case for an association between office-based buprenorphine and a new group of patients entering into treatment. It is not clear whether it was the office-based setting or the buprenorphine that was associated with bringing new patients into treatment. Our results potentially underestimate the differences between patients enrolling in a PCC versus an OTP since some PCC patients were recruited from the OTP waiting list.

Nonetheless, the current study suggests that office-based buprenorphine is associated with a different set of patients entering into treatment and therefore it is likely to increase access to opioid maintenance treatment and should be considered in both patients who are new-to-treatment and those who have previously received treatment.

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References


