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Improving Treatment Outcome in Pregnant Opiate-Dependent Women

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Abstract

Outcomes for 6 pregnant methadone-maintained opiate-dependent subjects in enhanced treatment were compared to those of 6 women receiving conventional methadone maintenance. Enhanced treatment consisted of weekly prenatal care, relapse prevention groups, thrice weekly urine toxicology screening with positive contingency awards for abstinence, and therapeutic child care during treatment visits in addition to treatment as usual. Treatment as usual included daily methadone, group counseling, and random urine toxicology screening. Study patients differed from the comparison group in three important ways, having fewer urine toxicology screens positive for illicit substances (59% vs. 76%), three times as many prenatal visits (8.8 vs. 2.7), and heavier infants (median birth weight, 2959 vs. 2344 grams). These results suggest that enhanced drug treatment can improve pregnancy outcome and, in particular, reduce low birth weight for this high-risk population.

Keywords

opiate dependence; pregnancy; low birthweight

INTRODUCTION

PREGNANT OPIATE-DEPENDENT WOMEN experience a sixfold increase in maternal obstetric complications and significant increases in neonatal complications (Dattel, 1990). Pregnancy complications include low birth weight, toxemia, third trimester bleeding, malpresentation, puerperal morbidity, fetal distress, and meconium. Neonatal complications include narcotic withdrawal, postnatal growth deficiency, microcephaly, neurobehavioral problems, and a 74-fold increase in sudden infant death syndrome (Dattel, 1990). Since 75% of the estimated 300,000 opiate-dependent women are of childbearing age (Rosen, 1987), the potential medical and social costs of opiate dependence during pregnancy are great.

Methadone maintenance treatment in pregnant opiate-dependent women eliminates the need for illicit opiate use and may confer other benefits (Finnegan & Wapner, 1988). These include prevention of fluctuations in maternal drug level through regular administration of a long-acting opiate and stabilization of the addict so that evaluation and treatment of associated problems, including poor health, may be initiated.

Despite the potential promise of methadone maintenance as a treatment for pregnant opiate-dependent women, reports on its success for this population have been mixed. For example, the results of a retrospective case control study comparing methadone-maintained pregnant subjects with untreated women showed that both groups used illicit substances at high rates and gave birth to infants of similar weight, although the treated women had more prenatal care (Edelin, Gurganious, Golar, Oellerich, Kyei-Aboagye, & Hamid, 1988). Conversely, Suffet and Brotman (1984) have reported that a comprehensive care program for pregnant opiate-dependent women, including medical, counseling, and child development services, resulted in improved pregnancy outcome. However, no data from a comparison group were presented.

These two studies highlight some of the complexities of treating pregnant opiate-dependent women with methadone. First, as in the general population of methadone-maintained opiate-dependent individuals, methadone has little impact on their use of cocaine, alcohol, and other illicit substances (Kirn, 1988). Second, treatment programs cannot make use of traditional contingency management strategies for illicit drug use, such as reductions in methadone dose or detoxification, because opiate detoxification is contraindicated during pregnancy (Allen, 1991).

Given the general sanctions against female substance use, particularly during pregnancy, the pregnant opiate-dependent woman poses particular therapeutic challenges. Studies of opiate dependent women suggest gender specific difficulties, with the women having frequent unemployment, high rates of depression and anxiety disorders, and more severe medical problems than men (Kosten, Rounsaville, & Kleber, 1985). Since women take less time to become dependent, their dependency careers are compressed, allowing less time for treaters to intervene (Anglin, Hser, & McGlothlin, 1987). Opiate-dependent women are most likely to regard themselves, and to be regarded, as socially deviant than their male counterparts (Sutker, 1981). Finally, available evidence indicates that the problems of female addiction typically involve heroin-oriented couples and families, and that abatement of female dependence involves severing ties with the only social network they have—their lovers, spouses, and other relatives who are opiate abusers (Gerstein, Sudd, & Rovner, 1979).

The purpose of this study is to compare outcomes for pregnant opiate-dependent women enrolled in enhanced methadone maintenance with those for a group receiving treatment as usual. We hypothesized that the women enrolled in the enhanced program would benefit by reducing illicit substance use, increasing prenatal care, and delivering healthier infants. Case histories of women from each treatment group will be included to highlight the special treatment needs of this population.

METHODS

Twenty-three pregnant opiate-dependent women were invited by study staff to join the enhanced program. The potential subjects were informed that the enhanced program offered weekly on-site prenatal care, weekly relapse prevention groups, thrice-weekly urine toxicology screening with positive contingency awards for abstinence (\$15.00 for three “clean” urine screens), and provision of therapeutic child care during treatment visits in addition to treatment as usual. Women who decided not to participate would receive treatment as usual, consisting of daily methadone medication, counseling, and random urine toxicology screening. Women who were psychotic, suicidal, alcohol-sedative-dependent, or more than 7 months pregnant were ineligible for the enhanced program. Women with advanced pregnancies (7 months or more) were not eligible to participate as their imminent deliveries would allow only brief involvement in treatment at most. Outcomes for enhanced

treatment subjects will be contrasted with those outcomes for those who were in treatment as usual.

RESULTS

Of 23 women who were invited, 12 (52%) agreed to participate in the enhanced program. Study recruitment was more successful among women new to treatment than those who had been methadone-maintained. Of the 11 women who chose not to participate, pregnancy outcome data were available on 6, as 2 terminated their pregnancies, 1 miscarried, and no information on pregnancy was available for 2. Of the 12 participants in the enhanced program, 6 delivered, 3 terminated their pregnancies, and 3 were still gravid at the time of this writing. The two groups of women who delivered were highly comparable for age, years of education, minority group status, marital status, number of previous pregnancies, and children, cigarette use, and daily methadone dose (see Table 1), but were not intentionally matched on these characteristics. Both groups began methadone treatment at an average of 10 weeks after conception.

While demographically comparable, the following case histories show clinical differences between subjects and controls not captured by these data.

ENHANCED TREATMENT SUBJECTS

Dawn is a 21-year-old single female whose drug use began at the age of 11 when she started sniffing glue. Dawn then began to use marijuana (age 12), alcohol, and cocaine (age 13), barbiturates, tranquilizers, and heroin (age 18). Her teen years were also punctuated by three suicide attempts. She had nine 28-day inpatient admissions for detoxification by the time she presented for methadone maintenance treatment and subsequently agreed to participate in the study. Her habit at the time of admission was about a “bundle” or 10 bags of heroin intravenously (IV) and 4 “dimes” of cocaine IV daily. On probation, Dawn lived with her mother and brother in the family home, from which she worked as a prostitute. Her maternal grandmother and aunt were active alcoholics. Dawn’s brother, untreated for current heroin dependence, was her drug partner and pimp. Dawn did not know the identity of the father of her child until it was born.

Margo is an unemployed 21-year-old single female who presented for her first methadone maintenance treatment after 4 inpatient hospitalizations for drug treatment. Margo, who readily agreed to participate in the study, used about 4 bags of heroin IV daily. She first started with marijuana at age 13, and then progressed to alcohol (age 15), LSD (age 16), cocaine and heroin (age 18). Margo was no stranger to drugs, as her father died of a heroin overdose, her maternal grandfather and uncle were alcoholics, her maternal aunt was dependent on cocaine and heroin, and her boyfriend was in treatment for opiate dependence. On accelerated rehabilitation for drug possession, Margo reported that she was physically and emotionally abused as a child.

CONTROLS

Jane is a 27-year-old gainfully employed mother of a 6-year-old child. Without a legal or psychiatric history, Jane was first treated with outpatient methadone maintenance at age 26. Her heroin habit was 5–6 bags of heroin IV daily. Jane first used marijuana at age 15, and then began to abuse alcohol and tranquilizers (age 16), barbiturates and cocaine (age 18), and finally heroin (age 21). Although there is no family history of drug abuse of dependence, Jane’s significant other is maintained on methadone.

Susie is a 30-year-old working mother of two sons, ages 6 and 2. With no prior legal or psychiatric history, *Susie* first started to use heroin two year ago after she was raped and had a subsequent abortion. She used alcohol, barbiturates, and marijuana at age 15, and tried cocaine when she was 19. At the time of admission to outpatient methadone treatment, *Susie* had a habit of 10 bags of heroin IV daily.

Although subjects in the enhanced program had a higher average number of urine toxicology screens taken during pregnancy (43 vs. 15), they demonstrated a lower percentage of urine screens positive overall for drugs (59% vs. 76%), and fewer positive cocaine screens (39% vs. 49%). However, enhanced treatment patients had more positive illicit opiate screens (34% vs. 24%). Enhanced treatment subjects had significantly more prenatal care, averaging 3 times as many visits as the 6 conventionally treated women (8.8 vs. 2.7). In addition, enhanced treatment subjects averaged longer gestations (38.2 vs. 35.7 weeks) and delivered heavier infants (median birth weight 2959 vs. 2344 grams). Outcome results are summarized in Table 2.

DISCUSSION

The main findings of this preliminary report are that pregnant opiate-dependent women enrolled in enhanced outpatient drug treatment demonstrate less overall illicit substance use, have more prenatal care, and deliver heavier infants when compared with women treated in conventional methadone maintenance. Most importantly, the median birth weight for infants of enhanced treatment subjects was 2959 grams, or 500 grams more than the median birth weight of infants from conventionally treated women. The median birth weight of 2344 grams for infants of conventionally treated women falls within the low birth weight range, which is associated with increased neonatal and postnatal mortality, increased risk of a variety of health problems, such as neurodevelopmental and congenital anomalies, and significantly increased hospital care costs (Institute of Medicine, 1985).

Limitations of the study include the possibility of sample bias and small sample size. Opiate-dependent women who were more highly motivated to abstain from drug use during pregnancy may have been more likely to agree to participate in the enhanced program, although previous research suggests that treatment-seeking opiate-dependent individuals are more troubled and more likely to have legal difficulties related to drug abuse, poor social functioning, and more psychopathology than those who do not seek treatment (Rounsaville & Kleber, 1985). While the enhanced treatment group appeared to be similar to conventionally treated women in terms of their obstetrical history and methadone doses, their case histories reveal less stable independent functioning. Nonetheless, the authors are now conducting a randomized clinical trial comparing enhanced treatment with conventional methadone maintenance in order to address these limitations.

Given the multitude of social, medical, and interpersonal problems the pregnant opiate dependent woman confronts, methadone maintenance alone may have little impact either on the patient's drug use or on the pregnancy. Based on our preliminary results, it appears that increased services tailored to suit her special needs result in improved pregnancy outcome. Moreover, the most important components of enhanced treatment may well be the availability of prenatal care and increased therapeutic contact through the additional group therapy and urine testing schedule. Therapeutic child care was used to the benefit of both subjects and their children, who profited from the observations and instruction of early childhood development experts. While enhanced methadone maintenance may appear to be more expensive than conventional treatment (\$166 vs. \$96 per woman per week), the potential amelioration of the acute and long-term consequences of prenatal substance use may well justify the extra treatment effort.

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TABLE 1**Patient Characteristics at Intake**

Area Assessed	Enhanced TX (<i>n</i> = 6)	Conventional TX (<i>n</i> = 6)
Demographic variables at intake		
Mean age (range)	25.8 (20 to 33)	28.7 (25 to 31)
Mean years education (range)	11.7 (10 to 14)	12.2 (10 to 15)
% minority	16%	33%
% single/divorced	83%	66%
% on parole/probation	33%	33%
% HIV positive	16%	16%
Mean methadone dose (mg) (range)	55.0 (50 to 60)	46.77 (40 to 60)
Mean previous pregnancies (range)	3.2 (1 to 8)	3.3 (0 to 8)
Mean number children (range)	2.2 (0 to 5)	2.5 (1 to 5)
Cigarette use	1-2 ppd	1-2 ppd

TABLE 2

Comparison of Outcome Variables

	Enhanced TX (<i>n</i> = 6)	Conventional TX (<i>n</i> = 6)
Drug use during pregnancy		
% drug + urine screens (range)	59.2% (0% to 92%)	75.9% (71% to 81%)
% cocaine + screens (range)	39.2% (0% to 88%)	49.3% (0% to 75%)
% opiate + screens (range)	34.3% (0% to 70%)	23.7% (0% to 75%)
Pregnancy outcome		
Median infant weight	2959 grams	2344 grams
Mean # weeks gestation (range)	38.2 (37 to 40)	35.7 (30 to 40)
Mean number ob visits (range)	8.8 (2 to 14)	2.7 (0 to 6)