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Screening for Pregnancy and Contraceptive Use among Women Admitted to a Denver Detoxification Center

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SYNOPSIS

Objective. To determine the prevalence of pregnancy and contraceptive use among female inpatients at a Denver detoxification center who were at risk of becoming pregnant.

Methods. The authors administered surveys and pregnancy tests to 373 female admissions to the Denver CARES detoxification center between March and September 1996.

Results. Most were admitted for alcohol-related reasons, and most reported previous pregnancies. Seven percent of admissions had positive pregnancy tests, and 56% of admissions reported not using contraceptives with every sexual encounter.

Conclusions. Routine assessment of pregnancy status and contraceptive use in women admitted for detoxification, along with on-site family planning services, may be important components of efforts to prevent adverse outcomes associated with substance abuse during pregnancy, including fetal alcohol syndrome.

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Alcohol and drug abuse during pregnancy are known to be associated with a range of adverse consequences, including low birth weight and fetal alcohol syndrome. Studies have shown that many women who abuse drugs while pregnant do not receive prenatal care.[1] Identifying substance-abusing women at risk of becoming pregnant is an important first step in helping these women access appropriate services.

Fetal alcohol syndrome (FAS) is an important public health concern since it is a completely preventable condition and has the potential for long-term consequences in those individuals it affects. The potential consequences of FAS include nervous system damage and growth retardation.[2] The rate of FAS in the general obstetric population has been estimated at 0.97 cases per 1000 live births worldwide and 1.95 per 1000 live births in the United States.[3] However, the estimated worldwide rate of FAS among pregnant women who are heavy drinkers is significantly higher at 43.1 cases per 1000 live births.[3]

A number of studies have attempted to assess the prevalence of alcohol abuse among pregnant women and have stressed the importance of identifying women who abuse alcohol during pregnancy since they are at risk of having children with FAS.[4–8] To our knowledge, however, no studies have assessed the prevalence of pregnancy and contraceptive use among women who are known to abuse alcohol.

A screening and intervention approach to reducing the adverse outcomes associated with substance abuse during pregnancy is novel because it focuses on pregnancy prevention in women undergoing treatment for alcohol abuse rather than on the reduction of alcohol consumption among women receiving prenatal care. Although the latter approach is important, it may not reach a large segment of the high risk population if these women do not receive prenatal care. A recent Colorado study found that 68% of women who had children with FAS had not received prenatal care during the first trimester.[8]

The present study was conducted by the Colorado Department of Public Health and Environment (CDPHE) in collaboration with Denver CARES, a free-standing inpatient detoxification center that is part of the Alcohol, Drug, Psychiatric, and Forensic Department of Denver Health, the public hospital and clinic system serving the city and county of Denver.

Denver CARES admits women and men 18 years of age and older for alcohol or drug detoxification. On admission, clients are either experiencing acute alcohol or drug intoxication or are in withdrawal. The majority of clients are brought to Denver CARES by the facility's emergency medical services patrol or by the police. The center is licensed for 100 inpatient beds, 14 which are reserved for women. Clients are discharged as soon as their blood alcohol levels reach 0. Thus, the majority of clients are only at the facility overnight.

METHODS

Over a six-month period beginning March 7, 1996, female staff members interviewed and collected urine specimens from every woman between 18 and 45 years of age (childbearing age) admitted as an inpatient to Denver CARES. Using a standard survey form, one of two female counselors interviewed each admission, after she was no longer intoxicated. Each admission was also asked to submit a urine specimen for pregnancy testing. Specimens were assayed using the Abbott Test Pack HCG Combo Plus.

The anonymous survey asked for demographic information, including age, ethnicity, education level, marital status, previous admissions to Denver CARES, and reason for the current admission; current sexual activity and contraceptive use; whether the woman thought she was pregnant at the time of interview; and whether she had been trying to become pregnant.

Women who had more than one admission during the study period were given the survey and pregnancy test at each admission. We matched records by age, ethnicity, education level, and number of previous admissions in an attempt to estimate the total number of individual women admitted during the study period. However, because the study was anonymous, we could not create an unduplicated population of individual women. Therefore, we report our analyses by admission instead of by the individual woman.

During the study period, there were a total of 869 female admissions. On nine days during the study period, neither counselor was available to complete the survey; the 32 admissions on these days were not included in the total study population. A survey form was completed for 787 of the remaining 837 admissions, resulting in a participation rate of 94%. The main reasons for nonparticipation were transfer to a hospital before the survey could be completed or leaving Denver CARES prior to detoxification.

For the purposes of this analysis, female admissions older than age 45 or with a self-reported history of a pre-

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vious tubal ligation or hysterectomy were excluded because they were not considered at risk of becoming pregnant. Of the 787 admissions, 139 were older than 45 years of age and were excluded. Of the remaining 648 admissions, 228 were excluded due to self-reported tubal ligation, 32 due to self-reported hysterectomy, and 15 due to both tubal ligation and hysterectomy. The remaining 373 (47% of the 787 admissions) constituted the study population.

Data were analyzed using EpiInfo 6.0 and PC SAS, Version 6.03. We used chi-square analysis or Fisher's Exact Test, as appropriate, to test for significant differences for categorical variables. We used t-tests and analysis of variance to test for significant differences for continuous variables. A *P*-value of 0.05 was considered statistically significant.

RESULTS

By reviewing demographic information for the 373 admissions, we estimated that approximately 91 (24%) had been previously admitted during the study period, and thus an estimated total of 282 women were represented in the study population. We also estimated that the 24 positive pregnancy tests were obtained from 17 different women, leading to an estimated pregnancy rate of 6% (17/282). This rate was close to the overall pregnancy rate for female admissions (24/369) (see Table).

We also reviewed census data for all female inpatients ages 18 through 45 admitted to Denver CARES during the study period and calculated that 36% of the admissions had been admitted previously. Applying this percentage to the 24 admissions with positive pregnancy tests results in an estimate of 15 pregnant women, similar to the 17 estimated by the matching procedure.

The following results are reported by admission instead of by individual women because confidentiality considerations kept us from being able to identify which women had been previously admitted to Denver CARES during the study period. The Table shows self-reported demographic information and contraceptive use and pregnancy test results for the 373 female admissions. The vast majority (94%) were admitted for alcohol-related reasons (80% were admitted for alcohol intoxication or withdrawal and 14% for a combination of alcohol and other drugs). Over half (54%) were readmissions to Denver CARES, although not necessarily during the study period.

Sexual activity in the month prior to admission was reported by 69% of female admissions, while only 47% of female admissions reported current contraceptive use. Especially noteworthy is that fewer than half (44%) of female admissions reported consistent use of contraception with every sexual encounter.

When current use of contraception was reported, condoms were the most common form of birth control mentioned (32%), followed by Depo-provera (24%), the pill (23%), Norplant (10%), partner with a vasectomy (5%), intrauterine device (3%), diaphragm (2%), spermicide (2%), and abstinence (1%). Thus, forms of birth control that require application or insertion with every sexual encounter or on a daily basis (condom, birth control pills, diaphragm, and spermicide) accounted for 59% of reports.

Pregnancy tests were refused by four admissions. There were a total of 24 positive pregnancy tests during the study period, for a pregnancy rate of 7%. Among the

Table. Self-reported demographic characteristics and reproductive history for 373 female admissions ages 18 to 45 years with no history of tubal ligation or hysterectomy, Denver Cares (a Denver, Colorado, substance abuse detoxification center), March 7, 1996, to September 6, 1996

Characteristic	Admissions (N = 373) Number	Percent
Age group (years)		
18–25	71	19
26–35	178	48
36–45	124	33
High school graduate		
Yes	237	64
No	136	36
Currently married or with a steady partner		
Yes	210	56
No	163	44
Previous admission to the center		
Yes	202	54
No	171	46
Median number of previous admissions	4	—
Current admission alcohol-related		
Yes	351	94
No	22	6
One or more previous pregnancy(ies)		
Yes	306	82
No	67	18
Median number of previous pregnancies	3	—
Sexually active with one or more partners in past month		
Yes	256	69
No	117	31
Currently using contraception		
Yes	177	47
No	196	53
Using contraception with every sexual encounter		
Yes	165	44
No	208	56
Currently trying to become pregnant		
Yes	33	9
No	340	91
Positive urine pregnancy test (n = 369)	24	7

24 admissions with positive tests, 19 reported having known they were pregnant, and eight said they had been trying to become pregnant. Among admissions with negative pregnancy tests, 25 reported that they been trying to become pregnant.

Admissions with positive pregnancy tests were more likely to have previously been admitted to Denver CARES (not necessarily during the study period) than admissions with negative pregnancy tests (71% versus 53%, $P = 0.08$). Admissions with positive pregnancy tests had a significantly higher mean number of previous admissions (20) than admissions with negative pregnancy tests (mean of 5 previous admissions) ($P < 0.01$). Significantly more of those with a history of previous admissions (12%) reported actively trying to become pregnant than those admitted for the first time (5%) ($P = 0.009$). Despite these differences, female admissions with a history of previous admission to Denver CARES were no more or less likely to report contraceptive use with every sexual encounter than female admissions admitted to Denver CARES for the first time.

DISCUSSION

These results should be interpreted cautiously because the data were self-reported. It seems likely that some of the women may have overstated their contraceptive use and underreported their attempts to become pregnant.

Another limitation of the study is that we collected data by admission rather than by the individual woman. This was the result of our collecting data and urine specimens anonymously, which was done to increase participation and ensure privacy. Although we estimated the number of readmissions to Denver CARES during the study period, it would not be valid to adjust the percentages in the Table by this estimate. A woman's responses on one admission may not be the same as on her previous admission. For example, a woman might be using contraceptives at one time but not the other. Each admission should be viewed independently as an opportunity for an intervention to prevent adverse pregnancy outcomes, and individual prevention plans should be based on the most current information.

Excluding admissions whom we did not consider at risk of pregnancy, we found a high likelihood of becoming pregnant among the female alcohol and drug detoxification inpatients included in our study. We calculated a 7% pregnancy rate, while 56% reported not using contraceptives with every sexual encounter and

"We found that the female alcohol and drug detoxification inpatients included in our study had a high likelihood of becoming pregnant."

9% reported actively trying to become pregnant. It should be noted that the questionnaire did not distinguish between male-female and female-female sexual activity; it would be valuable to address this distinction in future studies.

The results of this study suggest that women admitted for drug detoxification should be routinely assessed for fertility status and that all fertile women should be assessed for pregnancy status and contraceptive use. This population of severely addicted women are frequently readmitted to the treatment center, and we would expect to be well known to the staff. There are potentially more opportunities to intervene with this group, and therefore, it seems logical that these patients should be the highest priority for pregnancy screening and family planning services. The relationship between previous admissions and positive pregnancy tests and between previous admissions and actively trying to become pregnant—along with the high percentage of admissions reporting previous pregnancies—underscores the potential for success of this type of intervention.

Routine assessment of pregnancy status and contraceptive use among women in alcohol and drug detoxification centers should be accompanied by efforts to direct pregnant women into the appropriate substance abuse treatment programs and prenatal care. However, because women admitted to centers such as Denver CARES tend to have a high rate of readmission and are admitted for a only few days at a time or less, it may be most effective to offer family planning services at detoxification centers instead of referring women to services elsewhere.

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