

Differential Health and Toxicological Features of Drug-Dependents in Treatment and in Active Consumption

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Objectives. To describe and compare the demographic and health characteristics and drug use patterns in a group of drug dependent individuals who were actively using drugs versus those in different types of treatment. To analyze the interventions used with the different groups.

Design. Descriptive study.

Setting. Users at the Association for Aid to Drug Dependent Persons (Asociación de Ayuda al Drogodependiente, ACLAD) in the city of Valladolid in northwestern Spain.

Patients. 1224 drug dependent persons.

Measures. We reviewed the medical records for a 30-month period for users who were seen at a treatment center and who were participating in a damage reduction program. We recorded demographic, drug use and clinical variables and compared changes.

Results. We studied 1224 patients in all. One-third had human immunodeficiency virus infection, 63% had markers for previous hepatitis A infection, 48% had markers for hepatitis B, and 68.5% for hepatitis C. The Mantoux test was positive in 39.1%. We found differences in the prevalence of infections between active drug users and users in treatment, between drug dependent persons receiving different types of treatment, and between different periods of study.

Conclusions. There were clear differences in demographic and health characteristics and drug use patterns between users. Those who were not in rehabilitation were in worse health, and were studied in less detail than other groups of drug users. During follow-up we noted a slight improvement in their health conditions, along with a tendency toward improved primary care interventions.

Key words: Drug dependence. HIV infection. Hepatitis. Tuberculosis.

CARACTERÍSTICAS DIFERENCIALES SANITARIAS Y TOXICOLÓGICAS DE DROGODEPENDIENTES EN TRATAMIENTO Y CONSUMO ACTIVO

Objetivo. Describir y comparar las características demográficas, toxicológicas y sanitarias de un colectivo de drogodependientes que se encuentra en consumo activo y en diferentes modalidades terapéuticas. Analizar las intervenciones realizadas con estos diferentes colectivos.

Diseño. Estudio descriptivo.

Emplazamiento. Usuarios que han acudido a la asociación ACLAD de Valladolid.

Pacientes. Un total de 1.224 drogodependientes.

Mediciones. Revisión de las historias clínicas de los usuarios atendidos en un centro de tratamiento y en un programa de reducción de daños durante un período de 30 meses. Se registran diferentes variables demográficas, toxicológicas y clínicas, se efectúa la comparación entre programas y se valora la evolución de los pacientes.

Resultados. Se estudian 1.224 pacientes. Un tercio presenta infección por el virus de la inmunodeficiencia humana; el 63%, marcadores de una hepatitis A pasada, el 48%, marcadores de hepatitis B, y el 68,5% de hepatitis C. En el 39,1% es positiva la prueba de Mantoux. Se observan diferencias en la prevalencia de infecciones entre los usuarios en consumo activo y los usuarios en tratamiento, entre los drogodependientes en diferentes modalidades terapéuticas y en el período del estudio.

Conclusiones. Existen claras diferencias en las características demográficas, toxicológicas y sanitarias de los usuarios incluidos en el estudio. Los usuarios que no están en tratamiento de rehabilitación son los que peores condiciones sanitarias tienen. Éstos son los menos estudiados por nuestra parte. En estos años de seguimiento se detecta una leve mejoría de estas condiciones y también una tendencia a la mejora de nuestra intervención.

Palabras clave: Drogodependencias. Infección por el VIH. Hepatitis. Tuberculosis.

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A commentary follow
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Introduction

Drug dependence is a primary care problem that has yet to be solved. Drug use habits are changing, and certain drugs are now perceived as «normal» (e.g., alcohol, synthetic drugs and cannabis), while others are still considered unacceptable (e.g., heroin). Moreover, the age of initiation of drug addiction continues to fall. These factors lead to a user profile that clearly differs from the archetype of the «drug addict:» dependent on intravenous heroin, marginalized, extremely precarious lifestyle characterized by serious judicial and health problems,¹ etc. The «new drug addict» has begun to turn to health and social services which are assumed to be nonspecific, standardized, and able to solve the patient's problem. The role of primary care is therefore indispensable, inasmuch as consumers of the «new drugs» fail to use specific services specialized in helping drug dependent persons who are in poor physical health and whose problems have become chronic.^{2,3}

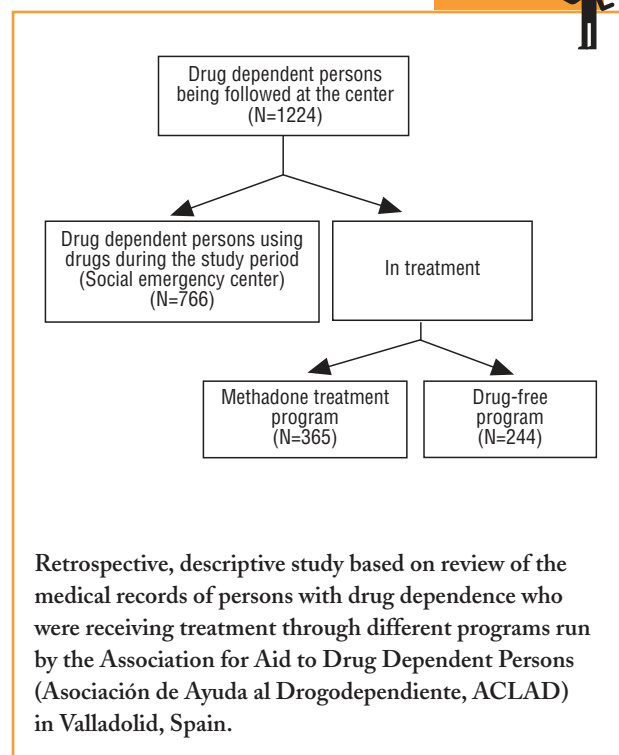
The «classical» drug dependent population comprises a varied group of individuals in which there is little relationship between intravenous drug users and persons who use other routes of administration,^{4,5} between those who are actively consuming drugs and those who are in rehabilitation, and between those receiving treatment with opiate agonists and those taking part in drug-free programs. As a result, different studies have reported results that are generally not comparable simply because the populations selected are different.

A variety of resources are available for persons with drug dependence. Social emergency centers (SEC) are available for drug dependent persons who are actively using drugs. The services these centers provide aim to reduce the damage without requiring abstinence as a condition, e.g., needle exchange, rest, personal hygiene, health care and health educational.⁶ Methadone maintenance programs (MMP), offered as a low-commitment resource,^{7,8} are offered for heroin dependent persons, and are usually used by persons whose problems have become chronic. Drug-free programs (DFP), in contrast, are high-commitment programs that are usually aimed at persons whose personal and social circumstances are more favorable. The hypothesis we studied was that there would be differences in demographic and health characteristics and in drug use patterns between different groups of drug dependent persons.

Methods

We retrospectively reviewed the medical records of drug dependent persons who were participating in different programs (SEC for users who were actively consuming drugs, MMP and DRP for users in treatment) between 1 January 2000 and 20 June

Material and methods



2002. Information was recorded for the following variables: main program the user was participating in, sex, age, age at the start of drug use, main drug, route of administration, serological findings for human immunodeficiency (HIV), hepatitis A (HAV) and hepatitis B (HBV) virus infection (antiHBc antibodies or HBs antigen was considered a positive test result), hepatitis C (HCV) virus infection and tuberculosis infection (PPD+). For tuberculosis, a wheal larger than 5 mm in the Mantoux test or larger than 15 mm in patients with BCG vaccination was considered a positive test result. We also noted whether the results of the tests for these infectious diseases were included in the patient's medical record.

Statistical analysis

Quantitative variables that showed a normal distribution were reported as mean values, which were compared with Student's *t* test. Variables that did not show a normal distribution were compared with the Mann-Whitney U test. Associations between qualitative variables were identified with the χ^2 test. The level of statistical significance was set at $P < .05$. All statistical tests were done with version 6 of the Epi Info program.

Results

We identified a total of 1224 users (predominantly male). Almost half of whom were current or former multiple intravenous substance abusers (Table 1).

Table 2 shows the prevalence of the infections we recorded (HIV, HAV, HBV, HCV and tuberculosis) and the per-

centage of users for whom the results of the laboratory test for AIDS, hepatitis or tuberculosis were known. The data are shown for all participants and for each program separately. Mean age of the user population was younger in women (32.6 vs 33.6 years, $P<.001$), but there was no significant difference between the sexes in mean age at the start of drug use. Intravenous drug users were older than users of different routes of administration, and the former were younger when they first started to use drugs ($P<.001$). Drug dependent persons on the DFP were younger and had started using drugs at a later age (and had therefore been using drugs for less time) in comparison to active drug users (SEC) ($P<.001$) or users on the MMP ($P=.001$). Users with viral infections (HIV and hepatitis) and tuberculosis were generally older and had started using drugs at a younger age, with the exception of HAV carriers and users with a positive PPD test for tuberculosis, who started drug use at significantly older ages ($P<.001$). During the study period we found no differences in current age or age at the start of drug use among users in different treatment programs.

Intravenous drug use was more frequent among men (52.8%) than among women (35.1%; $P<.001$). The sex ratio in different treatment programs differed: although men were more numerous in all programs, the difference between men and women was greatest in the DFP.

There were no differences between men and women in the prevalence of viral infection, but the prevalence of tuberculosis infection was greater in men (44% vs 31.3%; $P<.001$). The distribution of these infectious diseases between men and women did not vary during the study period.

Users who were consuming drugs during the 30-month study period were most of-

TABLE 1

Demographic and drug use variables. Data (followed by percentage values in parentheses) are shown for all participants and for each program separately.

	Global, n=1224 (%)	SEC, n=766 (%)	MMP, n=365 (%)	DFP, n=244 (%)
Sex				
Men	963 (78.7)	586 (76.5)	284 (77.8)	214 (87.7)
Women	261 (21.3)	180 (23.5)	81 (22.2)	30 (12.3)
Age, years	33.41 (SD, 6.16)	33.84 (SD, 6.14)	33.33 (SD, 6.14)	32.15 (SD, 6.21)
Initial age, years	21.25 (SD, 6.00)	21.11 (SD, 6.00)	20.99 (SD, 6.13)	22.24 (SD, 5.84)
Main drug				
Heroin	18.1			
Cocaine	6.4			
Combined	70.8			
Routes of administration				
IV	592 (48.4)	443 (57.8)	159 (43.5)	74 (30.3)
No IV	632 (51.6)	323 (42.2)	206 (56.5)	170 (69.7)

SEC indicates social emergency center; MMP, methadone maintenance program; DFP, drug-free program; SD, standard deviation; combined: heroin+cocaine; IV, intravenous.

ten those who used injection drugs ($P<.001$). Among persons under treatment during the study period, intravenous drug use was more frequent among participants in the MMP than among those in the DFP ($P<.001$). During the preceding two years we found no changes in the types of drug use. The prevalence of HIV, HVB and HVC infection was significantly higher among injection drug users than in other users. Moreover, we noted an association between tuberculosis infection and injection drug addiction, but no differences the prevalence of HAV infection between users of different routes of administration ($P<.001$).

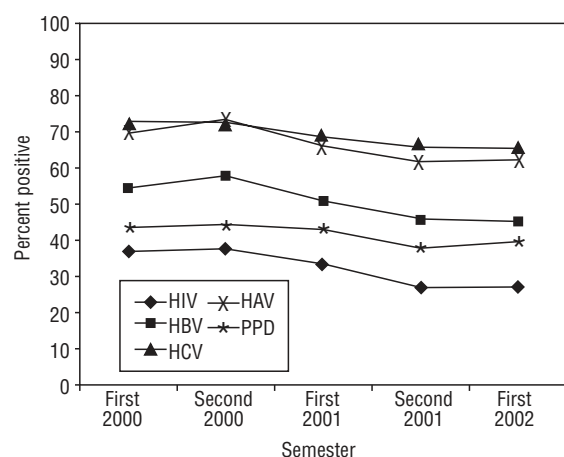
The prevalence of different infections is shown in Table 2. Figures 1 and 2 illustrate the changes with time in the

TABLE 2

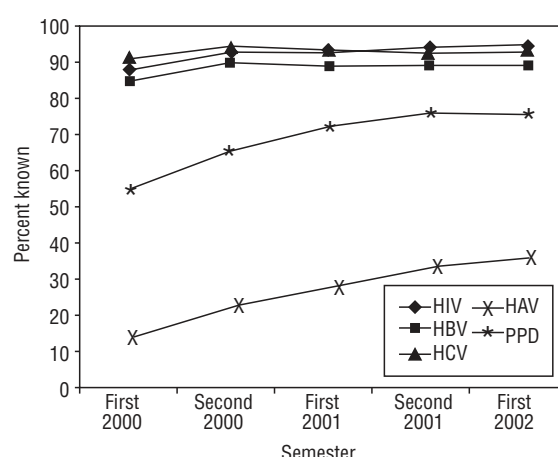
Prevalence of and information on infectious diseases. Data (followed by percentage values in parentheses) are shown for all participants and for each program separately

	Global, n=1224 (%)	SEC, n=766 (%)	MMP, n 365 (%)	DFP, n=244 (%)
HIV+	386 (34.1)	261 (38.2)	109 (30.8)	28 (12.2)
HAV+	217 (63.1)	141 (67.4)	84 (62.3)	31 (66.3)
HBV+	520 (48)	372 (57.9)	177 (51.7)	63 (27.3)
HCV+	777 (68.5)	527 (76)	233 (66.7)	111 (49)
PPD+	334 (39.1)	198 (42.8)	117 (41.7)	75 (35.5)
HIV K	1133 (92.6)	683 (89.2)	355 (97.3)	233 (95.3)
HAV K	344 (28.1)	210 (27.4)	135 (37.1)	47 (19.2)
HBV K	1084 (88.6)	642 (83.8)	342 (93.8)	232 (95.1)
HCV K	1135 (92.7)	694 (90.6)	350 (95.9)	227 (93.1)
PPD K	854 (69.8)	463 (60.4)	280 (76.7)	211 (86.4)

SEC indicates social emergency center; MMP, methadone maintenance program; DFP, drug-free program; HIV: human immunodeficiency virus; HAV, hepatitis A virus; HBV, hepatitis B virus; HCV, hepatitis C virus; PPD, tuberculosis infection (purified protein derivative); +, positive (number and percentage of users with a positive test); K, known (number and percentage of users for whom this test result was available).

**FIGURE 1**

Prevalence of infections per semester.

**FIGURE 2**

Information available on infectious diseases semester.

prevalence of different infections and in the percentage of patients in each program and in each semester for whom information on these infections was available.

Among users who were consuming drugs during the study period, the prevalence of HIV, HBV and HCV infection was significantly higher than among drug dependent persons in rehabilitation. In the former group some figures were as much as threefold as high as in users who were receiving treatment.

Among drug dependent persons in the MMP, the prevalence of HIV, HBV and HCV was much higher than among participants in the DFP.

There were no differences in the prevalence of tuberculosis infection or HAV infection between any of the groups. With regard to the information available about infectious diseases, the results were satisfactory in all programs for the diagnosis of HIV, HBV and HCV infection, which had been tested for in more than 90% of the users. However, the results were worse for tuberculosis: in more than 30% of the drug dependent persons whose records we reviewed, no information was given regarding this disease. The results for HAV infection reflect the recent implementation of a program aimed specifically at detecting antiHAV antibodies in SEC programs. In general, information on infectious diseases tended to be available for a larger percentage of users in rehabilitation than for users who were not participating in any treatment program during the study period.

We also noted a slight tendency for the prevalence of all infections to decrease during the study period; this tendency was significant for HIV and HBV ($P=.003$). We also noted an increase during the study period in the number of users for whom test results for these diseases were recorded. Significant improvements were seen in the num-

ber of users with HIV, HAV and tuberculosis infection ($P<.001$), and nonsignificant improvements were seen for HBV and HCV infection.

Discussion

There were clear differences in the demographic, drug use and health characteristics of our users. We found that drug dependent persons who were consuming drugs during the study period were older, had begun to use drugs at a younger age, and more often used injection drugs. The sex ratio for active consumers was closer to 1 than in the other groups we studied, and the prevalence of chronic infectious diseases was higher in this group.

In contrast, users in the DFP were usually younger, had used drugs for shorter periods, used mainly inhalation drugs, and were in better general health.

Users in the MMP showed intermediate characteristics.⁹ The sex ratio was similar to that in the group of active drug users. The prevalence of infectious diseases was between that in the other two groups, although it was closer to the figure for persons who were using drugs.

The >60% prevalence of antiHAV antibodies in all subgroups appears to support the usefulness of prevaccination testing in all drug dependent individuals to identify those who may benefit from anti-hepatitis A vaccination.¹⁰

We found no differences in the prevalence of tuberculosis infection between the different groups of drug users. In general, the prevalence was lower than in other studies.¹¹ In an earlier (unpublished) report by our group, we concluded that the number of expected cases of tuberculosis for the year 2000 among drug dependent persons who were seen at the SEC was 8.6; this figure illustrates the

Discussion
Key points

What is known about the subject

- Better approaches to treatment for drug dependence require knowledge of the characteristics of drug users.
- The prevalence of tuberculosis and chronic viral infections transmitted parenterally is high among drug dependent persons.

What this study contributes

- We describe drug use patterns and clinical characteristics in a large group of drug dependent individuals.
- We found differences between abusers who were actively consuming drugs and those in treatment, and between users who were receiving different types of treatment.
- We describe the differences between the clinical treatments used for different groups, and report that users whose health status was poor were also the least well studied and least frequently diagnosed.

importance of programs designed to actively seek and identify persons with tuberculosis in order to treat latent infections.¹²

In addition to these differences, we found that the types of service that required greater commitment on the part of the drug user, i.e., those that provided care for users in better physical health, tested for and diagnosed infectious diseases in larger percentages of patients. In contrast, programs that provided care for drug dependent persons who were using drugs and who were in worse health tested for and documented infectious disease status in a lower proportion of users. We can therefore expect the rate of chronic infectious disease to remain considerable among these users.

To summarize, users who were not in rehabilitation were in worse health, and were less frequently diagnosed at primary care centers as having infectious diseases. We observed a slight improvement during the study period in the health of these users, and a tendency for primary care health interventions to improve.

New approaches to therapy (for example, prescriptions for heroin)¹³ may allow us to provide care for those substance abusers whom current programs still fail to reach.

Acknowledgments

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COMMENTARY

Adapting Resources to the Needs of Drug Dependent Persons: How Much Longer Will Standardization Take?

M. Melguizo

In the last 30 years Spanish society has faced serious health and social problems arising from drug dependence, and it cannot be said that care for drug dependent individuals has been standardized. Recent years have seen important changes in tendencies and patterns of drug use: the percentage of women addicts is increasing, and the age of first contact with toxic substances is now as low as 13 to 15 years—a factor that increases the risk of addiction. Moreover, an increasing variety of toxic substances are now being consumed, and the use of substances viewed as «normal» as well as access to them are on the rise. Multiple drug dependence is now the rule rather than the exception, and this makes it difficult to develop effective therapies. Substance use, for many, has ceased to be a daily, compulsive activity and has become an occasional but habitual behavior associated with leisure time activities on evenings and at night, during parties and on weekends. The route of administration has changed, mainly among consumers of heroin and opioids, such that pulmonary (smoking heroin in a pipe or inhaling fumes from aluminum foil) and intranasal routes (sniffing powdered material) have replaced intravenous use.

Drug addiction has also changed from a social standpoint, and is now viewed as a «normal» situation removed from marginality and delinquency. The view of the junkie as a jobless outlaw living in poverty and suffering from associated infectious diseases has been superseded, although not entirely forgotten. In its place has emerged a new type of addict: the younger, weekend user who consumes multiple drugs and is socially well adapted (at least initially), and who has fewer associated infectious diseases. However, because of variations in the types of substance consumed, their affordability, and the duration of drug use, these persons form a heterogeneous group in which social stereotypes have blurred. Some dependent persons are extremely marginalized, increasingly ostracized and condemned to social euthanasia, whereas others are part of a distinguished crowd living the superficial life of a socialite addict.

With regard to health care, we are facing a situation marked by transition in which the epidemic spread of hepatitis C, hepatitis B, HIV infection and tuberculosis in persons dependent on opiate drugs has largely been contained. Current alarm originates not from the health ser-

vice, but from rising AIDS-associated morbidity and mortality, which has triggered the search for «clean» drugs that avoid needle sharing and intravenous injection. The study in this issue by Navarro Cañada et al reports alarming figures for the prevalence of HIV and hepatitis C infection, the consequences of which will be felt in the middle and long term. The recurrent but largely neglected tuberculosis problem merits particular attention. In addition, we should realize that prevalence studies always miss the most severely marginalized group of opiate dependent persons who constitute an «unassailable stronghold» that social and health services fail to reach.

As in other levels of health care, the involvement of primary care in providing help for drug dependence has been inadequate, and it is only in recent times that there has been a firm commitment on the part of regional health systems to do their part in caring for these patients. The response to this problem has historically been to outsource care for drug dependent persons. The causes of this neglect have included:

- Non-appreciation of drug dependent individuals as patients
- Inadequate involvement of the health system in care for drug dependent persons until they come to be considered infectious disease patients. This has favored the appearance of poorly coordinated parallel systems.
- Lack of flexibility (based on a cure-oriented mentality) in considering detoxification and quitting the only possible treatment for drug dependence.

In the near future we may hope to see health professionals commit to three specific goals: accepting heterogeneity among drug dependent individuals, diversifying therapeutic strategies, and devoting greater resources to health care and coordination between programs.

Drug dependent persons differ in the number of substances they use (one or more than one), the type of consumption, and their attitude toward drug use. Users of illegal drugs are always one step ahead of health care professionals in terms of knowledge about the substances they consume, and this obliges us to constantly update our own knowledge. Although we have traditionally associated drug dependence with opiates and their derivatives, the

use of (for example) synthetic drugs is a reality, and their consumption is increasing as reflected in the changing patterns of drug use in the last decade. These drugs are associated with other substances, a feature that increases the risk of acute intoxication and makes treatment difficult. Antidotes are not available for some synthetic drugs, and there is already evidence of irreversible neurotoxic damage whose middle and long term effects remain unknown.

Therapeutic options need to be diversified in accordance with the health needs and the wishes of drug dependent patients. As the article by Navarro Cañada et al points out, activities aimed at damage reduction (e.g., needle exchange and heroin prescriptions) are just as legitimate as high-commitment, drug-free programs. Three degrees of intervention have been established depending on the level of commitment required from the drug dependent patient:

- Low: administration of opioid agonists and medical supervision.
- Moderate: As in low-commitment programs but with social and educational support in the form of workshops and resources for economic and judicial rehabilitation.
- High: As above but with psychotherapeutic support in the form of educational therapy and treatment for psychological disorders.

Another issue centers on cost effectiveness evaluations for each type of intervention. Any option that leads to improvements in the health, social situation or social cohesion and integration of drug dependent persons and their families is acceptable.

Increased efforts on the part of the health care system, and particularly primary care services, are indispensable. Drug

dependent persons should be considered persons who are ill, and therefore as patients who can benefit from preventive interventions or specific treatments. In addition, they should be considered as persons who have asked for help. No other type of user has the potential to benefit more from the features intrinsic to primary care: access, integral care, continuity and a biopsychosocial approach to care. Thus the commitment of primary care teams needs to go beyond mere gestures.

Naturally there will be situations for which there is no appropriate treatment. Such patients should receive care that maximizes their chances of staying alive and enjoying an acceptable quality of life. This, in fact, is the same approach as is desirable for patients with any chronic illness. When this approach is used for all patients with chronic health problems, we will have achieved the standardization that Navarro Cañadas and colleagues urge us to aspire to, and that is surely within our reach.

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