# Addiction characteristics as prognostic factors in opiate dependence treated with naltrexone

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***Características de la adicción como factores pronósticos en el tratamiento con naltrexona de la dependencia de opiáceos***

**Summary**

Introduction. *Addiction characteristics as prognostic factors in opiate dependence treatment were studied. Thus, several factors related to previous opiate consumption record were considered (current heroin route, amount of heroin, onset age of heroin consumption, time of heroin consumption, other drug consumption record).*

Objective. *To establish the prognostic value of addiction characteristics in a naltrexone program for opiate dependence.*

Methods. *To achieve this objective, an observational, retrospective study was designed with a design of a treatment group with no control group. 945 subjects diagnosed of opiate dependence who were consecutively hospitalized voluntarily in the naltrexone program of the Hospital Ramon y Cajal of Madrid during 1991-1995 form a part of the study population. Descriptive and survival techniques were used to analyze the data.*

Results. *Previous intravenous heroin route, chronic heroin consumption record, onset age of heroin use younger than 17 or older than 25, and other drug consumption especially benzodiazepine and also cocaine provide a prognostic value for a worse outcome. High quantities of heroin consumption also tend to be associated with a poorer evolution.*

Conclusions. *Several addiction characteristics (current previous route, onset age of heroin consumption, quantity of heroin consumption, time of heroin consumption, other drug consumption) have a prognostic value for treatment evolution. Further studies are necessary to provide a more complete knowledge of addiction characteristics as prognosis factors in opiate dependence treatment.*

***Key words:*** *Naltrexone. Addiction characteristics. Prognosis factor. Heroin. Opiate dependence.*

**Resumen**

Introducción. *Se estudia el valor pronóstico de las características de la adicción en el tratamiento de la dependencia de opiáceos. Para ello se consideran diversas variables relacionadas con la historia previa de consumo de opiáceos (vía de administración, cantidad de sustancia consumida, edad de inicio en la adicción, tiempo de consumo, abuso de otras sustancias).*

Objetivo. *Establecer el valor pronóstico de las características de la adicción en el tratamiento con naltrexona de la dependencia de opiáceos.*

Métodos. *Estudio observacional retrospectivo con diseño de un grupo de tratamiento sin grupo control. Se estudian 945 pacientes dependientes de opiáceos que durante 1991-1995 inician de forma consecutiva tratamiento con naltrexona en el Hospital Ramón y Cajal de Madrid. Para el análisis estadístico se emplean técnicas descriptivas e inferenciales (técnicas de supervivencia).*

Resultados. *Se establecen como variables predictivas de mala evolución el consumo habitual de heroína previo por vía intravenosa, historia prolongada de consumo, edad de inicio en la adicción anterior a los 17 años o posterior a los 25 años y consumo concomitante de otras sustancias, en particular benzodiazepinas y cocaína. Cantidades elevadas de consumo de heroína tienden asimismo a asociarse con peor evolución.*

Conclusiones. *Determinadas características de la adicción (duración de la dependencia, vía previa de consumo, edad de inicio, cantidad consumida, consumo de otras sustancias) tienen valor pronóstico en la evolución del tratamiento. Son necesarios estudios posteriores que puedan facilitar la comprensión de la importancia pronóstica de la historia adictiva en la evolución del tratamiento.*

***Palabras clave:*** *Heroína. Naltrexona. Dependencia de opiáceos. Características de la adicción. Factor pronóstico.*

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## INTRODUCTION

There are many publications that refer to the prognostic factors in the treatment of opiate dependence, some of which have been related with the probability of success of the therapeutic programs. The formal definition of a user pattern would make it possible to decide

the indication of a treatment in order to maximize the benefits of each therapeutic program. However, the results of the studies are often contradictory and not very conclusive.

Several factors have conditioned the stagnation of the research in this field. On the one hand, there are difficulties to generalize the results. Some studies refer to programs having «low demand» (maintenance with opiates, mainly methadone), while others refer to «high demand» programs (treatment with opiate antagonists, and other drug free programs). The conclusions on the variables studied in each treatment cannot, therefore, be easily extrapolated[1-3]. Since dependency is a complex condition that not only is directly affected by several factors but that these factors can also interact between themselves, the study of these variables is often confusing and complicated. Added to this difficulty for investigation are others such as the heterogeneity of the sample[4], the different selection criteria and definitions of «case», diversity of schools and theoretical constructs, with their respective therapeutic team models, etc. Because of the characteristics of each program, the findings are not very reproducible when analyzing effectiveness, which not only eliminates possibilities of comparing the programs but also of performing meta-analyses[5]. The non-specificity of the isolated variables when trying to differentiate the therapeutic programs also stands out since most of them have been found equally in therapies with agonists as well as in treatments with antagonists and in other drug free programs[2-3]. It is necessary to study not only the predictor factors prior to the treatment but also those that develop during it[3], and its relationships. Some of the studies from which prognostic factors are induced have used small samples, which, combined with short follow-ups, sometimes confer doubtful validity to the results[1]. Long term follow-up studies have stressed the instability of the predictive value over time, at least, of some variables[6,7]. The idiosyncrasy of the opiate addict patient does not facilitate this point, treatment drop-outs, discontinuous and partial follow-up, limited collaboration in studies beyond the purely clinical application, etc. being frequent[8]. These circumstances usually make it difficult to carry out prolonged and complete investigations that can provide results that are valid and can be extrapolated.

The analysis of the evolution predictors has also been harmed due to the disparity in the suitable parameter to measure efficacy. Although there have been others, there are three main parameters that the different authors have been using to measure the effectiveness of the treatment programs[2,9-11]. The most classical option is accepting opiate substance abstinence as a parameter. This means a partial view of the problem, rejecting the repercussion that the recovery of the subject has on other non-toxicological variables[12,13]. The restrictive use of the abstinence parameter clashes with the present way of conceptualizing the additive condition and recovery, in which the small relapses and sporadic consumptions are not considered therapeutic failures, but rather part of the process of change itself[14-18]. Another one of the parameters used to evaluate the programs is the amount of drop-outs or retention. The rate of patients who relapse in opiate consumption (70 %) is high[19], especially during the first month of treatment, ranging from 27 to 60 % in naltrexone programs, between 20 % and 60 % in methadone programs and close to 80 % in the therapeutic communities at six months of initiating treatment[20-26]. However, after the relapse, the patient frequently renews treatment, benefiting from it again[18,27-30]. The fundamental advantage of this measure regarding abstinence consists in the fact that it makes it possible to continue treatment evaluation in spite of the relapses in sporadic consumption[31]. The third one of these pathways to evaluate the effectiveness of the treatment is the consideration that the therapeutic development has on variables that are not directly related with consumption. Such is the case of the work, family or legal status situation[32]. Although these do not define the final and essential objective of the treatment, it does not seem to be erroneous that the present view of drug dependence such as overall involvement of the subject, including all the aspects of his/her existence, requires a certain transformation of the social and relational status, of the life style, of the subject to be able to speak of «improvement». However, it must be stressed that the improvement in the different areas is not uniform[33], such positive evolution (for example in the legal and work areas) being prominent in some aspects and less relevant in other areas (improvement of the psychopathology)[34-36].

## The history of previous consumption as prognostic indicator of evolution

There is no unanimity in regards to the role played by the characteristics of addiction in regards to establishing treatment prognosis. Some[37] minimize the importance of the substance consumption condition at the onset of treatment as a retention predictor factor of a drug free out-patient program, granting greater importance to the sociodemographic (race, age and work situation) type of variables. In general, it is accepted that the greater severity of dependence on opiate substances is a predictive factor or poor evolution[38,39]. The following factors have been proposed:

*a) Amount* (table 1). The study of the usual amount of opiate consumed marks the treatment prognosis. Consumptions of low amounts in the months prior to the onset of the treatment are considered a favoring factor of its good result[40]. Thus, some have related the number of consumptions per week and the frequency of exposure to environmental stimuli with consumption as parameters that significantly and independently predict the frequency of opiate use during detoxification treatment with methadone[41]. Equally, in a prospective study, it is concluded that a lower rate of injections (less than 4 times/day) of heroin, prior to the incorporation to a methadone maintenance program, doubles the likelihood of obtain-

**TABLE 1. Previous amount consumed and prognosis (revision)**

| *Author and year of publication* | *Variable prior to treatment* | *Treatment type* | *Result* | |
|---|---|---|---|---|
| Babst et al., 1971[44] | Little stable amount | Detoxification with methadone | Favors treatment | + |
| Vaillant, 1973[46] | | Several | Follow-up of 20 years | – |
| Resnick and Washton, 1978[55] | Amount consumed in previous 6 months | Treatment with naltrexone | Conditions treatment | + |
| Capone et al., 1986[40] Iguchi et al., 1991[41] | Number of weeks consumptions and frequency of exposure to stimuli related with consumption | Detoxification with methadone | Predicts relapse | + |
| Bedate et al., 1995[45] | Prolonged addictions and high heroin doses | Treatment with naltrexone | Predictor of relapse | + |
| Simpson et al., 1997[42] | Heroin injection rate less than 4/d | Detoxification with methadone | Doubles possibility of success | + |

ing a good therapeutic result[42]. Other studies also support the fact that the amount of substance consumed in the six months prior to the therapeutic program conditions it prognostically[43], that stable consumption of a limited amount in time favors future evolutions[44], that prolonged addictions and high heron doses are predictive factors of relapse[45]. However, others do not grant determining importance to this factor in their investigation[46].

*b) Administration pathway.* A worse evolution is considered among the parenteral drug users regarding those who consume it inhaled/smoked[18,47]. Intravenous consumption of heroin indicates greater severity in opiate dependence and is associated to a worse evolution.

*c) Previous time of consumption* (table 2). The majority opinion[48,49] holds that relatively short consumption histories, normally associated with less repercussion in other functioning areas of the individual, determine a worse prognosis in treatment due to less motivation and scarce search for help. Paradoxically, the same occurs with well-established consumptions, usually associated to numerous failed dehabituation attempts, in

**TABLE 2. Previous consumption time and prognosis (revision)**

| *Author and year of publication* | *Study* | *Treatment type* | *Result* |
|---|---|---|---|
| Oppenheimer et al., 1979[48] Del Río et al., 1997 | Follow-up of abstinent heroin addicts | Several | Short histories: worse prognosis |
| Comas et al., 1996[50] | Longitudinal retrospective study of heroin addicts for 10 years | Several | Long history and many attempts at dehabituation: worse prognosis |
| Hser et al., 2001[51] | Idem, during 33 years | | |
| Babst et al., 1971[44] | Idem | Methadone | |
| Resnick et al., 1976[52] | Idem | Naltrexone | Middle-long addictive history: better prognosis |
| Shufman et al., 1994[11] | | | |
| Apodaca et al., 1995[53] | | | |
| Elizagarate, 2001[106] | | | |
| Resnick et al., 1976 and 1978[52,55] | Idem | Naltrexone | Middle-long addictive history: better prognosis and prolonged abstinence |
| Vaillant, 1966[6] | Idem, 12 years | Several | A long history: better |
| Vaillant, 1973[46] | Idem, 20 years | Several | A long history: worse |
| Ling y Wesson, 1984[56] | Idem | Naltrexone | A long history, does not have an influence |

which the addiction has become a part of a «life style»[50,51]. Thus, a middle-long, but still not chronic, duration addictive history is a factor of good prognosis in naltrexone programs[11,52-54], with the same importance as the previous existence of extensive periods of abstinence[52,55]. The first findings of a 12 year follow-up of a sample in which a prolonged addictive history was the predictive factor of greater abstinence and retention manifest within this line[6]. However, the same author, Vaillant, rejected this trend, after the follow-up of a sample 20 years later[46]. In addition, no positive relationship was found later between the years of addiction and effectiveness of the treatment, although it is well to mention that it was studied in a highly selected population (medical personnel addicted to opiates)[56].

*d) Precocity of consumption onset.* The same ambiguity of results is manifest when age of late or early onset of dependence is assessed. While some seem to find relatively better prognosis among those who begin the addiction late[34], others find this same forecast in early onset[55].

*e)* Number and duration of abstinence periods. There is better evolution in patients who have had prolonged abstinence periods[55]. Even more, although it cannot be verified that the previous number of dehabituation attempts means greater likelihood of therapeutic success[34], it has been stated that the retention rate at six months improves, reaching 75 % of those who have had a previous relapse[28]. Thus, the investigation seems to ratify a better prognosis in the treatment for those who return to it after a previous relapse[54,57,58] (table 3).

*f) Other consumptions.* One of the most controversial aspects within the field of drug addiction is the relationship that opiates have with alcohol in their consumption. Most of the authors coincide in mentioning an increase in alcohol consumption during opiate dependence treatment[59,60]. Thus, they cite alcohol dependence or abuse values between 5 % and 50 % of the samples of opiate addict subjects[61-64], although it must be kept in mind that the percentages vary based on the diagnostic criteria chosen, for example, the use of DSM generates greater rates than RDC[65]. However, authors who refute the previous findings can also be found in the literature, indicating a decrease of alcohol consumption among those who enter into therapy with methadone[66] and non-conclusive investigations in this regards[67,68]. The investigations seem to verify that alcohol consumption in the opiate addict populations is elevated and precedes the consumption of other drugs, decreases with heroin consumption[69,70] and increases significantly in opiate substance abstinence periods (dehabituation treatments)[71] and even in maintenance programs with methadone, that blocks the subjective effects of other opiates[35].

Alcohol consumption predicts a worse evolution in the treatment[72,73]. In a study on the effect of alcoholism in a sample of 533 addicts, it is concluded that there is worse prognosis in regards to health, social function, psychiatric symptoms and legal problems among those who consume alcohol[74]. In addition, in another sample of opiate dependent patients, it is found that severe alcohol consumption increases mortality significantly in regards to patients who do not consume it[15]. In general, it is considered that alcohol consumption worsens retention in treatment[21,62], even though others do not find any significant difference in regards to retention rates[75]. A better evolution among those health care professionals who are addicted to opiate and who do not consume alcohol is mentioned positively[76]. The worse prognosis of the alcoholic patient[63] has been related with a probable greater incidence and seriousness of psychiatric disease: more frequent diagnoses of borderline and antisocial personality disorder[64], and higher risk of depression and suicide, with worse response to treatment[61].

Regarding consumption of other substances, it should be considered that its rate of use among opiate addicts is high[77-79]. Consumption of benzodiazepines (BZP) is very elevated, close to 90 % of the heroin dependents in this study[80] have reported consuming BZP in the previous year, 52 % as a main drug or 35 % as a substitute. Others[81] speak of 44.8 % of the patients addicted to heroin who also consume psychotropic agents and 31.1 % BZP com-

**TABLE 3. Number of attempts, duration of abstinence and prognosis (revision)**

| *Author and year of publication* | *Study* | *Treatment type* | *Result* |
|---|---|---|---|
| Resnick and Washton, 1978[55] | Retrospective follow-up | Naltrexone | Greater duration of previous abstinence, better prognosis |
| Szapocznik and Ladner, 1977[34] | Review of studies: previous number of attempts at dehabituation | Methadone | Not conclusive |
| Kosten et al., 1986[28] | Follow-up of 2.5 years | Several | Greater number of previous attemps, better prognosis |
| Sansone, 1980[57] | Follow-up | Several | If the subjects comes to treatment again after a relapse, better prognosis |
| Landabaso et al., 1996[58] | Follow-up of 3 years | Antagonists | |
| Elizagarate et al., 2001[106] | Follow-up | Naltrexone | |

monly. Similar data are given in other studies[82], with 51 % of heroin addicts also consuming cannabis and 7 % using unprescribed BZD. This polyconsumption is associated with greater risk for the subject's health, especially with the number of overdoses[83], and the choice of one substance or another is partially conditioned by the subject's personality traits. For example, anxious subjects prefer alcohol and cannabis[84]. The rate of cocaine use among methadone program subjects is high[85], and its value as a negative predictor in such diverse areas as exposure to violence, increase of criminal activity[85,86], tendency to return to the addictive life style, increased spending of money, and abuse of other substances, among them illegal opiates, have been mentioned. In a methadone maintenance program patient sample, the frequent use of cocaine was a predictive factor of early drop-out[87]. Other authors also stress the importance of cocaine abuse as a predictive factor of relapse in opiate consumption in methadone maintenance program patients[88]. Similar findings are found in other investigations[89,90], that mention cocaine as the most used substance among heroin addicts and how a greater proportion of psychopathology and HIV markers appear among those who consume cocaine[91]. However, other studies provide contradictory results in this respect and thus, it was not found that the previous use of cocaine significantly changes retention in the program in patients with methadone maintenance subjected to programs with different characteristics and designs[92].

However, it should be kept in mind that the consumption of certain substances is frequent among subjects with psychiatric disease, not only among addicts to opiates.

In relationship with these consumptions, a worse prognosis assessed by means of retention rates and treatment effectiveness is also found among those who are multiple drug addicts, including the use of alcohol in this demonination[44,72,73]. In Spain, it has been found that addiction to cocaine establishes a worse prognosis related to the dehabituation program with naltrexone[2]. Paradoxically, the consumption of benzodiazepines has been mentioned as the only significantly related factor with a lower rate of relapse in opiate consumption at 6 months of treatment in the methadone maintenance program, a result that the authors try to explain in the context of a self-medication model[88].

## METHODS

### Work objectives and hypothesis

Taking the probability of survival for a t time as reference of treatment effectiveness, it is aimed to study the utility of several variables related with the previous history of opiate consumption (administration route, amount of substance consumed, onset age of addiction, consumption time, abuse of other substances) as prognostic factors.

As a work hypothesis, thus, the following is admitted for each one of the variables studied: Differences are observed in regards to the evolution in the treatment, determined by the presence or absence of certain quality regarding the previous consumption history.

### Methodology and descriptive techniques

This is a retrospective observation study with a design of a treatment group without a control group (case series type, of anterograde directionality and mixed temporality[93]). The data collection was performed with a structure protocol of clinical data collection[94,95].

The statistical analysis is based on the use of descriptive and inferential techniques. Using the former, the population sample is described, using adequate parameters (arithmetic mean and standard deviation in quantitative variables, and relative and absolute frequencies in qualitative variables). The inferential study focuses on the survival techniques. In these, the time is considered as a dependent variable and the study variables as independent. The survival techniques aim to establish the likelihood of survival in a certain treatment over time[96-99]. Thus they adapt better to the time factor, more satisfactorily respecting the special distribution of the sample during the process and time (survival curve)[76,100]. These techniques make it possible to define the effectiveness of the treatment or retention as the likelihood of survival at least during a t time for a subject who begins treatment.

Traditionally, the Chi squared statistical technique has been used to compare the behavior of the different categories of an independent qualitative variable, in regards to another dependent variable that is also qualitative. This procedure makes it possible to confront the null hypothesis of the non-existence of significant differences between the categorical values of a certain variables in regards to another. In this type of statistical study, however, it is not the best for comparatives in which the time factor participates. In place of it, the Mantex-Cox test is equivalent, in the survival techniques, of the chi squared test for contingency tables[100,101].

### Sample

The study population is made up of all those patients with a diagnosis of opiate dependence disorder (F 11,2, ICD-10)[102], who came to the Naltrexone visit consecutively between the years 1991-1995 in the Hospital Ramon and Cajal, voluntarily requesting their admission to this program. The total number of the sample is 945 patients. As exclusion criteria, pregnancy, breast-feeding and formal contraindications to the drug were established.

Retention is considered as the correct follow-up of the patient according to the scheduled appointments and state of abstinence. The onset of the retention period is marked by the taking of the first complete dose of naltrexone after any type of previous detoxification. The

end of it is indicated by the discharge date, it being possible to have various causes for this discharge (medical discharge, death, drop-out).

Difficulty to collect date (due to the characteristics of the population) and the constant process of adaptation of the protocol to the new investigations condition the data collection, circumstances which have been taken into account for the statistical analysis.

The user profile (n = 945) is that of a male subject (84.4 % of the sample), of 27.4 years of age (sd: 4.9), mostly caucasian race (99.2 %). Most of the patients were single (73.9 %), and lived with their origin family (79.4 %). The greater percentage of the population stated they were inactive and without right to unemployment benefits or pension (52.1 %); it is a population that usually works as workers (44.1 %) or employees (50 %), 22.9 % having a basic school level.

At the time of the first visit, 98.9 % of the subjects were active in their heroin consumption, with a mean daily dose of 0.67 g (sd: 0.6), using the inhaled or smoked forms of the substance in 57.6 % of the cases (the rest, 42.4 %, used intravenous route as the main one in their habit). No large variation was observed in regards to the previous and previous consumption route. The mean age in which consumption was begun is 19.42 years (sd: 4.2). As a mean, the subjects had been consuming heroin for 7.16 years (sd: 4.4).

Close to 64.4 % of the subjects admitted the consumption of concomitant cocaine during the last 6 months, mostly (56.3 %) intravenously, accompanying the heroin. Among those who consume, the mean daily dose of cocaine administered is 0.68 (sd: 0.57), and this consumption was initiated at 19.1 years as a mean (sd: 4.1). In relationship with other substances, 45.5% regularly consume cannabis; 59.2% benzodiazepines and 65.4% alcohol.

## RESULTS

The analysis of the different variables studied as indicators of seriousness of the history of previous consumptions indicates the statistical significance of a good part of them (table 4), based on the retention rate or likelihood of survival (figs. 1, 2, 3, 4, 5, 6 and 7).

The following are established as predictive variables of evolution: the usual route of heroin consumption (greater probability of survival among those who preferentially consume it smoked or inhaled) with statistical significance of $p = 0.0006$; the time of consumption history, with worse retention rates for chronic consumptions ($p = 0.0006$); the age of its onset, whose age extremes indicate worse prognosis ($p = 0.0117$); and the concomitant consumption of other substances in general, with worse prognosis than those who only use heroin ($p = 0.0487$); especially if they take benzodiazepines ($p = 0.0006$) and close to statistical significance if they use cocaine ($p = 0.0852$). However, this does not occur with alcohol, cannabis or stimulants.

**TABLE 4. Statistical significance. Survival (Mantel-Cox) at one year**

| *Variable* | *Category* | *Med* | *% Sv* | *M-C* | *gl* | *Sign.* | *n* |
|---|---|---|---|---|---|---|---|
| Present heroin route | IV | 151 | 30.69 | 0.00 | 1 | 0.9841 | 923 |
| | Smoked/inhaled | 164 | 31.58 | | | | |
| Previous heroin route | IV | 124 | 27.03 | 11.89 | 1 | 0.0006 | 945 |
| | Smoked/inhaled | 197 | 36.82 | | | | |
| Onset age of heroin | < 17 years | 131 | 26.1 | 8.90 | 2 | 0.0117 | 912 |
| | 18-25 years | 182 | 34.6 | | | | |
| | > 25 years | 124 | 26.0 | | | | |
| Consumption time of heroin | < 7 years | 197 | 34.83 | 14.69 | 2 | 0.0006 | 912 |
| | 7-15 years | 133 | 27.51 | | | | |
| | > 15 years | 77 | 21.15 | | | | |
| Amount of heroin | < 1 g/d | 161 | 31.75 | 3.50 | 1 | 0.0614 | 845 |
| | < 1 g/d | 93 | 25.58 | | | | |
| Polyconsumption | No (only heroin) | 280 | 50.00 | 3.89 | 1 | 0.0487 | 747 |
| | Yes | 151 | 30.38 | | | | |
| Cocaine consumption | No | 180 | 35.81 | 2.96 | 1 | 0.0852 | 831 |
| | Yes | 147 | 30.47 | | | | |
| Cannabis consumption | No | 158 | 32.24 | 0.19 | 1 | 0.6656 | 729 |
| | Yes | 168 | 33.13 | | | | |
| Stimulant consumption | No | 161 | 32.34 | 0.29 | 1 | 0.5922 | 495 |
| | Yes | 168 | 28.81 | | | | |
| Alcohol consumption | No | 147 | 31.41 | 1.47 | 1 | 0.2256 | 552 |
| | Yes | 185 | 33.80 | | | | |
| Benzodiazepine consumption | No | 234 | 42.01 | 11.68 | 1 | 0.0006 | 414 |
| | Yes | 130 | 24.90 | | | | |

Med: median of time in retention; % Sv: probability of survival. M-C: Mantel-Cox contrast statistics; gl: freedom grades; Sign: statistical significance; n: subjects who report on the variable.

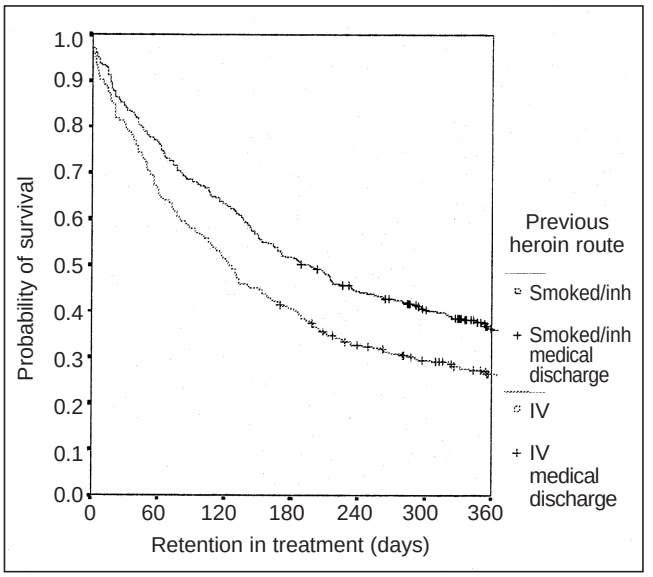


**Figure 1.** Administration route.

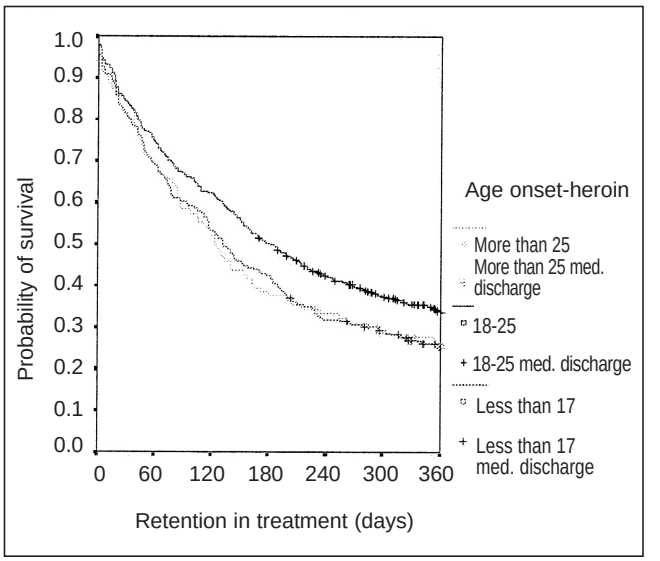


**Figure 3.** Onset age on heroin.

The present consumption route does not establish significant differences in regards to the probability of survival ($p = 0.9841$). Regarding the amount of substance used prior to onset of treatment, it is close to statistical significance in regards to the better prognosis associable to lower consumption doses ($p = 0.0614$).

## DISCUSSION

In spite of the considerable size of the sample and prolonged duration of the follow-up, the absence of a control group can be criticized methodologically. However, the review of similar studies shows that this defect is almost unavoidable in this type of studies, for methodological, ethical and political-health care reasons. It must also be remembered that the results come from a sample of patients who are treated exclusively with naltrexone. The patients in this study come from several areas of Madrid, but are grouped around the visits of drug addicts to a single hospital. The prolongation of the study in time means including profiles and patterns of diverse consumption, partially marked by sometimes different successive health care policies. This offers heterogeneity to the sample.

The possibility of generalizing the results makes it necessary for the user profile to be representative of the most extensive population possible of heroin addicts. The subject profile given here coincides substantially with the data reported by other publications in this set-

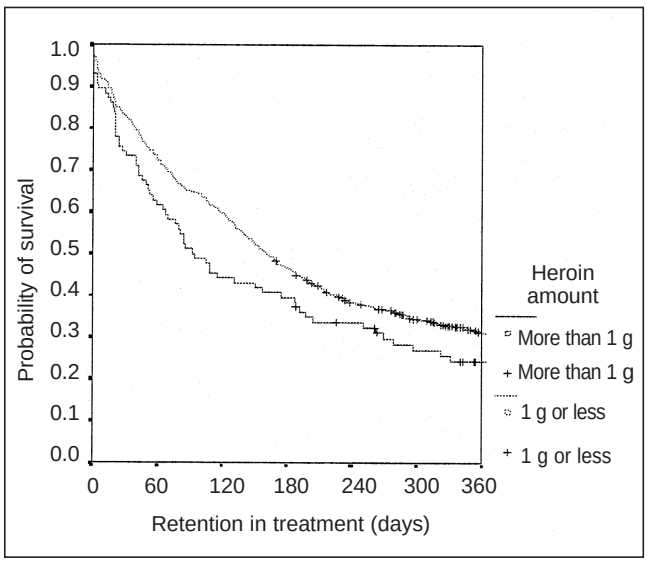


**Figure 2.** Amount of heroin.

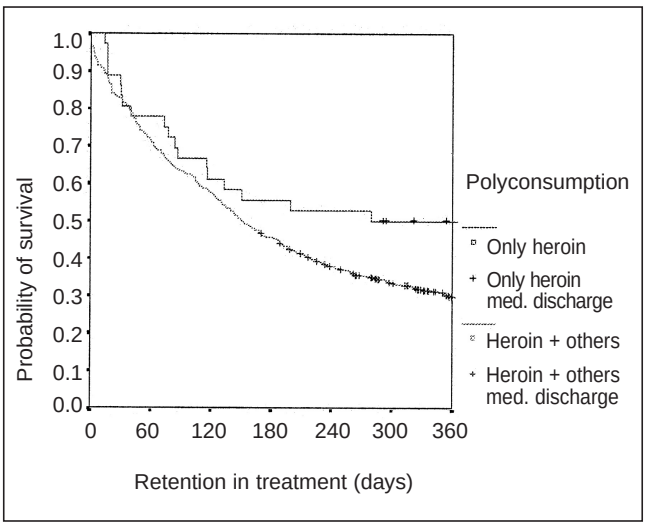


**Figure 4.** Polyconsumption.

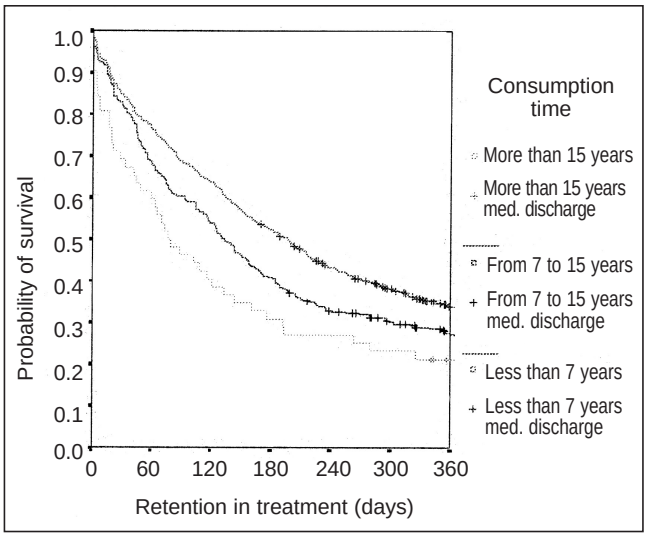


**Figure 5.** Consumption time.

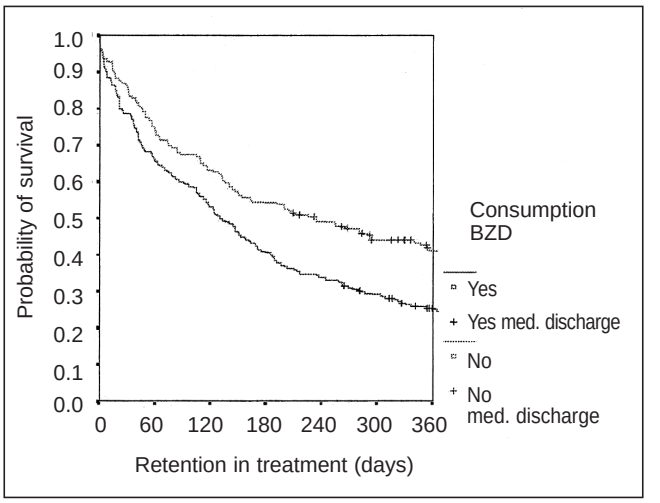


**Figure 7.** Benzodiazepines consumption.

ting[25,45,58,103-105], so that the conclusions may be valid at least for the national setting.

Of the results found, the following aspects may be commented on. On the one hand, the prognostic value that the amount of heroin consumed in the previous months established in the treatment is verified. Amounts greater than 1 g/day mean a trend towards statistical significance of a worse evolution in the therapy, with greater drop-out rate. This finding coincides with that mostly explained in the literature[40,45,55]. In regards to the consumption route, although the present route is not a predictor of evolution, the usual one is. Those who have always used the smoked/inhaled route during their addiction respond better to treatment, with greater survival rates. The fact that the present route (that immediately before the request for treatment) does not offer this predictive value could be due to the perception by the subject of the use of the intravenous route as the most dangerous (remembering the high prevalence of HIV in Spain caused by this consumption habit), acting as a motivator to request treatment. The consumption route as predictive factor has already been previous explained[18], in the same terms as those commented herein.

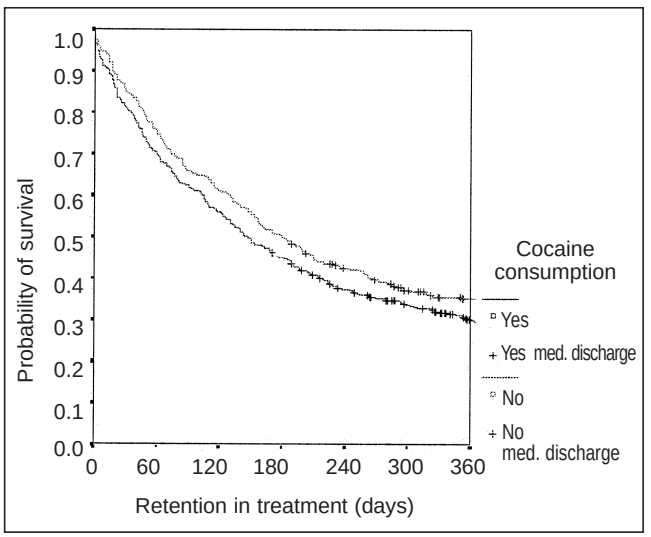


**Figure 6.** Cocaine consumption.

Age of onset in opiate consumptions clearly marks the prognosis in the therapy. The previous studies, limited at this point, present opposite data, with better prognosis[34] for early onsets and for late onsets[55]. As a result of this study, it is precisely the ages having intermediate onset which have the best evolution. Thus, those who initiate consumption very early (less than 17 years) or late (more than 25 years) present lower survival rates. These results seem to be consequent with the clinical experience, and would reflect more character type aspects of personality, of the life study of the consuming subjects.

Coinciding with most of the previous publications[11,48-50,53,70,106], the consumption time is found as a predictive factor of retention in treatment. Relatively recent consumptions, with little repercussion on other variables (social, legal, organic, etc.) act as scarcely motivating for the therapy. Consumptions that are already chronic, with serious deterioration in these areas and/or marked pathological risks of personality, also would have a worse result in the therapy. The consumption time could thus act as a determining factor in retention provided that the subject has suffered sufficient damage in several areas to react to it, but that the deterioration is not so serious so as to have established a chronic addictive style of life.

The consumption of other substances clearly means a worse prognosis in the evolution. Thus, the data coincide with most of those reported in previous studies[2,87-90]. It seems to be clear that the use of other substances, with all the meanings that this supposes, may influence the course of the patients. Specifically, the consumption of cocaine and benzodiazepines act independently as prognostic

factors of poor evolution, on the contrary to that found by other authors[88]. In the specific case of alcohol consumption, it may be stressed that even when the differences at one year are not significant among those who consume alcohol and who do not do so, the tendency over time[7] indicates that although in the beginning (6 months), the evolution was better among those who consumed alcohol, with the passage of time, the group who continued with the consumption progressively worsened their prognosis (and those of the abstinents improved). These data would support the idea of the interrelationship between opiate and alcohol consumption, so that the initial effects of the abstinence to opiates would be corrected with an increase in the use of alcohol (this decreasing as the treatment would cause neurochemical regulation and the effects of the abstinence would disappear). In this final phase, alcohol consumption maintenance would become a prognostic factor of poor evolution.

## CONCLUSIONS

Certain characteristics of the addition, such as the opiate dose, duration of the dependence, previous consumption route, onset age and consumption of other substances have prognostic value in the evolution in the treatment, at least according to the data analyzed. Some of these results confirm the majority opinion presented in the literature; others propose a certain novelty, or the support of less studied hypothesis. However, these prognostic factors should be weighted carefully, as Greenfield et al.[87] recommend, who, in spite of verifying the prognostic value of the severity indicators of the addiction *a priori,* observe that the availability of programs adapted to the needs of the group of addicts with more severe dependences would help to neutralize the weight of the factors usually considered as predictors of poor evolution. This effect could be explained, according to these authors[87], by a greater accessibility to treatment, with a lower cost and time invested in the transfers. Later studies with stronger statistical models (multivariate regression, etc.) can facilitate the understanding of the prognostic importance of the addictive history for the evolution of the treatment.

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