

Does HIV serostatus affect outcomes of dually diagnosed opiate dependents in residential treatment?

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SUMMARY. Background – Little is known about specific treatment needs of mentally ill clients abusing substances and infected by HIV. The major gap concerns residential programmes. **Aims** – To explore differences in outcomes between seropositive and seronegative dually diagnosed opiate dependent clients who participated in a residential therapy programme. **Methods** – Data were gathered on 154 clients treated in a therapeutic community in Milan between October 1999 and September 2004. Odds ratios with 95% confidence intervals were used to study the association between HIV serostatus and outcome. **Results** – At 12-month follow-up, seropositive clients were more likely to relapse. **Conclusions** – The impact of HIV seropositivity on behavioural outcomes should be taken into consideration when planning residential programmes for the HIV (+) dually diagnosed population. Further research could test the need of incorporating dedicated treatments into existing programmes.

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INTRODUCTION

Comorbid drug and alcohol problems – dual diagnosis – are growing concerns among people with severe mental illnesses because of their association with poorer clinical (Margolese *et al.*, 2004) and psychosocial (Hunt *et al.*, 2002; Crawford *et al.*, 2003; Carrà *et al.*, 2006; Bizzarri *et al.*, 2007) outcomes. Aside from a large array of medical disorders and complications related to substance abuse (Baigent, 2003), individuals with mental illness are particularly vulnerable to infection with HIV because of their rates of participation in risk behaviours (Meade & Sikkema, 2005), poverty, homelessness, drug abuse, sexual abuse, and social marginalization (Weiser *et al.*, 2004).

As single risk factors both concurrent psychiatric comorbidity (Pani *et al.*, 1997) and HIV seropositivity

(Gaughwin *et al.*, 1998) do not individually impair outcomes of outpatient methadone maintenance treatment programmes. Equally, in residential therapeutic community programmes, outcomes are likely to be compromised by neither HIV seropositivity (Gonzalez *et al.*, 1994) nor psychiatric comorbidity (Sacks *et al.*, 1999; De Leon *et al.*, 2000; Egelko *et al.*, 2002). Influence of HIV comorbidity on outcomes of residential programmes modified for severely mentally ill people have not been studied, to our knowledge, so far. In Italy, the role of private non-profit therapeutic communities (TC) – generically inspired by the Daytop model – is established in the addiction field (Carrà & Clerici, 2003). In the last two decades, TCs have also implemented devoted residential programmes with particular skills in the diagnosis and treatment of comorbid substance-related and psychiatric disorders (Carrà & Clerici, 2006).

The main purpose of this study was to evaluate whether HIV comorbidity could influence outcome in a residential programme for mentally ill opiate dependent clients; the research question focused on the need of designing differentiated therapeutic approaches for seropositive subjects.

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METHODS

Design

In order to verify the influence of HIV serostatus on substance use outcome, we carried out a comparative study between HIV+ and HIV – opiate dependent clients with severe psychiatric disorders, recruited from consecutive admissions to a drug-free, residential treatment programme.

Setting

The study took place in a therapeutic community in Milan metropolitan area. The programme is devoted to clients with coexisting opiate dependence and severe psychiatric disorders. It is similar to standard TC in structure, process, and interventions as based on the premise that clients will benefit from extended (two year) residential treatment, peer involvement, professional support, including responsible community-oriented behaviour and participation in a work therapy program. All clients are supposed to spend two years to completion. Furthermore, the programme emphasizes the need for treatment approaches that must be comprehensive, multidimensional, of relatively long duration, and must systematically address the interrelated problems of mental illness and substance use. Modifications included ongoing administration of psychiatric medications as needed, increased flexibility in required programme activities, reduction in the duration of various activities, less confrontation, increased emphasis on psychoeducational instruction, fewer sanctions, more explicit affirmation for achievements, greater sensitivity to individual differences, and greater responsiveness to the special developmental needs of the clients. In sum, following main established modified residential programmes (De Leon *et al.*, 2000), the programme was adapted in three critical ways: increased flexibility, less intensity, and greater individualization.

Subjects

From October 1999 to September 2004, 161 clients with a psychiatric diagnosis in addition to that of DSM-IV opiate dependence (American Psychological Association, 1994) were consecutively admitted into the residential programme. The local research ethics committee approved the study. Written informed consent was obtained from all individuals who took part in the study, including inter-

views and measurements. 7 subjects refused to participate and 154 subjects agreed: 102 (66%) HIV-seropositive clients who did not require intensive medical assistance, and 52 seronegative. Serostatus did not influence admission as clients were referred to the programme for treatment of dual diagnosis. Comparison of study participants and non-participants on all measures used in the study showed no significant differences on sociodemographic, clinical, or serological variables at baseline.

Measures and procedures

An extensive baseline interview addressed demographic, health, and social characteristics. Information about the serological status was derived from clinical records of the referring addicts' outpatient clinics. As disclosure about HIV serostatus is compulsory by physicians, there was no difference in the time period that clients had had HIV diagnosed and the time they knew of their diagnosis. In order to minimize the influence of withdrawal, the index group was administered the Italian version of the Structured Clinical Interviews (SCID-I and SCID-II) (First *et al.*, 1997a, b) diagnosing the DSM IV Axis I and Axis II, a minimum of 10 days after the last illicit substance abuse. Urinalysis was used to monitor the presence of methadone, opiates, cocaine, marijuana, and benzodiazepines. Primary measure assessed was 12 month outcome after programme completion. Furthermore, three major categories were defined in relation to treatment retention: (a) *drop-out*, subjects under treatment for less than three months who spontaneously dropped out; (b) *self-terminator*, subjects whose treatment lasted more than three months but dropped out of the programme without the staff's consent before the end of the 12th month; (c) *graduate*, subjects who attended and completed the scheduled programme and were eventually discharged to the original addicts' outpatient clinic. All clients and their case managers were contacted 12 months after the end of the treatment, whatever the retention into the programme had been. The four broad outcome categories were: (a) *relapse* into opiate dependence; (b) *readmission for residential treatment*; (c) *extended treatment*, when the scheduled 24 months programme had been completed but there had been an agreement to prolong it, (d) *abstinence* after programme completion.

Statistical analysis

A baseline comparison for demographic, substance use and diagnostic features between HIV serological pro-

files subgroups was performed, using two-sample t test to analyse the equality of the means for continuous variables and Pearson's chi-squared test of independence for categorical data. We used data from a previous study with similar setting and clinical population in order to provide the power calculation (Nuttbrock *et al.*, 1998); about 15% of dually diagnosed, clients who had completed an analogous therapeutic community programme, self reported relapse in substance use at the 12 month follow-up. We assumed that to detect a 20% difference in relapse into substance abuse as primary outcome measure would have been clinically significant. We estimated that 102 cases and 52 controls would yield 75% power to detect the above mentioned difference, at a two sided 5% level of significance. Odds ratios with 95% confidence intervals (CIs) were used as measures of effect to analyse the relationship between HIV serostatus and treatment retention and outcome and a score test was used to analyse the trend of odds producing an overall estimate which is an approximation to the odds ratio for one unit increase in

the independent variables (Clayton & Hills, 1993). Reported percentages are rounded to the nearest unit. A two-tailed p-value less than 0.05 was considered statistically significant. All the analyses were performed using the statistical package Stata 8.0 (Stata Corporation, 2003).

RESULTS

Demographic, Substance Use and Diagnostic Profiles

Overall, 111 (72%) clients were males. The mean age was 24.06 years (s.d.=2.74); most of the subjects (87%) were single with average education levels (9.75 years of education, s.d.=2.88) and with a rate of 55% for previous ordinary employment. These demographic variables were not significantly altered by HIV serostatus as well as lifetime use other than opiates and age at onset of substance abuse (Table I).

Table I. – Comparison of sociodemographic, substance use and diagnostic characteristics between HIV seropositive and negative subgroups.

	HIV+ n = 102	HIV- n = 52	P
Age: Mean (s.d.), y	24.36 (2.58)	23.90 (2.82)	0.323
Gender: Male, N (%)	74 (73)	37 (71)	0.922
Education: Mean (s.d.), y	9.87 (2.82)	9.51 (2.99)	0.473
Previously ordinary employed, N (%)	54 (53)	30 (58)	0.697
Married/cohabiting, N (%)	89 (87)	45 (86)	0.899
N° of lifetime specific substance users, N (%)			
Alcohol	44 (43)	23 (44)	0.897
Alcohol to excess	44 (43)	24 (46)	0.721
Prescribed substitutes	70 (68)	34 (65)	0.684
Benzodiazepines	23 (22)	12 (23)	0.941
Cocaine	69 (67)	33 (63)	0.603
Amphetamines	55 (54)	26 (50)	0.645
Cannabis	61 (60)	29 (56)	0.631
Hallucinogens	46 (45)	24 (46)	0.901
Inhalants	19 (19)	10 (19)	0.928
Ecstasy	10 (10)	6 (11)	0.739
Polydrug users	69 (68)	34 (65)	0.778
Age at onset of substance abuse: Mean (s.d.), y	15.53 (3.45)	15.46 (3.62)	0.907
DSM-IV diagnoses, N (%)			
Schizophrenia or Other Psychotic Disorders	5 (5)	5 (10)	0.437
Personality Disorders Cluster A	8 (8)	7 (13)	0.410
Personality Disorders Cluster B	48 (47)	18 (35)	0.192
Personality Disorders Cluster C	31 (30)	16 (31)	0.891
Mood Disorders	10 (10)	6 (11)	0.957

Table II. – Comparison of 12 month relapse between HIV seropositive and negative subgroups.

Outcome, N (%)	HIV+	HIV-	OR (95% CI)
Relapse +	46 (45)	13 (25)	–
Relapse –	56 (55)	39 (75)	2.46 (1.12-5.62)
Total	102	52	

As for the distribution of psychiatric diagnoses, ten clients (6.4%) suffered from schizophrenia or other psychotic disorders, and 16 (10.6%) from any mood disorder. The most frequently personality disorders found were from cluster B (42.8%, N=66) and cluster C (30.5%, N=47). Cluster A personality disorders were comparatively rare in this sample of subjects (9.7%, N=15). Seropositive subjects were not significantly more likely to be diagnosed with any type of psychiatric disorder. Also treatment retention did not vary significantly (from drop-out to graduate) regardless of HIV serostatus (OR= 0.89, 95% CI: 0.60-1.32).

Outcome in HIV sero- positive and negative subgroups

The HIV + subgroup showed a decreasing trend in the odds of the outcome levels (chi-square test for trend=5.95, $p=0.0147$). The estimated odds ratio per unit increase in levels of outcome, from relapse to abstinence, was 0.73 (95% CI: 0.57-0.94, $p=0.0147$), i.e. being seropositive significantly decreased the likelihood – by a 0.73 factor – for each outcome level.

Table II shows that, using as response variable the dichotomous outcomes relapse/any outcome measure other than relapse, HIV+ clients had a significant increase in the odds of relapse (OR= 2.46, 95% CI: 1.12-5.62, $p=0.0153$).

DISCUSSION

Our study sought to examine the association between HIV serostatus and outcome in a residential setting for opiate dependent clients with severe psychiatric disorders.

The major strength of this study was that it offered a new opportunity, not investigated in previous studies, to examine differences in outcomes for a population characterised by a triple source of impairment, i.e. drug misuse, physical and psychological disabilities, that required an intensive residential treatment. The sample did not show any association between specific psychiatric diagnoses and rates of human immunodeficiency virus (HIV) infection. Previous reports, showing for example antisocial personality (Kelley & Petry, 2000) or posttraumatic disorders (Hoff *et al.*, 1997) with increased HIV rates, do not necessarily contradict the findings of this study as criteria to refer clients to residential treatment can widely vary in different National Health Systems (Schlesinger & Dorwart, 1992; Goldsmith *et al.*, 1996). Furthermore, this study differs from previous reports which explored out-

comes in residential programmes of populations affected by either HIV (Gonzalez *et al.*, 1994; Kingree *et al.*, 1997) or psychiatric comorbidity (e.g. Egelko *et al.*, 2002). The most striking finding provides evidence for a worse long term outcome for HIV seropositive, compared with their seronegative counterpart, in the same residential programme modified for comorbid mentally ill clients.

Limitations

For a number of reasons our results should be interpreted with caution. This was a service-based study and participants were not randomly selected but referred with potential selection bias, therefore changes cannot necessarily be ascribed to the residential intervention and may reflect spontaneous improvement. Furthermore just substance misuse and not mental health outcomes were assessed, though the programme was addressed to dually diagnosed clients.

CONCLUSIONS

Once more, in the addiction and psychiatric fields there is the need for further fundamental research to be translated into treatments of proven clinical effectiveness (Crome, 2000). In such milieu programmes, based on the premise that the “community” is the central therapeutic agent, not only the psychiatric concurrent disorder but also the distinctive condition of seropositivity might require a differentiated treatment approach. The use of a small group – a core technical element of the TC –, could be complemented by specific interventions, which have been successfully implemented among other at risk populations (Centers for Disease Control and Prevention, 1999). These interventions could be essential for promoting meaningful and sustained behaviour change (Winett *et al.*, 1995), and have been proved feasible and effective for promoting risk reduction in the community (Sikkema *et al.*, 2007). Furthermore, factors contributing to heightened depression in HIV-infected individuals (Zisook *et al.*, 1998) could be identified and treated, reducing the risk of relapse to drug injection implementing skills-building interventions (Schilling *et al.*, 1991). People with both serious psychiatric disorders and HIV infection require special consideration because of the nature of the two conditions; their case managers might need special training to address the often competing needs of HIV infection and serious mental illness.

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