

High mortality among young crack cocaine users in Brazil – a 5-year follow-up study.

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People who misuse licit or illicit substances have higher mortality rates. Most research has been done with other type drug users, but little is known about mortality in crack cocaine users. In the present study 131 consecutive crack dependent patients, admitted to the detoxification ward of a public hospital with a city-wide catchment area in São Paulo, Brazil between 1992 and 1994, were followed-up 5 years later. They were predominantly young, single, white men of low educational attainment and high unemployment. All met DSM IV criteria for cocaine dependence.

Between 1998 and 1999 124 (94.6%) of the original cohort were located - mean follow-up 44.3 months – and assessed using a semi-structured interview. The project had been approved by the local ethics committee. Death certificates were verified from records held at the Municipal Offices.

Twenty-three patients had died (18.5%): 3 were accidental (2 cocaine overdoses and 1 drowning), 7 due to infectious complications of intravenous drug use (6 of AIDS and 1 of hepatitis B) and 13 had been shot. Relatives reported that these latter deaths were related to turf fights, punishment levelled out by drug dealers for unpaid debts or police repression. Mean age at death was 27 years (range: 18 to 40).

Survival analysis showed that the probability of being alive 5 years post-treatment was 0.80 (95% CI = 0.77 to 0.84), see Figure 1. Observed mortality rate, calculated by the direct standardisation method, adjusted for age and sex, was 24.92 per 1000. The expected all cause mortality rate in São Paulo, adjusted for age and

sex, was 3.28 per 1000 inhabitants, giving an excess mortality rate of 21.64 per 1000 – a mortality ratio of 7.60.

The Cox's proportional hazards regression has identified three variables as predictors of mortality: history of intravenous drug use (hazard risk = 3.28, 95% CI = 1.42 to 7.59, $p = 0.005$), unemployment at index admission (hazard risk = 3.48, 95% CI = 1.03 to 11.80, $p = 0.045$) and premature discharge from index admission (hazard risk = 2.21, 95% CI = 0.94 to 5.18, $p = 0.068$).

Follow-up studies of crack/cocaine users are rare and do not have mortality as their main focus¹, making comparisons difficult. The nearest comparable group is opiate addicts for whom more data are available. Most follow-up studies usually observe death rates from 5 to 20 deaths per 1000 inhabitants²⁻³. Sánchez-Carbonell et al (2000)⁴ reported a higher mortality rate (34 per 1000) in a sample of 138 heroin addicts from Spain, but their follow-up period was twice as long as ours.

Homicide was the main cause of death in our study. The age adjusted homicide ratio for our sample was 7.74, suggesting that crack use substantially increased the risk of a violent death. In the USA, which has similar gun laws to Brazil, it has been argued that violence surrounding emerging crack markets led to an increase in the homicide rate⁵.

A limitation of our study is that patients came from just one hospital, albeit one that admitted patients from all parts of São Paulo City and one of just 2 hospitals with specialist detoxification units at the time the study began. This limits the generalisability of the results.

This is the first study of mortality in crack users. Regression analysis has identified 3 risk factors, which could inform future treatment policies: (i) enable patients to stay in treatment longer, (ii) more effective harm reduction interventions for

injectors and (iii) social reintegration. However, tighter gun controls would probably have a far greater impact on mortality for both crack users and the general population.

Contributors

M Ribeiro-Araújo undertook the follow-up study, analysed the results and wrote the original draft of the letter. J Dunn was co-supervisor of this project, made suggestions about the analysis, re-drafted and revised the paper. R Sesso supervised the statistical analysis. R Laranjeira was supervisor of this project and revised the paper.

Conflict of interest statement

None declared

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