

Experience of heroin overdose among drug users attending general practice

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SUMMARY

Background. Heroin overdose is responsible for significant mortality. It has not previously been highlighted as an important prevention or care issue for general practitioners (GPs) involved in the management of drug misuse.

Aims. To examine the prevalence and experience of heroin overdose in a population of drug users attending a general practice.

Method. A questionnaire-based interview of drug users attending a general practice in Dublin, Ireland.

Results. Twenty-four (73% of estimated total) drug users were interviewed. Although 17 (71%) were on recognised methadone treatment programmes, 10 (42%) were still injecting heroin. A total of 23 (96%) had witnessed an overdose, with 10 (42%) having been victims of overdose themselves. Twenty-two (92%) knew a victim of fatal overdose, with four (17%) having been present at a fatal overdose. The interviews revealed high levels of activity associated with overdose and poor use of preventive measures.

Conclusion. The issue of prevention and management of overdose should become a priority for GPs caring for opiate-dependent patients.

Keywords: drug misuse; methadone; preventive medicine; general practitioners.

Introduction

HEROIN users are at an excess mortality with respect to the general population. Cohort studies suggest that the mortality rate in this group is from 13 to 30/1000 per year, of which 40% to 48% of deaths are accounted for by overdose of heroin.¹⁻¹⁵ Some authors have indicated that fatalities from overdose may be increasing.^{3,11} Little information is available on the incidence of drug overdose in Ireland; vital statistics do not record such deaths separately and no published evidence is available drawing on the experience of drug users themselves.

Dublin has as many as 13 460 drug users¹⁶ and currently has 2800 patients on state-approved methadone maintenance schemes.¹⁷ Methadone treatment is provided by the National Drug Treatment Centre, Regional Addiction Centres, community-based projects ('satellite clinics'), and general practitioners (GPs).¹⁸ GPs have had a long-standing involvement with the management of drug misuse and its complications in Dublin.^{19,20}

General practice is increasingly recognised as an appropriate setting for the management of drug misuse.²¹⁻²³ It provides conti-

nunity in patient care, is readily accessible, and is well placed to manage such problems as intercurrent illness, bloodborne virus infections, family planning, and methadone maintenance of stable patients.²⁴⁻²⁶ However, the role of general practice in the prevention and management of opiate overdose has not been explored; it is unclear whether this issue is relevant to patient groups dealt with in general practice and what the contribution of general practice to its management should be.

Our aims in this study were to examine in a population of drug users attending general practice:

- prevalence of overdose,
- experience of and response to overdose,
- prevalence of activity known to be associated with fatal overdose, and
- use of preventive measures.

Method

The study took place in a single, inner-city practice in Dublin over a five-month period (November 1998 to March 1999). The practice disease register, the list of General Medical Services (GMS) patients, and daily appointment lists for the previous six months were reviewed by medical and administrative staff in November 1998. A total of 33 drug users were identified as having attended during the previous six months. During the study period, each patient was invited to participate in the study as he or she presented to the surgery. Ireland's GMS system provides free primary care, hospital care, and prescribed medicines for approximately 32% of the population on the basis of low income.

A questionnaire was developed that examined demography, drug use history, medical history, experience of overdose of heroin and other drugs (both as a victim and as an observer), and knowledge of preventive measures. Based on a recent clinical definition,²⁷ heroin overdose was defined as impaired consciousness, poor respiration, and mitotic pupils, with circumstantial evidence of heroin use.

A researcher who had no input into the clinical management of the patients administered the questionnaire. The content of each interview was confidential and the patient's GP received no feedback on individual interviews. The Research Ethics Committee of the Irish College of General Practitioners granted approval for the study.

Data were analysed using Statistical Packages for the Social Sciences version 8.0. Analytical techniques included chi-squared test to determine the significance of differences between categorical variables and Student's *t*-test for the difference in means of continuous variables.

Results

Demography

Table 1 compares characteristics of the target population with data on 643 drug users attending 42 Dublin general practices. (The data were collected for a separate study on the role of general practice.²⁸) The comparison indicates that the target population contains more females than the general population and that the age of first use of any drugs was older than the Dublin sample.

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Table 1. Comparison of target and Dublin populations of drug users attending general practice. NS = not significant.

	Practice sample	Dublin sample	P-value
Mean age in years	27.5 (n = 33)	27.9 (n = 631)	NS ^a
Male	42% (n = 33)	70% (n = 643)	0.001 ^b
Mean age in years of first drug use	18.0 (n = 24)	15.6 (n = 211)	0.02 ^a
Mean age in years of first injecting drug use	19.1 (n = 27)	19.5 (n = 294)	NS ^a
On methadone maintenance	75% (n = 32)	91% (n = 636)	0.004 ^b
Known to be HIV-positive	17% (n = 24)	10% (n = 374)	NS ^b
Known to be HBV-positive	14% (n = 21)	15% (n = 337)	NS ^b
Known to be HCV-positive	74% (n = 27)	74% (n = 408)	NS ^b

^aSamples compared using Student's t-test; ^bsamples compared using chi-squared test.

Of the total, 24 (73%) drug users agreed to participate. The mean age was 29 years and 11 (46%) were male. A total of 16 (67%) were unemployed and only one person was not eligible for GMS care. A total of 17 (71%) were on a recognised treatment programme and a further four (17%) were buying 'street methadone'; interestingly, two of these considered themselves to be on methadone maintenance.

With regard to heroin use, 22 (92%) had injected in the past, while two had only ever smoked the drug. In addition, 10 (42%) were actually injecting at present, of which five were on recognised methadone maintenance programmes. The mean age of first drug use was 18 years (range = nine years to 30 years). The mean age of first heroin use was 19 years (range = 13 years to 30 years).

Experience of overdose as observer

A total of 23 (96%) had witnessed a heroin overdose — a mean of eight were witnessed by each. Participants were asked what symptoms they would recognise as signifying a heroin overdose: skin blueness, impaired consciousness, and not being able to stand were the most common answers (Table 2).

Participants were asked what they would do if somebody in their company had an overdose. The most common answers were: call an ambulance, attempt to rouse the victim, and 'make the victim walk' (Table 3). Reasons given for not calling an ambulance included: being afraid the victim's parents would find out, causing a disturbance, and the victim would 'come out of it himself'.

With regard to the last overdose witnessed, 18 (75%) were due to heroin alone, three (13%) were due to heroin and cocaine, one (4%) was due to heroin and 'sleepers', and one was due to 'tablets'. In no case was methadone implicated. The mean time since the overdose occurred was 20 months. Some treatment was given in 19 (81%) cases and an ambulance was called in 17 cases (71%). Only one person said that calling an ambulance led to the police being called.

Experience of overdose as a victim

A total of 10 participants (42%) had themselves experienced a heroin overdose (mean = four); all had done so accidentally. Only two had ever overdosed on drugs other than heroin — one on cocaine and one on LSD. Again, nobody had ever overdosed on methadone, either alone or in combination. The mean age of first heroin overdose was 24 years.

The mean time since last overdose was 38 months. Six participants said that their dose was too high, six said it was after a period of abstinence, and four said that they had mixed heroin with other drugs (three with benzodiazepines and one with interferon). The overdose occurred at home in four cases, in a friend's house in four cases, in a derelict house once, and in a hamburger restaurant once. Nobody reported being alone in the building at the time but three people did say they were alone in the room (two of these had the door locked). One person reported receiving no treatment for their overdose. Of the nine who reported receiving treatment, five were treated by friends alone and four were taken to hospital (all by ambulance). Treatments administered by friends included: being made to walk, being slapped, having a cold cloth put on their neck, having cold water thrown at them, and being put in the shower.

Experience of fatal overdose

A total of 22 participants (92%) knew at least one person who had died of a heroin overdose. The cohort knew a total of 216 cases of fatal overdose — a mean of ten cases per person. Furthermore, four (17%) reported being present at a fatal overdose. Of these, three reported that the victim had overdosed in the past, one on as many as 20 occasions.

Knowledge of preventive measures

Only six participants (25%) always used the same source for their heroin. When using new heroin sources, 15 (63%) used their normal dose, four (17%) used smaller doses, and one (4%) injected slowly. Only seven (29%) did not mix with other drugs. When asked how they would avoid a heroin overdose, the most common answers were: taking less (13), not mixing (five), and

Table 2. Symptoms recognised by participants as signifying heroin overdose (compiled from responses volunteered by interviewees and categorised by researcher).

Symptom	Variations	n
Cyanosis	'blue face', 'blue lips'	20
Impaired consciousness	'not talking'	15
Inability to stand	'can't stand'	13
Convulsions	'tremor', 'shaking', 'head rolling', 'eyes rolling'	11
Moribund	'look dead', 'pale lips', 'white', 'lifeless'	5
Respiratory difficulty	'can't breathe'	2

Table 3. What participants would do in the event of an overdose (compiled from responses volunteered by interviewees and categorised by researcher).

Response	n
Call an ambulance	22
Slap them/shake them/put a cold cloth on their neck/call their name/throw water at them	19
Walk them	10
Lie them on their side	3
Try to get them out of it	3
Check pulse or breathing	2
Get help	2
Breathe for them	2

not being necessary because the subject felt he had a high tolerance anyway (four). Five did not know any methods to reduce the risk. However, 21 (87%) checked their heroin before using, with burning (11) and tasting (10) being the favourite methods.

With regard to naloxone, six (25%) had heard of it but only one person knew what it was. None of the participants had ever used naloxone but four had seen it used. One person commented: "Most won't use narcan ... it makes you vomit ... it brings you straight down and you want heroin again ... that's why most won't call an ambulance".

Discussion

Population characteristics

This small study cannot be extrapolated to all opiate users or general practices in Ireland. However, the population sampled has been compared with a much larger sample of drug users attending general practice in Dublin²⁸ and is similar in terms of age, duration, type of drug dependency, and prevalence of HIV and hepatitis B and C (Table 1). Compared with other samples of Dublin drug users reported previously, this group is older and contains more females but has similar unemployment rates and age of initiation to drug use.²⁹⁻³¹ Despite treatment with methadone maintenance, a significant proportion continues to inject heroin. It also appears that illicit methadone is available for sale — with 17% admitting to its use.

Experience of overdose as an observer

It appears that this cohort is very familiar with the circumstances and consequences of overdose, particularly when compared with other studies.^{32,33} The reluctance on the part of drug users to call an ambulance in such situations, which has been noticed by other authors,³³⁻³⁵ has not been observed in this study.

Experience of overdose as a victim

The prevalence observed in this cohort (42%) is higher than in studies from similar clinical settings (27% to 33%).^{36,37} Higher prevalence estimates (23% to 68%) have been found where the study population is recruited by field outreach methods.^{32,33,38,39}

Participants in this study experienced their first overdose on average five years after starting to use heroin — longer than reported elsewhere.³³ This suggests that it is experienced heroin users who overdose, rather than novices. They also indicated that taking too high a dose, using after a period of abstinence, and mixing with other drugs were implicated in their overdose. Although a large number admitted to using illicit methadone, this drug was not implicated in any case of overdose. Additional factors that have been implicated by other authors include: alcohol use, dependence, taking a higher dose or stronger than usual

heroin, having a longer heroin-using career, benzodiazepine use, age, and injecting.^{32,33,36,39,40}

Fatal overdose

It has been estimated previously that 5% of all overdoses are fatal.³³ The cohort in this study has had significant exposure to fatal overdoses. Despite this, a large proportion continues to engage in activities that have been implicated in fatal overdose.^{14,41,42} Furthermore, knowledge of and use of preventive measures is poor, as noted previously.³³ As a result, some authors have suggested that heroin users be educated to inject in company, reduce co-administration of other drugs, and seek intervention earlier.¹⁴ Providing users with take-home naloxone has even been recommended by some.⁴³

Conclusion

The responders in this study report a great deal of personal experience with overdose, knowledge of many other drug users who have died from overdose, limited use of preventive measures, and a poor understanding of how to deal with an overdose. They also report overdose as a feature of continuing drug dependency, rather than a consequence of early experimentation. Although most are involved with structured methadone maintenance schemes, they report continuing levels of illicit drug use and ongoing exposure to witnessed overdoses.

The issues of prevention and appropriate management of overdose therefore appear to be crucial for general practice. The continuing care of these patients should address the important elements of their drug dependency. While blood-borne infectious diseases are now well recognised as a key problem for drug users and an appropriate area for intervention by GPs, the more immediate threat of death or serious injury resulting from overdose is less well recognised. This study indicates that overdose prevention and management should become a priority for GPs caring for opiate-dependent patients.

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