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Fatal poisoning in Nordic drug addicts in 2002

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Abstract

The present study from 2002 includes medicolegally examined fatal poisonings among drug addicts in the five Nordic countries: Denmark, Finland, Iceland, Norway and Sweden. A common definition ''drug addict'' is applied by the participating countries. The number of deaths, age, sex, place of death, main intoxicant and other drugs present in the blood are recorded in order to obtain national data, as well as comparable Nordic data and data comparable to earlier studies from 1997 and 1991. The Icelandic results are commented on separately due to the low number of cases.

The most fatal overdoses are seen in Norway, in both the death rate (number per 100,000 inhabitants = 8.44) and in absolute number ($n = 232$). The comparable figures for the other four countries are Denmark 5.43 ($n = 175$), Iceland 3.6 ($n = 6$), Finland 2.93 ($n = 94$) and Sweden 2.56 ($n = 136$). In earlier studies from 1991 and 1997, the highest death rate is seen in Denmark, with Norway as number two. Denmark is the only country where the death rate decreases from 1997 to 2002. A relatively large increase in deaths in the younger age groups (<30 years) is noted from 1997 to 2002, except in Denmark, where only a small increase in overdose deaths in very young people (15–19 years) is observed. Females account for 12–20% of the overdoses (three out of six deaths in Iceland). Relatively fewer deaths are recorded in the capital areas in 2002 than in 1997 and 1991, suggesting more geographically widespread drug use in the Nordic countries.

Heroin/morphine is the single most frequently encountered main intoxicant, varying from 10% of the cases in Finland to 72% of the cases in Norway. Finland differs from the other countries in that a high percentage of the fatal overdoses in Finland are not caused by an illicit drug; buprenorphine overdoses are seen, and relatively few deaths resulting from heroin are seen. Methadone is the main intoxicant in 41% of the Danish overdose cases, 15% of the Norwegian cases, 4% of the Swedish cases and none of the Finnish overdose cases, an observation probably linked to different national prescription rules for methadone.

The analytical screening reveals extended polydrug use. Frequently seen substances, in addition to the main intoxicant are amphetamine, tetrahydrocannabinol (THC), benzodiazepines and ethanol.

Keywords: Drug addict deaths; Fatal poisonings; Nordic countries; Main intoxicant; General screening

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1. Introduction

Deaths among drug addicts are one of several parameters used for evaluation of a country's drug abuse problem. Studies in this field describing changes over time and/or differences between geographical regions are however often invalidated by a lack of comparable data. In former Nordic research [1–3] of deaths among drug addicts, a common definition of the term ''drug addict'' has been applied by the five participating countries. Including the present follow-up investigation, fatal poisonings among drug addicts have been periodically monitored from 1984 to 2002. A number of differences, both over time and between the countries are demonstrated regarding the number of deaths, drug abuse patterns and age distribution. In order to obtain comparable data concerning polydrug abuse, a screening program including the most commonly encountered drugs of abuse has been used by the participating laboratories since 1991. In addition, the data have been recorded in similar databases. The 2002 data in the present study are compared with data from 1991 and 1997.

2. Material and methods

The material includes fatal intoxications among drug addicts submitted to medicolegal autopsy and toxicological analysis in the five Nordic countries in 2002.

The data are compared to similar data from investigations in 1997 and 1991. A drug addict is defined as ''a person who according to information from the police and/or autopsy report is known to have abused drugs intravenously and/or abused drugs listed in the Single Convention on Narcotic Drugs 1961, schedule I and/or the International Convention on Psychotropic Substances 1971, schedules I and II''.

In all cases, except a few in which suitable material is not obtained at autopsy, a screening is performed for opiates, methadone, ketobemidone, propoxyphene, pethidine, other common strong analgesics, amphetamines, including ecstasy, cocaine, cannabis, benzodiazepines and barbiturates. Additional drugs detected by the screening procedure, or by special request from the police, are likewise recorded. The blood alcohol concentration (BAC) is routinely determined.

The cause of death according to the autopsy report is systematically recorded along with the toxicological findings, police information about the deceased and circumstances surrounding the death.

Drugs and poisons are divided into four groups:

Group I: Drugs listed in the Single Convention on Narcotic Drugs 1961, schedule I (cocaine, dextromoramide, heroin/morphine, ketobemidone, methadone, oxycodone, etc.) and schedule II (codeine, ethylmorphine, pholcodine, propoxyphene, etc.).

Group II: Drugs listed in the International Convention on Psychotropic Substances 1971, schedules I and II (amphetamines, MDMA (ecstasy), tetrahydrocannabinol, etc.).

Group III: Drugs listed in the International Convention on Psychotropic Substances 1971, schedules III and IV (most barbiturates, benzodiazepines, buprenorphine, meprobamate, methaqualone, etc.).

Group IV: All other drugs and poisons, including ethanol and carbon monoxide.

Deaths caused by poisoning are recorded according to the drug judged to be the main intoxicant. Cases involving multiple drugs and where the cause of death cannot be ascribed to a single substance are assigned the drug with the lowest group number (see above) as the main intoxicant. Cases involving two or more drugs in the same group are recorded according to the drug judged to be the main contributor to death.

Heroin is quickly metabolized to 6-monoacetylmorphine and further to morphine. If 6-monoacetylmorphine is not detected, it is analytically impossible to determine whether heroin or morphine is used. However, intake of heroin is often indicated in the police reports. Morphine is the substance measured after intake of heroin and/or morphine, and these opiate cases are therefore always recorded as heroin/morphine cases.

In order to secure comparability of the results from the participating laboratories, a continuous inter-laboratory quality control has been performed from 1991 to 2002.

The death rate in each country is calculated as the number of deaths per 10^5 inhabitants in the age group 15–59 years, as the addicts are, with very few exceptions, <60 years of age.

Due to the low number of deaths, Iceland is mentioned separately and the comparisons are performed between the other four countries.

3. Results

3.1. Death rates

In Iceland six fatal poisonings among drug addicts are registered in 2002, two in 1997 and one in 1991.

Norway has the highest death rate. It is about 55% higher than in Denmark. In 1997 the death rates are almost equal in the two countries. The death rates in Finland and Sweden are both about one-third of that in Norway (Fig. 1) and Finland now has a higher death rate than Sweden.

From 1991 to 1997 the death rate increases in all four countries. From 1997 to 2002 fatal poisonings among drug addicts in Norway and Finland continue to increase considerably, increase only slightly in Sweden and decrease in Denmark.