Rapid communications

REBOUND OF OVERDOSE MORTALITY IN THE EUROPEAN UNION 2003-2005: FINDINGS FROM THE 2008 EMCDDA ANNUAL REPORT

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Drug overdose is an important cause of death among young adults in Europe. According to data reported by Member States to the EMCDDA, many of the European Union countries reported a rebound in the numbers of overdose deaths in 2003-2005, following decreases in almost all reporting countries in previous years (2000 to 2003). Further investigations are needed in order to clarify the factor driving these increases and inform policies and interventions aimed at reducing these deaths.

Introduction

An important proportion of mortality of young adults in Europe is attributable directly or indirectly to illegal drug use, and it has been estimated that in some urban areas opiate use can account for over 20% of the overall mortality of the 15-49 year-olds [1,2].

Overdose deaths (ODs) are an important component of drug-related mortality. They are the main cause of death among problem drug users¹ in those European countries in which the prevalence of human immunodeficiency virus (HIV) infection in this group is low [3]. In the European Union, reported ODs outnumber, at present, other reported important causes of death attributable to drug use such as mortality due to HIV infection and acquired immunodeficiency syndrome (AIDS) transmitted through sharing injection equipment [4]. The risk of ODs is particularly high when drugs are injected, and polydrug use (the use of more than one substance in combination, often including alcohol or prescription medicines) is an important additional risk factor [5,6].

We aim to provide an overview of trends in ODs in the European Union from 2000 until 2005. We base ourselves on data recently made available in the 2008 Annual Report from the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) [4].

Methods

The EMCDDA annually collects information from each of the 27 European Union (EU) Member States, and from Norway, Croatia and Turkey, on the number and characteristics (age-group, gender and basic information on substances found in the toxicological analysis) of people dying from an overdose of illegal drugs. Information is extracted by national focal points from the general mortality registries (GMR) following a standard protocol and case definition [7] that prescribes a set of ICD-10 codes as underlying cause of death. This set includes mental and behavioural disorders, and accidental, intentional or undetermined intent poisonings due to

illegal drugs. Alternatively, in countries where a special mortality registry (SR, based on forensic and/or police sources) is considered of higher reliability, cases are selected when they are classified as poisonings due to illegal drugs.

For the present analysis, we used the data on ODs reported in the period 2000 - 2005 (last year with data available from most countries reporting to the EMCDDA). No data were available for Belgium, Cyprus, Denmark and Slovakia, whilst Croatia and Turkey were not yet participating in EMCDDA activities during the study period. The detailed data on ODs for each country are available in the 2008 EMCDDA Statistical Bulletin [8].

Population mortality rates and proportion of the total mortality attributable to drug overdoses were computed for 2005 using Eurostat population and mortality figures for 2005 [9].

Results

Between 2000 and 2003, the number of reported ODs decreased in 21 of the 24 countries included in the analysis, the total reported

FIGURE

Number of overdose deaths reported to the EMCDDA by 23 EU Member States and Norway, 2000-2005

Belgium, Cyprus, Denmark and Slovakia were not included in the analysis. In Sweden and Ireland, data for 2005 were missing and 2004 figures have been imputed.

number of deaths dropping from 8,275 to 6,350 (a 23% decline). However, a subsequent increase of ODs was observed between 2003 and 2005 in 16 of the 24 countries, with the total number of deaths increasing from 6,350 to 6,887 (an 8.5% increase) (see Figure).

Regarding toxicological findings, where information was available, opioids were detected in most OD cases reported to the EMCDDA, ranging from 33% to 100% of cases in 2005 (average of all cases in participating countries 80%).

We estimate that in 2005, ODs accounted for an average of 3.9% of all deaths among people aged 15 to 39 years in the countries participating in the analysis. In eight countries this proportion was over 7%, reaching 13.0%* in Malta, 10.6% in Norway, 9.9% in Greece and 9.6% in the United Kingdom. Population rates of ODs ranged from under five to over 100 deaths per million inhabitants aged 15 to 39 years, with an estimated average of 28 per million in participating countries.

Discussion

A clear increase in reported ODs has been observed between 2003 and 2005 in many EU countries, reverting the previously declining trend seen between 2000 and 2003. A limitation of this analysis is that it was not possible to include more recent years because of incomplete data, indicating a need for more timely monitoring of OD. The factors influencing these trends are not well understood. Improved reporting is unlikely to explain this phenomenon, as the reporting methodology in most of the countries remained the same during the entire study period and therefore does not explain that the majority of countries recorded a reversal in the trend halfway through the observation period.

The number of ODs in a community is related to the size of the population at risk (problem drug users, in particular opiate users), but also to important risk factors such as injecting drug use and polydrug use as well as intensity and regularity of use [5,10]. In addition, the state of health of drug users such as deteriorated liver and respiratory functions could influence the risk of suffering a fatal overdose [11]. Comprehensive information on the prevalence of these factors and how they evolved during the study period is not available for many of the participating countries.

On the other hand, in the case of opiate users treatment (substitution and other) for their drug dependence provides a strong protection (by a factor of 10: hazard ratio 0.09; 95% confidence interval: 0.04-0.19) against OD as long as they continue the treatment, whereas the risk of OD is particularly high immediately after leaving treatment [12]. Overdose risk is also high immediately after prison release [13], possibly because of relapse to drug use of people that have lost tolerance to opiates. Provision of drug treatment has increased considerably in the past years in most EU countries and it will likely be a key element of any strategy to reduce the number of ODs. However, the quality of the treatment provided has to be further investigated, as well as the question if it is appropriately accessible for specific vulnerable groups (e.g. prisoners, immigrant or homeless drug users) [14].

Finally, specific interventions to reduce ODs are being implemented in some countries (e.g. peer education, family support groups, naloxone distribution to users, supervised consumption facilities), and further research is needed to assess their effectiveness [15].

Conclusions

A worrying change in the trend of reported ODs was observed between 2000 and 2005 in many of the reporting countries. This trend should be monitored more in-depth and in a more timely fashion. It is important to improve data availability on the factors influencing OD, in order to develop effective prevention interventions and policies.

1 Note: Problem drug use (PDU) is defined by the EMCDDA as "injecting drug use or long duration/regular use of opioids, cocaine and/or amphetamines"

* Authors' correction: Due to divergences in extraction procedures in Eurostat database resulting in extraction of incorrect figures for some countries, a wrong number was originally published for the proportion of deaths due to overdoses in Malta. The sentence "In eight countries this proportion was over 7%, reaching 20.0% in Malta,..." was corrected on 22 January 2009 to read "In eight countries this proportion was over 7%, reaching 13.0% in Malta,....". The authors apologise for the mistake.

Acknowledgements

We would like to thank all participating countries and national institutions of the European network for Drug-Related Deaths surveillance (national focal points and national experts) for their important contributions.

References

1. Bargali AM, Hickman M, Davoli M, Perucci CA, Schifano P, Buster M, et al. Drug-related mortality and its impact on adult mortality in eight European countries. *Eur J Public Health*. 2006;16(2):198-202.
2. Borrell C, Pasarin MI, Cirera E, Klutke P, Pipitone E, Plasencia A. Trends in young adult mortality in three European cities: Barcelona, Bologna and Munich, 1986-1995. *J Epidemiol Community Health*. 2001;55(8):577-82.
3. Ødegard E, Amundsen EJ, Kielland KB. Fatal overdoses and deaths by other causes in a cohort of Norwegian drug abusers – a competing risk approach. *Drug Alcohol Depend*. 2007;89(2-3):176-82.
4. European Monitoring Centre for Drugs and Drug addiction (EMCDDA). Annual Report 2008: the state of the drugs problem in Europe. Lisbon: EMCDDA; 2008.
5. Best D, Man L-H, Zador D, Darke S, Bird S, Strang J, et al. Overdosing on opiates. Part I, Causes. *Drug Alcohol Findings* 2000;4:4-21.
6. Hickman M, Carrivick S, Paterson S, Hunt N, Zador D, Cusick L, et al. London audit of drug-related overdose deaths: characteristics and typology, and implications for prevention and monitoring. *Addiction* 2007;102(2):317-23.
7. European Monitoring Centre for Drugs and Drug addiction (EMCDDA). The DRD Standard Protocol, version 3.0. EMCDDA standard protocol for the EU Member States to collect data and report figures for the Key Indicator Drug-related Deaths. Lisbon: EMCDDA; 2002.
8. European Monitoring Centre for Drugs and Drug addiction (EMCDDA). Statistical Bulletin 2008. Lisbon: EMCDDA; 2008. Available from: <http://www.emcdda.europa.eu/stats08>
9. Eurostat. European Commission. Luxembourg. <http://epp.eurostat.ec.europa.eu>
10. Brugal MT, Barrio G, De La Fuente L, Regidor E, Royuela L, Suelves JM. Factors associated with non-fatal heroin overdose: assessing the effect of frequency and route of heroin administration. *Addiction*. 2002;97(3):319-27.
11. Warner-Smith M, Darke S, Lynskey M, Hall W. Heroin overdose: causes and consequences. *Addiction*. 2001;96(8):1113-25.
12. Davoli M, Bargagli AM, Perucci CA, Schifano P, Belludi V, Hickman M, et al. Risk of fatal overdose during and after specialised drug treatment: the VEdette study, a national multi-site prospective cohort study. *Addiction*. 2007;102(12):1954-9.
13. Farrell M, Marsden J. Acute risk of drug-related death among newly released prisoners in England and Wales. *Addiction*. 2008 Feb;103(2):251-5.
14. European Monitoring Centre for Drugs and Drug addiction (EMCDDA). Statistical Bulletin 2007. Health and Social Responses. Lisbon: EMCDDA; 2007. Available from: <http://www.emcdda.europa.eu/html.cfm/index39437EN.html>
15. Sporer KA. Strategies for preventing heroin overdose. *British Medical Journal*. 2003;326:442-4

This article was published on 15 January 2009.

Citation style for this article: Vicente J, Giraudo I, Matias J, Hedrich D, Wiessing L. Rebound of overdose mortality in the European Union 2003-2005: findings from the 2008 EMCDDA Annual Report. *Euro Surveill*. 2009;14(2):pii=19088. Available online: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19088>