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MONITORING DRUG-INDUCED DEATHS IN SLOVAKIA

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AIM

The aim of the paper is to describe the management of monitoring of drug related deaths and building up the so-called Special Register of drug related deaths in Slovakia and present the results obtained by performed analysis of all cases reported in the period of years 2004 and 2012 in the Slovak Republic.
METHODS

The study included all those deceased who died in relation to drug abuse and were submitted to medico-legal autopsy and toxicological investigation in Slovakia within a nine-year period of the years 2004 - 2012 at the nine medico-legal workplaces of Healthcare Surveillance Authority (HCSA) and reported to the Special Register.
METHODS

The data on deaths within the years 2004 and 2005 were collected from all workplaces retrospectively. Since 2006 a continuing data collection started via electronic on-line forms on the webpage of the National Monitoring Centre for Drugs (NMCD), which were filled in by a physician performing the autopsy and this data collection continued up to 2008.
METHODS

Since 2009 the electronic database of the autopsy reports conducted by HCSA for data collecting has been used.

The population in Slovakia within a monitored period was about 5.4 million, on average more than 53 thousand people died a year and the number of performed medico-legal autopsies was 47,829.
RESULTS

The criteria matched 955 cases i.e. 2% of all autopsies. There were 41% of direct deaths and 59% of indirect deaths. Males comprised 73% of all cases and females 27%. The age category up to 34 years represented 48% of cases. The most frequently detected substances were opiates and opioids in direct deaths in 31% of cases, in indirect deaths benzodiazepines in 33%.
RATE OF CASES REPORTED ACCORDING TO GROUPS

- Direct: 41%
- Indirect: 59%
RATE OF CASES REPORTED ACCORDING TO SEX

- Males: 73%
- Females: 27%
RATE OF CASES REPORTED ACCORDING TO GROUPS AND SEX

<table>
<thead>
<tr>
<th></th>
<th>Direct deaths</th>
<th>Indirect deaths</th>
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<tbody>
<tr>
<td>Males</td>
<td>64%</td>
<td>79%</td>
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<tr>
<td>Females</td>
<td>36%</td>
<td>21%</td>
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NUMBER OF CASES REPORTED ACCORDING TO YEARS

Direct | Indirect | Total

NUMBER OF CASES REPORTED ACCORDING TO GROUPS AND YEARS

Direct deaths

Indirect deaths
NUMBER OF CASES REPORTED ACCORDING TO AGE

Direct
Indirect
Total
NUMBER OF CASES REPORTED ACCORDING TO GROUPS AND AGE

Direct deaths

Indirect deaths
NUMBER OF DIRECT DEATHS CASES REPORTED ACCORDING TO PAS DETECTED

0 50 100 150 200 250 300 350 400

18 19 20 21 22 (BZD)
NUMBER OF DIRECT DEATHS CASES REPORTED ACCORDING TO PAS DETECTED
NUMBER OF INDIRECT DEATHS CASES REPORTED ACCORDING TO PAS DETECTED
NUMBER OF CASES REPORTED WITH OPIATES/OPIOIDS DETECTED

Direct deaths

Indirect deaths
NUMBER OF DIRECT DEATHS CASES REPORTED WITH MEDICAMENTS DETECTED

![Graph showing the number of direct deaths cases reported with medicaments detected from 2004 to 2012. The y-axis represents the number of cases ranging from 0 to 35, and the x-axis represents the years from 2004 to 2012.]
NUMBER OF INDIRECT DEATHS CASES REPORTED WITH AMT/MAMT DETECTED
NUMBER OF INDIRECT DEATHS CASES REPORTED WITH CANNABINOID DETECTED
NUMBER OF INDIRECT DEATHS CASES REPORTED WITH BENZODIAZEPINES DETECTED

![Chart showing the number of indirect deaths cases reported with benzodiazepines detected from 2004 to 2012.]
RATE OF DRUGS AND MEDICAMENTS DETECTED
RATE OF DRUGS AND MEDICAMENTS DETECTED ACCORDING TO GROUPS

Direct deaths

Indirect deaths

Drugs

Medicaments


Drugs

Medicaments

CAUSE OF DEATH IN THE GROUP OF INDIRECT DEATHS
RATE OF CASES REPORTED ACCORDING TO WORKPLACE
RATE OF CASES REPORTED ACCORDING TO GROUP AND WORKPLACE

Direct deaths

Indirect deaths
METHODS

The study included all those deceased who died in relation to psychoactive substances abuse in the regions of Bratislava city and Trnava city districts (1.18 million of inhabitants) within a six-year period of the years 2007 - 2012. The results of regional analysis were compared to the data acquired from whole the Slovakia.
RESULTS

The criteria matched 212 cases i.e. 4% of all autopsies. There were 49% of direct deaths and 51% of indirect deaths. Males comprised 80% of all cases and females 20%. The age category up to 34 years represented 52% of cases. The most frequently detected substances were medicaments in direct deaths in 45% of cases, in indirect deaths amphetamines/metamphetamines in 39%.
RATE OF CASES REPORTED IN BRATISLAVA ACCORDING TO GROUPS

- Indirect: 51%
- Direct: 49%
RATE OF CASES REPORTED IN BRATISLAVA ACCORDING TO SEX

- Males: 80%
- Females: 20%
NUMBER OF CASES REPORTED IN BRATISLAVA ACCORDING TO YEARS

- Direct deaths
- Indirect deaths
- Total

NUMBER OF CASES REPORTED ACCORDING TO GROUPS AND YEARS

Direct deaths

Indirect deaths
RATE OF CASES REPORTED IN BRATISLAVA ACCORDING TO AGE
NUMBER OF CASES REPORTED ACCORDING TO GROUPS AND AGE

Direct deaths

Indirect deaths
NUMBER OF DIRECT DEATHS CASES REPORTED ACCORDING TO PAS DETECTED

Slovakia

Bratislava
NUMBER OF DIRECT DEATHS CASES REPORTED ACCORDING TO PAS DETECTED

Slovakia

Bratislava
NUMBER OF INDIRECT DEATHS CASES REPORTED ACCORDING TO PAS DETECTED

Slovakia

Bratislava
CAUSE OF DEATH IN THE GROUP OF INDIRECT DEATHS

Slovakia

Bratislava
CONCLUSION

- population in Slovakia was about 5.4 million
- more than 53 thousand people died a year
- number of ML autopsies was nearly 6 thousand a year
- illicit drug poisoning reported 20 cases a year
- rate ranged from 4 to 6 (5) per 100,000 population at the age ranging from 15 to 64 years
- 4 countries with the lowest death rate of overdosing with illicit drugs in Europe
Reported results fail to determine definite trends in the development of this indicator in Slovakia since the reported mortality rate is relatively low. It deals with the initial attempts of a complex evaluation of the problems from the beginning of building up a so-called Special Register.
CONCLUSION

The key aspect affecting the resulting figures is the fact that unlike in other countries in Slovakia there are registered only those cases in which autopsy and complex toxicological analysis were performed.
CONCLUSION

For improving the quality of case monitoring it is required to extend indications of screening toxicological examinations for defined risk groups in terms of death cause, age and history particularly in so-called indirect drug-related deaths. For the notification of cases, it is necessary to modernize and improve the effectiveness of the electronic database of autopsy reports conducted by Health Care Surveillance Authority.
CONCLUSION

The found numbers of psychoactive substances related deaths in the Bratislava city and Trnava city regions reflect the reality that in territory of the Slovakia capital city there is concentrated the biggest number of psychoactive substances consumers and/or abusers.
ACKNOWLEDGEMENTS

The author is grateful to Health Care Surveillance Authority and to all workers of Slovak forensic medicine workplaces for the support and co-operation in contributing to data collection.
NUMBER OF DIRECT DEATHS CASES WITH TRAMADOL DETECTED ACCORDING TO YEARS