Non-fatal self-poisoning trends involving analgesics and psychotropics at the University Hospital of the West Indies in Jamaica

M. Gossell-Williams (*,a), J. Williams-Johnson (b), O. Simon (a).

Abstract

Analgesic and psychotropic drugs are often involved in self-poisoning. The aim of this study was to examine trends associated with the use of some of these drugs in non-fatal self-poisoning at the University Hospital of the West Indies (UHWI) and to identify the gender and age profile of these cases. Data from the UHWI was collected to identify all the hospitalizations for the period January 1, 2000 to December 31, 2005 that were the result of self-poisoning with benzodiazepines, phenothiazines, tricyclic antidepressants, paracetamol and non-steroidal anti-inflammatory drugs (NSAIDs). One hundred and sixteen cases were recorded for this time period. Accidental self-poisoning accounted for 5% (6 of 116) of the cases and they were mainly children less than 16 years old with no gender differences observed. However, with intentional self-poisonings, females were significantly more represented than males (Chi-squared= 31.54, p<0.001). For the age group 11-20 years, the analgesics (paracetamol and NSAIDs) were the drugs more likely to be involved than the psychotropic drugs (p< 0.001); while in the older age groups, no significant preference was observed. The period of hospitalization was in most cases for 1-3 days and a few were associated with more than 10 days stay. It is concluded that intentional self-poisoning cases are a potential burden to public health and the predominance of paracetamol among adolescents needs further assessment.

Key words: Accidental poisoning, Jamaica, Non-fatal, Self-poisoning.

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Introduction

Pharmaceuticals are developed with the specific aim to provide therapy; yet many persons have used some pharmaceuticals in an attempt to induce self-poisoning; there are also cases of accidental self-poisoning. In the 1980s worldwide trends revealed that psychotropics drugs such as benzodiazepines were most frequently associated with intentional self-poisoning attempts\(^1\); however current worldwide data have analgesics, namely paracetamol and non-steroidal anti-inflammatory drugs (NSAIDs) as being the drugs most commonly associated with intentional self-poisonings. Other psychotropic drugs involved in intentional self-poisonings are tricyclic antidepressants (TCAs) and phenothiazines.\(^2\)\(^-\)\(^11\) In a 2005 study in a tertiary University Hospital in Hong Kong, intentional and accidental self-poisoning among the age group less than 21 years accounted for 0.13% and 0.19%, respectively of hospital admissions of this age group.\(^4\) In this study, we attempt to examine the trend of non-fatal self-poisoning among patients hospitalized at University Hospital of the West Indies by placing emphasis on the drugs most commonly involved, namely psychotropics: benzodiazepines, TCAs and phenothiazines and the analgesics: paracetamol and NSAIDs.

Methods

The study was undertaken at the University Hospital of the West Indies (UHWI) in Jamaica. This hospital is one of two major adult hospitals that provide 24-hour emergency service in Jamaica, serving a population of approximately one million people. It is located in the country’s capital, Kingston; well equipped with five hundred beds, all the major disciplines and investigative tools available. It is also the main teaching hospital on the island and is attached to the University of the West Indies, which is a tertiary academic institution serving the Caribbean region.

Data was collected from the computerized records of all hospitalizations between January 1, 2000 and December 31, 2005 associated with self-poisoning due to benzodiazepines, phenothiazines, tricyclic antidepressants, paracetamol and NSAIDs. The computerised data also documented age, gender, number of days hospitalized and whether the self-poisoning was intentional or accidental. The total number of hospitalizations for the time period under investigation was also recorded. Frequency distributions and chi-square analysis of the distributions were obtained using the statistical software SPSS version 12. The analysis was considered significant if the p value was <0.05.

Results

For the time period under investigation (January 1, 2000 to December 31, 2005) there were 116 cases of self-poisoning associated with paracetamol, benzodiazepines, NSAIDs, phenothiazines and TCAs that resulted in hospitalization. Five cases were the result of accidental self-poisoning and 110 (95%) were the result of intentional self-poisonings; intent was not determined for one case (Table 1).

<table>
<thead>
<tr>
<th>Table 1. Distribution of intentional and accidental self-poisoning</th>
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<tr>
<td><strong>Analgesics</strong></td>
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<tr>
<td><strong>Paracetamol</strong></td>
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<tr>
<td><strong>Intentional</strong></td>
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The total number of hospitalizations recorded for the time period under investigation was 104,350; therefore self-poisoning with these drugs accounted for 0.10% of the hospitalizations. Of these intentional self-poisoning cases, 57.3% (n=63) were associated with paracetamol, 21.8% (n=24) with benzodiazepines, 15.5% (n=17) with NSAIDs, 6.4% (n=7) with phenothiazines and 5.5% (n=6) with TCAs. Seven of the intentional cases involved a combination of two drugs (benzodiazepines + paracetamol =3; benzodiazepines + NSAIDs = 1; paracetamol + unspecified agent= 3).

In terms of gender, while the odds of accidental poisoning was the same for both genders, females were significantly more represented in the cases of intentional self-poisoning than males (chi-squared= 31.54, P<0.001) giving a male:female ratio of 1:2.2, especially among those using paracetamol (chi-squared = 13.52, p<0.001), benzodiazepines (chi-square =8.17, p<0.01) and NSAIDs (chi-square= 7.12, p<0.01)(Figure. 1).

The accidental self-poisonings occurred in children 20 months old to 16 years and involved paracetamol (n=2), benzodiazepines (n=2) and NSAIDs (n=1). All the intentional self-poisonings occurred in ages 11 years and older (Figure 1). For the intentional self-poisoning, a comparison was made of the number of cases involving analgesics (paracetamol and NSAIDs) verses psychotropics (benzodiazepines, phenothiazines and TCAs). The seven cases involving more than one drug were not included in this part of the analysis. The main difference among the age groups was that in the 11-20 year group, analgesics were involved significantly more than the psychotropics (p<0.001). However, among the older age groups there was no significant difference between using analgesics verses psychotropics drugs (Figures 1a and 1b).

Self-poisoning with the selected drugs was mainly associated with one to three days of hospitalization of the patients (Figure 2). However, all the hospitalizations caused by TCAs involved more than three days (but less than 10). Only paracetamol and NSAIDs cases were associated with greater than 10 days hospitalization.
Figure 2. Distribution of days of hospitalizations associated with self-poisoning

Note: Data excludes seven intentional cases that involved more than one drug

Discussion

At the UHWI, non-fatal self-poisoning associated with the five evaluated group of drugs represents one in every thousand hospitalizations and paracetamol accounting for most of these cases. This predominance of paracetamol is consistent with worldwide trends of intentional self-poisoning.

When the data was analysed based on gender, females were more represented than males in intentional self-poisoning. The greater involvement of females in intentional self-poisoning cases is a trend reported in a previous study at UHWI [12] and by other countries, such as Turkey and the United Kingdom.

When the data was analysed by age, it was determined that only children under 16 years of age were involved in accidental self-poisoning, while intentional poisoning involved children older than 11 years. The trend of intentional self-poisoning among the age groups 11 years and older was similar to patterns reported in a previous study at UHWI [12] and in other countries. Interestingly, however was the comparison of involvement of analgesics verses psychotropics across the age groups. In the age group of 11-20 years, analgesics, particularly paracetamol, were significantly more represented with intentional self-poisonings than the psychotropics. This is likely as a result of the greater access because many analgesics are available without prescription. This finding however, does suggest a need to look further at the accessibility of analgesics to adolescents and maybe a need to sensitize them to the process involved in paracetamol overdose. Studies in other countries have shown that patients attempting self-poisoning with paracetamol, thought they would just fall asleep and die and were not aware that paracetamol overdose was associated with a slow onset hepatoxicity and that less than 10% of the overdose cases were likely cause death. Additionally, when patients were aware of the process it dissuaded them from using it for self-poisoning. Therefore, by placing more emphasis on educating the public, especially adolescents, of the unpleasant process involved in paracetamol overdose may serve as a significant deterrent to attempting suicide with paracetamol and possibly other analgesics. Policies aimed at limiting availability of paracetamol may also need to be considered.

Limitations

This analysis is retrospective in nature, and this may lead to possible underreporting of the problem. Thus, the data reported serves more as an indicator of a need to design prospective studies to further analyze the impact of drug use in self-poisoning.

Conclusions

The overall admission patterns observed at UHWI for drugs used in self-poisoning are in keeping with those observed worldwide. The numbers represent a potential burden to public health, as it will impact directly on issues associated with accessibility of non-prescription drugs and cost associated with hospitalization. Additionally, patients with intentions to harm themselves must require some degree of follow-up counselling.


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