Acute Poison Exposure in the Emergency Department: a 2-Year Study in a University Hospital

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Background: Pattern of acute poison exposure varies in the different areas. The information will be useful for prevention.

Objective: To evaluate pattern, severity and clinical outcome of acute poison exposure in the Emergency Department of a University Hospital in Thailand.

Material and Method: Medical records of all acute poison exposure cases, presented the Emergency Department of Thammasat University Hospital between October 1, 2006 and September 30, 2008 were reviewed retrospectively. Demographic characteristics, exposure time, agents, route and cause of exposure, clinical course and outcome were analyzed.

Results: Of the total 76,805 Emergency Department visits, 1,112 cases were related to acute poison exposures, which were accounted for 1.4%. Sixty-five percents were female. Patients whom their ages ranging from 21 to 40 years old showed the highest rate of acute poison exposures. Intentional and unintentional exposures accounted for 52.7% and 44.9%, respectively. Intentional exposure was the major cause of exposure in the age group of 11-40 years, while unintentional exposure was the major cause of exposure in children. Pharmaceutical products (38.1%) were the most common category of substances involved in acute poison exposure followed by bites and stings (31.7%) and household products (17.6%). The substances most frequently involved were acetaminophen (17.7%) and toilet cleaning agents (12.3%). Fifty-six (5%) cases developed severe clinical course and three (0.27%) patients died. Pesticide and toilet cleaning agents were responsible for all these fatalities.

Conclusion: Acetaminophen and toilet cleaning agents were commonly involved in acute poison exposure. Pesticide and toilet cleaning agents caused severe morbidity and mortality. Unintentional exposure was the major cause of exposure in children. Public education regarding the danger of these agents and prevention of the poison exposure in children should be emphasized.

Keywords: Acute poison exposure, Poisoning, Emergency Department, Thailand

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exposure patients presenting to Emergency Department of Thammasat University Hospital during two-year period from 2006 to 2008.

**Material and Method**

The list of patients with diagnosis of poisoning, overdose, poison exposure presented to Emergency Department of Thammasat University Hospital between October 1, 2006 and September 30, 2008 was obtained from Emergency Department record. Retrospective chart review of these patients was performed. This study includes acute poisoning or poison exposure of all age groups, all types of poison and all routes of exposure. Patients with food or drug allergy, side effect of medication, chronic poisoning or poison exposure were excluded. The data regarding age, gender, date and time of Emergency Department visit, home address, type of poison/agents, reason of exposure, route of exposure, exposure time, length of stay, complication, and discharge profile were collected from the medical records. Poisoning Severity Score was used to determine the severity of poisoning.

The data were analyzed by using SPSS version 17.0 program. Descriptive analysis was performed. Data were presented as percentage.

**Results**

The list of 1,146 cases with diagnosis of poisoning, overdose, poison exposure was obtained from Emergency Department record. After medical record review, 34 cases were excluded because relevant evidence revealed that 19 cases were chronic poison exposure, four cases were suffered from other causes rather than poisoning, five cases were food or drug allergy, and six cases were side effect of medication. There were 76805 Emergency Department visits at Thammasat University Hospital from October, 2006 to September, 2008. A total of 1,112 cases, involving 1,106 patients, were confirmed as acute poisoning or poison exposure. Six patients each had two visits during this period. This represented 1.4% of total Emergency Department visits.

### Demographic data

Acute poisoning was more common in female (65%) than male (35%). The mean age of male was 27.52 ± 15.1 years (ranged 1 month to 82 years). The mean age of female was 27.37 ± 13.2 years (ranged 4 month to 87 years). The majority of the cases were young adults in the age group of 21-40 years old (52.2%), followed by teenagers in the age group of 11-20 years old (24.5%) as presented in Table 1. Sixty five percents of all cases were from Pathumthani province. Almost 50% of all cases presented to Emergency Department during 16:00-24:00 period.

### Agents involved in acute poison exposure

Among the total of 1,112 cases, 68 cases (6.1%) exposed to more than one agent on the same occasion. All of these cases exposed to drugs. They were defined as “multiple agents” and included in pharmaceutical products category as shown in Table 4. Of these, 54 cases involved more than one drug, 11 cases involved drug and household product, and three cases involved drug and pesticide.

Pharmaceutical products, accounted for 38.1% of all cases, were the most common category of substance involved in acute poisoning. Animal bites/stings, household products, pesticide, technical and occupational products were 31.7%, 17.6%, 4.0% and 3.6% respectively (Table 2). Interestingly, if we counted the total cases involved in each substance,

### Table 1. Age and sex distribution of acute poison exposure

<table>
<thead>
<tr>
<th>Age (y)</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Row %</td>
<td>No.</td>
</tr>
<tr>
<td>Less than 1</td>
<td>4</td>
<td>57.1</td>
<td>3</td>
</tr>
<tr>
<td>1-4</td>
<td>23</td>
<td>48.9</td>
<td>24</td>
</tr>
<tr>
<td>5-10</td>
<td>19</td>
<td>52.8</td>
<td>17</td>
</tr>
<tr>
<td>11-20</td>
<td>91</td>
<td>33.5</td>
<td>181</td>
</tr>
<tr>
<td>21-40</td>
<td>191</td>
<td>32.9</td>
<td>390</td>
</tr>
<tr>
<td>40-60</td>
<td>51</td>
<td>38.6</td>
<td>81</td>
</tr>
<tr>
<td>More than 60</td>
<td>15</td>
<td>40.5</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td>394</td>
<td>35.4</td>
<td>718</td>
</tr>
</tbody>
</table>
Table 2. Category of substances involved in acute poison exposure

<table>
<thead>
<tr>
<th>Categories</th>
<th>Male</th>
<th>%</th>
<th>Female</th>
<th>%</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmaceutical products</td>
<td>75</td>
<td>19.0</td>
<td>363</td>
<td>50.6</td>
<td>438</td>
<td>39.4</td>
</tr>
<tr>
<td>Bites and Stings</td>
<td>182</td>
<td>46.2</td>
<td>171</td>
<td>23.8</td>
<td>353</td>
<td>31.8</td>
</tr>
<tr>
<td>Household products</td>
<td>65</td>
<td>16.5</td>
<td>131</td>
<td>18.2</td>
<td>196</td>
<td>17.6</td>
</tr>
<tr>
<td>Pesticides</td>
<td>17</td>
<td>4.3</td>
<td>27</td>
<td>3.8</td>
<td>44</td>
<td>4.0</td>
</tr>
<tr>
<td>Technical and Occupational products</td>
<td>25</td>
<td>6.4</td>
<td>15</td>
<td>2.1</td>
<td>40</td>
<td>3.6</td>
</tr>
<tr>
<td>Hydrocarbons</td>
<td>22</td>
<td>5.6</td>
<td>6</td>
<td>0.8</td>
<td>28</td>
<td>2.5</td>
</tr>
<tr>
<td>Illicit drugs</td>
<td>4</td>
<td>1.0</td>
<td>2</td>
<td>0.3</td>
<td>6</td>
<td>0.5</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>1.0</td>
<td>3</td>
<td>0.4</td>
<td>7</td>
<td>0.6</td>
</tr>
<tr>
<td>Total</td>
<td>394</td>
<td>100.0</td>
<td>718</td>
<td>100.0</td>
<td>1,112</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 3. Substances most frequently involved in acute poison exposure

<table>
<thead>
<tr>
<th>Substances</th>
<th>No.</th>
<th>% of all cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analgesic (Acetaminophen)</td>
<td>207</td>
<td>18.6 (17.7)</td>
</tr>
<tr>
<td>Toilet cleaning agents</td>
<td>137</td>
<td>12.3</td>
</tr>
<tr>
<td>Snake bites</td>
<td>116</td>
<td>10.4</td>
</tr>
<tr>
<td>Centipede bites</td>
<td>116</td>
<td>10.4</td>
</tr>
<tr>
<td>Hymenoptera stings</td>
<td>115</td>
<td>10.3</td>
</tr>
<tr>
<td>Sedative-hypnotics</td>
<td>64</td>
<td>5.7</td>
</tr>
<tr>
<td>Antihistamines</td>
<td>58</td>
<td>5.2</td>
</tr>
<tr>
<td>Detergents</td>
<td>46</td>
<td>4.1</td>
</tr>
<tr>
<td>Insecticides</td>
<td>37</td>
<td>3.3</td>
</tr>
</tbody>
</table>

acetaminophen (17.7%) was the most common substance involved in acute poisoning, followed by toilet cleaning agents (12.3%) as seen in Table 3.

The most frequent pharmaceutical products involved in acute poison exposure were acetaminophen, followed in frequency by sedative-hypnotic and antihistamine as shown in Table 4. Among 68 cases of multiple agents, 52 cases ingested acetaminophen along with other substances.

In the animal bites/stings category, snake bites, centipede bites, hymenoptera stings were 32.9%, 32.9% and 32.5% respectively as shown in Table 5. Cases with a history of witnessed snake bite with fang marks were included. Nonspecific or non-witnessed bites were excluded. Among 113 cases of snake bites, 12 cases developed neurological symptoms requiring antivenin, two cases developed coagulopathy requiring antivenin and five cases developed severe local effect requiring surgical intervention.

Table 6 shows household products involved in acute poison exposure. Toilet cleaning agents were most common, followed by detergent and bleach. Toilet cleaner which contained hydrochloric acid caused more severe gastrointestinal injury than others in this category. One case of toilet cleaner ingestion died during this two-year period. However, detergent caused only gastrointestinal irritation after ingestion.

In pesticides category, most of them were insecticides which accounted for 84.1%. Herbicide and rodenticide were 9.1% and 6.8% respectively as shown in Table 7. Among the total 44 pesticide poisonings, three cases developed severe respiratory and neurological symptoms, requiring intensive respiratory care, two cases died during this two-year period (Table 14 and 15).

**Exposure profile**

Most acute poison exposure cases (75.4%) presented to Emergency Department within three hours after exposure, which 48.1% presented within one hour. Ingestion (61.3%) was the major route of poison exposure, followed in frequency by bites and stings, ocular, dermal, inhalation and parenteral (Table 8).

Table 10 shows the cause of exposure in each age group. Intentional exposure accounted for 52.7% of all cases. 44.9% of cases were unintentional exposure, and the remaining 2.4% were other reason. Most cases of intentional exposure were in the age group of 11-40 years. While unintentional exposure was the major cause of exposure in children aged less than 11 years old and elderly aged more than 60 years old.

In children aged less than 11 years old and the age group of more than 40 year-old, unintentional...
animal bite and stings were the most common exposure. In the age group of 11-40 years-old, intentional drugs exposure was most common, followed by animal bites/stings and intentional household product exposure as presented in Table 11.

**Clinical severity and Outcome**

In the total of 1,112 cases, 538 (48.4%) cases were discharged from the Emergency Department after successfully management. 474 cases (42.6%) were admitted to the hospital, 69 (6.2%) cases were referred to other hospital for admission, 31 (2.8%) cases left the Emergency Department without medical permission (Table 12). Three cases, accounted for mortality rate of 0.27%, died during hospital admission as shown in

**Table 4. Pharmaceutical products involved in acute poison exposure**

<table>
<thead>
<tr>
<th>Classification</th>
<th>No.</th>
<th>%</th>
<th>% of all cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analgesic (acetaminophen)</td>
<td>207 (197)</td>
<td>47.3</td>
<td>18.6 (17.7)</td>
</tr>
<tr>
<td>Sedative-hypnotics</td>
<td>64</td>
<td>14.6</td>
<td>5.7</td>
</tr>
<tr>
<td>Antihistamines</td>
<td>58</td>
<td>13.3</td>
<td>5.2</td>
</tr>
<tr>
<td>Antipsychotic</td>
<td>7</td>
<td>1.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Antidepressants</td>
<td>5</td>
<td>1.1</td>
<td>0.4</td>
</tr>
<tr>
<td>Others</td>
<td>20</td>
<td>4.6</td>
<td>1.8</td>
</tr>
<tr>
<td>Multiple Agents</td>
<td>68</td>
<td>15.5</td>
<td>6.1</td>
</tr>
<tr>
<td>Unknown</td>
<td>9</td>
<td>2.0</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td>438</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

**Table 5. Bites and Stings involved in acute poison exposure**

<table>
<thead>
<tr>
<th>Bites and Stings</th>
<th>No.</th>
<th>%</th>
<th>% of all cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snake bites</td>
<td>116</td>
<td>32.9</td>
<td>10.4</td>
</tr>
<tr>
<td>Centipede bites</td>
<td>116</td>
<td>32.9</td>
<td>10.4</td>
</tr>
<tr>
<td>Hymenoptera stings</td>
<td>115</td>
<td>32.5</td>
<td>10.3</td>
</tr>
<tr>
<td>Scorpion stings</td>
<td>6</td>
<td>1.7</td>
<td>0.5</td>
</tr>
<tr>
<td>Total</td>
<td>353</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

**Table 6. Household products involved in acute poison exposure**

<table>
<thead>
<tr>
<th>Household products</th>
<th>No.</th>
<th>%</th>
<th>% of all cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toilet cleaning agents</td>
<td>137</td>
<td>69.9</td>
<td>12.3</td>
</tr>
<tr>
<td>Detergent</td>
<td>46</td>
<td>23.5</td>
<td>4.1</td>
</tr>
<tr>
<td>Bleach</td>
<td>13</td>
<td>6.6</td>
<td>1.2</td>
</tr>
<tr>
<td>Total</td>
<td>196</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

**Table 7. Pesticides involved in acute poison exposure**

<table>
<thead>
<tr>
<th>Pesticides</th>
<th>No.</th>
<th>%</th>
<th>% of all cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insecticides</td>
<td>37</td>
<td>84.1</td>
<td>3.3</td>
</tr>
<tr>
<td>Herbicides</td>
<td>4</td>
<td>9.1</td>
<td>0.3</td>
</tr>
<tr>
<td>Rodenticides</td>
<td>3</td>
<td>6.8</td>
<td>0.2</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

**Table 8. Distribution of route of exposure**

<table>
<thead>
<tr>
<th>Route of exposure</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingestion</td>
<td>682</td>
<td>61.3</td>
</tr>
<tr>
<td>Bites and Stings</td>
<td>353</td>
<td>31.7</td>
</tr>
<tr>
<td>Ocular</td>
<td>65</td>
<td>5.8</td>
</tr>
<tr>
<td>Dermal</td>
<td>5</td>
<td>0.4</td>
</tr>
<tr>
<td>Inhalation</td>
<td>5</td>
<td>0.4</td>
</tr>
<tr>
<td>Parenteral</td>
<td>2</td>
<td>0.2</td>
</tr>
<tr>
<td>Total</td>
<td>1,112</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Table 9. Distribution of duration from exposure to Emergency Department arrival**

<table>
<thead>
<tr>
<th>Duration (hour)</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>535</td>
<td>48.1</td>
</tr>
<tr>
<td>More than 1-3</td>
<td>304</td>
<td>27.3</td>
</tr>
<tr>
<td>More than 3-6</td>
<td>108</td>
<td>9.7</td>
</tr>
<tr>
<td>More than 6-12</td>
<td>91</td>
<td>8.2</td>
</tr>
<tr>
<td>More than 12</td>
<td>65</td>
<td>5.8</td>
</tr>
<tr>
<td>Undetermined</td>
<td>9</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td>1,112</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 10. Distribution of reason for exposure by age

<table>
<thead>
<tr>
<th>Age (y)</th>
<th>Intentional</th>
<th>Unintentional</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. Row %</td>
<td>No. Row %</td>
<td>No. Row %</td>
<td>No. Col %</td>
</tr>
<tr>
<td>Less than 1</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>100.0</td>
</tr>
<tr>
<td>1-4</td>
<td>0</td>
<td>0</td>
<td>47</td>
<td>100.0</td>
</tr>
<tr>
<td>5-10</td>
<td>0</td>
<td>0</td>
<td>35</td>
<td>97.2</td>
</tr>
<tr>
<td>11-20</td>
<td>166</td>
<td>61.0</td>
<td>101</td>
<td>37.1</td>
</tr>
<tr>
<td>21-40</td>
<td>385</td>
<td>66.3</td>
<td>178</td>
<td>30.6</td>
</tr>
<tr>
<td>40-60</td>
<td>32</td>
<td>24.2</td>
<td>99</td>
<td>75.0</td>
</tr>
<tr>
<td>More than 60</td>
<td>3</td>
<td>8.1</td>
<td>32</td>
<td>86.5</td>
</tr>
<tr>
<td>Total</td>
<td>586</td>
<td>52.7</td>
<td>499</td>
<td>44.9</td>
</tr>
</tbody>
</table>

Table 15.
In case of hospital admission, 402 (84.8%) cases were admitted less than three days. Only 12 (2.5%) cases were admitted in the hospital more than seven days (Table 13). There were 56 cases, accounted for 5% of all cases, developed severe clinical course during hospitalization as shown in Table 14.

Discussion
The incidence and pattern of human poison exposure vary in the different countries. In developed countries, the incidence of human poisoning was reported between 0.2 and 9.3 exposures per 1,000 populations per year(1). American Association of Poison Control Center reported the human poison exposure of 8.2 per 1,000 populations per year in 2008(3). According to Ramathibodi poison center report, poisoning and poison exposure was accounted for 0.06 per 1,000 populations per year. Pesticide, household products and pharmaceutical products were the most common poisons(2). This data may not directly identify the overall incidence of poisoning in Thailand because the number of calls to poison center is still low. The frequency of poisoning related ED visit varies substantially, ranged from 0.18 to 1% of total ED visits(1,6,8,12). From the present study, the rate of acute poison exposure at the Thammasat emergency department was found to be 1.4% of total ED visits.

The findings of the present study revealed a higher incidence of acute poison exposure in females than in males, especially in teenagers and adult. However, reports from India, Sri Lanka, Spain, Oman revealed that the incidence in male was higher(1,5,8,10). The majority of acute poisoning in the present study happened in the age group of 21-40 years old.

The study found that acute poisonings from pharmaceutical products were most common, and acetaminophen was the most common drugs involved in acute poisoning. This finding was different from the report of Ramathibodi poison center and other studies from India and Sri Lanka which pesticides were the most common substances(2,5,10). This might be explained by several reasons. First, the majority of acute acetaminophen poisonings were not reported to poison center. Second, Thammasat Hospital located in a growing industrial area. The availability of pesticide had been decreased. However, reports from the western and middle eastern countries described medication as the most common substance which is similar to our finding(1,6-9,12-14). Poisonous animal bites/stings and toilet cleaning agents were important as well. Most poisonous animal bites/stings had benign clinical course, so most animal bites and stings were not reported to poison center. Although no fatality from snake bites was observed in this study, there were 14 cases required antivenin and five cases developed severe local effects requiring surgical intervention. Toilet cleaning agents were also popular because they were available in almost every house. It involved in both intentional and unintentional exposure. Exposure to toilet cleaner could cause severe gastrointestinal injury and permanent morbidity as reported in the present study. A study from Turkey also reported that corrosive ingestions led to high fatality(7). Public education regarding the danger of toilet cleaner should be implemented. Although pesticide poisoning is not common in the present study, it caused severe morbidity. Two fatal cases in this study were due to pesticide.

Intentional exposure was the major cause...
of exposure in this study, which is similar to others (1, 5, 6, 8-10, 14). Most cases of intentional exposure were in the age group of 11-40 years. This might be due to many factors such as far away from home, no family support, stress due to financial problems. Pharmaceutical products (especially acetaminophen) and household products, which were always available in house, were important agents involved in acute intentional poisoning of this age group. However, all of children aged less than 11 years old in the study exposed to toxic substances unintentionally. This resembles with other findings (1, 2, 12, 15). Poisonous animal bites and stings were the major cause of acute poisoning in children. Drugs and other potentially toxic substances available in their houses were at risk as well. Prevention of poison exposure in children should be considered.

Most acute poisonings in the study survived without sequelae. Acetaminophen, poisonous snake and Hymenoptera sting caused severe clinical symptoms during hospitalization, but there was no significant morbidity after successful treatment. In contrast, pesticide and toilet cleaner caused higher morbidity and mortality (1, 7, 10, 15). There were only three fatal cases (0.27%) during this two-year period, so we could not identify factors that could help to predict fatality. Although mortality rate was low in the study, this might not represent the real mortality. Some cases were referred to other hospitals, so we could not follow

### Table 11. Distribution of substances involved in intentional and unintentional exposure by age

<table>
<thead>
<tr>
<th>Category of substances</th>
<th>Intentional</th>
<th>Unintentional</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Products</td>
<td>0</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Bites and Stings</td>
<td>0</td>
<td>49</td>
<td>9</td>
</tr>
<tr>
<td>Household Products</td>
<td>0</td>
<td>139</td>
<td>6</td>
</tr>
<tr>
<td>Pesticides</td>
<td>0</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
<td>551</td>
<td>35</td>
</tr>
</tbody>
</table>

### Table 12. Distribution of discharge profile from the emergency department

<table>
<thead>
<tr>
<th>Discharge profile</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharge from ED</td>
<td>538</td>
<td>48.4</td>
</tr>
<tr>
<td>Discharge after hospital admission</td>
<td>471</td>
<td>42.3</td>
</tr>
<tr>
<td>Death during hospital admission</td>
<td>3</td>
<td>0.3</td>
</tr>
<tr>
<td>Refer to other hospital</td>
<td>69</td>
<td>6.2</td>
</tr>
<tr>
<td>Left without medical permission</td>
<td>31</td>
<td>2.8</td>
</tr>
</tbody>
</table>

### Table 13. Distribution of length of hospital admission

<table>
<thead>
<tr>
<th>Length of stay (day)</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>402</td>
<td>84.8</td>
</tr>
<tr>
<td>4-7</td>
<td>60</td>
<td>12.7</td>
</tr>
<tr>
<td>8-21</td>
<td>9</td>
<td>1.9</td>
</tr>
<tr>
<td>More than 21</td>
<td>3</td>
<td>0.6</td>
</tr>
<tr>
<td>Total</td>
<td>474</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 14. Summary of acute poisonings with severe clinical course (Poison Severity Score 3)

<table>
<thead>
<tr>
<th>Substance</th>
<th>No. cases</th>
<th>Intention exposure</th>
<th>Route of exposure</th>
<th>Organ involvement (No. of cases)</th>
<th>Sequelae (No. of cases)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen</td>
<td>18</td>
<td>yes</td>
<td>ingestion</td>
<td>Severe hepatitis (18)</td>
<td>No</td>
</tr>
<tr>
<td>Toilet cleaner</td>
<td>17</td>
<td>yes</td>
<td>ingestion</td>
<td>Wide spread second degree burn in GI tract (11)</td>
<td>Esophagogastric surgery (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Third degree burn in GI tract (2)</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Circumferential lesion (2)</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Stricture (1)</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Perforation (1)</td>
<td>No</td>
</tr>
<tr>
<td>Poisonous bites</td>
<td>16</td>
<td>no</td>
<td>bites</td>
<td>Nervous system (12)</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Coagulopathy (2)</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Compartment syndrome (5)</td>
<td>No</td>
</tr>
<tr>
<td>Insecticide</td>
<td>3</td>
<td>yes</td>
<td>ingestion</td>
<td>Respiratory insufficiency (3)</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Nervous system (3)</td>
<td>No</td>
</tr>
<tr>
<td>Hymenoptera stings</td>
<td>2</td>
<td>no</td>
<td>stings</td>
<td>Anaphylaxis (2)</td>
<td>No</td>
</tr>
</tbody>
</table>

Table 15. Summary of fatal exposure

<table>
<thead>
<tr>
<th>No.</th>
<th>Sex</th>
<th>Age (y)</th>
<th>Substance</th>
<th>Route of exposure</th>
<th>Intention</th>
<th>Duration prior to ED arrival (hour)</th>
<th>Initial symptom</th>
<th>Organ involvement</th>
<th>Length of stay (day)</th>
<th>Cause of death</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>F</td>
<td>42</td>
<td>organophosphate</td>
<td>ingestion</td>
<td>yes</td>
<td>1</td>
<td>Cardiac arrest</td>
<td>Heart failure</td>
<td>1</td>
<td>Respiratory failure</td>
</tr>
<tr>
<td>2.</td>
<td>M</td>
<td>17</td>
<td>paraquat</td>
<td>ingestion</td>
<td>yes</td>
<td>8</td>
<td>Vomiting</td>
<td>Kidney failure</td>
<td>4</td>
<td>Multiple organ failure</td>
</tr>
<tr>
<td>3.</td>
<td>M</td>
<td>43</td>
<td>Toilet cleaner (corrosive)</td>
<td>ingestion</td>
<td>yes</td>
<td>27</td>
<td>Abdominal pain</td>
<td>Third degree burn from esophagus to proximal jejunum</td>
<td>27</td>
<td>Sepsis Multiple organ failure</td>
</tr>
</tbody>
</table>

the outcome of these cases

**Conclusion**

Acute poisoning is one of the common problems presenting to the Emergency Department. The pattern of acute poison exposure is different in each area. The information about the incidence and characteristic of poison exposure will be useful for planning of health care. The study found that acetaminophen and toilet cleaning agents, available in most houses, were commonly involved in acute poison exposure. Pesticide and Toilet cleaning agents caused severe morbidity and mortality. Education regarding the danger of these agents should be implemented. Unintentional exposure was the major cause of exposure in children. Prevention of poison exposure in children should be emphasized.

**Acknowledgements**

This study was supported by the Faculty of
The author thanks Chayanit Monoonpol, Department of Anatomy, Faculty of Medicine Siriraj Hospital, Mahidol University for helping with statistical analysis.

References


การศึกษาผู้ป่วยได้รับสารพิษเฉียบพลันที่เข้ารับการรักษาในแผนกฉุกเฉินของโรงพยาบาลธรรมศาสตร์เฉลิมพระเกียรติในช่วง 2 ปี

จินดีดา ลิ้มจินดาพร

ภูมิหลัง: อุบัติการณ์และลักษณะการได้รับสารพิษแตกต่างกันไปในแต่ละพื้นที่ ซึ่งมีผลต่อการได้รับสารพิษ ในพื้นที่นั้น ๆ จะขยับในภาวะฉุกเฉินกันเพื่อลดจำนวนผู้ป่วยได้รับสารพิษในอนาคต

วัตถุประสงค์: ศึกษาลักษณะการได้รับสารพิษ ความรุนแรงของอาการ ผลลัพธ์ และอัตราการเสียชีวิตของผู้ป่วย ที่ได้รับสารพิษเฉียบพลัน ที่เข้ารับการรักษาในแผนกฉุกเฉิน โรงพยาบาลธรรมศาสตร์เฉลิมพระเกียรติ

วัสดุและวิธีการ: ทบทวนย้อนหลังเวชระเบียนผู้ป่วยได้รับสารพิษเฉียบพลันทุกคน ที่เข้ารับการรักษาในแผนกฉุกเฉิน โรงพยาบาลธรรมศาสตร์เฉลิมพระเกียรติตั้งแต่เดือนที่ 1 ตุลาคม พ.ศ. 2549 ถึงวันที่ 30 กันยายน พ.ศ. 2551 โดยรวบรวมข้อมูลพื้นฐาน เวลาที่ได้รับสารพิษ ชนิดของสารพิษ วิธีการ และสาเหตุที่ได้รับสารพิษ การดำเนินโรค และผลลัพธ์ของการได้รับสารพิษ จากนั้นนำมาวิเคราะห์ทางสถิติเชิงพรรณนา

ผลการศึกษา: ในช่วงเวลาดังกล่าวมีการตรวจรักษาในแผนกฉุกเฉินทั้งหมด 76,805 ราย ในจำนวนนี้มี 1,112 ราย ที่เข้ารับการรักษาเนื่องจากได้รับสารพิษเฉียบพลัน คิดเป็นร้อยละ 1.4 พบเพศหญิงมากกว่าเพศชาย ช่วงอายุที่พบมากที่สุดคือ 21-40 ปี สำนวนที่ได้รับสารพิษมีผลไม่ดีจากการได้รับสารพิษโดยเจตนาคิดเป็นร้อยละ 52.7 โดยพบการได้รับสารพิษ โดยเจตนาโดยเจตนาคิดเป็นร้อยละ 11.40 ปี ขณะที่การได้รับสารพิษโดยไม่เจตนาเป็นสาเหตุหลักในเด็กอายุน้อยกว่า 11 ปี กลุ่มประเภทสารพิษที่พบบ่อย คือ ยาที่ใช้ในการรักษา (ร้อยละ 38.1) สัตว์และแมลงกัดต่อย (ร้อยละ 31.7) และสารที่ใช้ในครัวเรือน (ร้อยละ 17.6) โดยชนิดของสารพิษที่พบมากที่สุดคือ acetaminophen (ร้อยละ 17.7) และผลิตภัณฑ์ทำความสะอาด (ร้อยละ 12.3) ลุกป่วย 56 ราย (ร้อยละ 5) มีการดำเนินโรครุนแรง ผู้ป่วย 3 ราย เสียชีวิตหลังจากเกิดอาการแสดงต่างและผลิตภัณฑ์ทำให้ความสะอาดของผู้ป่วย ดังนั้นจึงมีการส่งผู้ป่วยไปทำศพที่โรงพยาบาลทุกโรงพยาบาลที่รับผู้ป่วย

สรุป: Acetaminophen และผลิตภัณฑ์ทำความสะอาดที่พบบ่อยที่สุดในกลุ่มผู้ป่วยที่เข้ารับการรักษาในแผนกฉุกเฉินต้องระวังในการจัดการพิษเหล่านี้ โดยบางพวกมีการจัดการพิษของผู้ป่วย เหล่านี้ทำให้ความสะอาดของผู้ป่วย ดังนั้นจึงควรวางแผนให้ความรู้แก่ประชาชนทุกคนเกี่ยวกับสารพิษในวิธีการใช้งานของสารเหล่านี้ สำหรับผู้ป่วยผู้ป่วยได้รับสารพิษในแต่ละการดำเนินการให้ความรู้แก่ผู้ป่วยของเรื่องการป้องกันการรับสารพิษในแต่ละกลุ่มการดำเนินการที่สมควรให้ความสำคัญ