Role of Pharmacist in Assessing the Risk of a Poisoning Exposure

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National Poison Centre
Universiti Sains Malaysia

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Pharmacist’s Role in Poisoning Prevention and Management
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What we pharmacists do in the Poisons Information Centre

A specialized unit providing information and advise on poisoning to both health care professional and the general public.

Main source of toxicological information in the country

Toll-free telephone access on a 24 hour basis, 7 days a week
Main source of toxicological information in the country

- Files on pharmaceuticals, chemicals, plants and animals.
- Collection of data on clinical cases and inquiries.
- Books, publications, journals
- Bibliographic Indexes & Computerized Databases:
  - Medline, Toxline
  - Micromedex, Poisindex, Toxinz, HyperTox
  - Adverse Reactions
  - Current Contents
  - Toxicology abstracts
  - Excerpta Medica
  - Index Medicus
- Publications Of International Organizations eg. WHO / IPCS, FAO, ILO, UNEP, IARC
Identification of the poison?
What is to be expected from the exposure?
What would be the best approach for managing the case?
Whether antidotes are available AND how it should be used?
Whether there are long-term effects?
PIC assists health professionals in assessing and recommending actions to be taken in a poisoning exposure:

- To determine whether patient is in:
  - No danger
    - Follow up calls needed if admission not recommended
  - Potential danger
    - Evaluate carefully and a suitable observation period in the hospital is required
  - Immediate danger
    - Emergency first aid
    - Emergency stabilization
    - Follow-up treatment
Background information: WH questions

**Who?:**
- Caller (Physician, Nurse, Public health)
- Patient (age, weight, sex, occupation, underlying disease, concomitant drugs)

**What?**
- Type of poisoning product (Chemical name, generic name, brand name, Picture, Package, colour, odor) to identify the poisoning
- Amount of exposure

**Where?**
- Place of poisoning incident:
  - Home, workplace, enclosed public places
- Place where poison was obtained / bought: in house or industrial? (to identify concentration of the products)
Background information: WH questions

• **When?**
  - onset of symptoms, time of ingestion (to identify/confirm of poison product, to predict severity and, to identify management)

• **How?**
  - route of exposure, symptoms (to identify management), Laboratory (units of volume)

• **Why?**
  - Intentional, Unintentional (to find the prevention)
Assessing risk of poisoning

– Summarize the information

• Assess the patient’s condition
  – WH question?
  – Acute, Chronic, Acute on chronic
  – Triage risk assessment: type of poisoning, quantity, symptom, laboratory, time since ingestion, etc.

• The treatment and management prior to call and its outcome
• Quantitative assessment – estimated dose of exposure, range of toxicity

– The quality of information received
Risk Assessment Approach

- **Triage** (deciding the urgency of treatment):
  - **No danger**
    - Follow up calls needed if admission not recommended
  - **Potential danger**
    - Evaluate carefully and a suitable observation period in the hospital is required
  - **Immediate danger**
    - Emergency first aid
    - Emergency stabilization
Alternative approach of classifying the risk of poisoning:
- No risk
- Minor risk
- Moderate risk
- High risk
- Established poisoning

Take into account:
- Agent toxicity
- Dose of exposure
- Time of ingestion
- Current clinical status
- Individual patient factors
Poisoning Severity Score

• A standardized scale for grading the severity of poisoning allows qualitative evaluation of morbidity caused by poisoning, better identification of real risks and comparability of data.

• Take into account only the observed clinical symptoms and signs

• Do not estimate risks or hazards on the basis of parameters such as amounts ingested or serum/plasma concentrations
Poisoning Severity Grade

• None (0): No symptoms or signs related to poisoning
• Minor (1): Mild, transient and spontaneously resolving symptoms
• Moderate (2): Pronounced or prolonged symptoms
• Severe (3): Severe or life-threatening symptoms
• Fatal (4): Death
<table>
<thead>
<tr>
<th>ORGAN</th>
<th>NONE</th>
<th>MINOR</th>
<th>MODERATE</th>
<th>SEVERE</th>
<th>FATAL</th>
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<tbody>
<tr>
<td>GI-tract</td>
<td>0 No symptoms or signs</td>
<td>Mild, transient and spontaneously resolving symptoms or signs</td>
<td>Pronounced or prolonged symptoms or signs</td>
<td>Severe or life-threatening symptoms or signs</td>
<td>Death</td>
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<td>Respiratory system</td>
<td>1 Irritation, coughing, breathlessness, mild dyspnoea, mild bronchospasm</td>
<td>Pronounced or prolonged vomiting, diarrhea, pain, ileus</td>
<td>1st degree burns of critical localization or 2nd and 3rd degree burns in restricted areas</td>
<td>Massive haemorrhage, perforation</td>
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<td>Nervous system</td>
<td>2 Endoscopy: erythema, oedema</td>
<td>Dysphagia</td>
<td>Endoscopy: ulcerative transmucosal lesions</td>
<td>More widespread 2nd and 3rd degree burns</td>
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<td>3 Chest X-ray: abnormal with minor or no symptoms</td>
<td>Prolonged coughing, bronchospasm, dyspnoea, stridor, hypoxemia requiring extra oxygen</td>
<td>Endoscopy: ulcerative transmural lesions, circumferential lesions, perforation</td>
<td>Severe dysphagia</td>
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<td>Prolonged coughing, bronchospasm, dyspnoea, stridor, hypoxemia requiring extra oxygen</td>
<td>Manifest respiratory insufficiency (due to e.g. severe bronchospasm, airway obstruction, glottal oedema, pulmonary oedema, ARDS, pneumonitis, pneumonia, pneumothorax)</td>
<td>Chest X-ray: abnormal with severe symptoms</td>
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<td>Chest X-ray: abnormal with moderate symptoms</td>
<td>Chest X-ray: abnormal with moderate symptoms</td>
<td>Chest X-ray: abnormal with severe symptoms</td>
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<td>Drowsiness, vertigo, tinnitus, ataxia</td>
<td>Unconsciousness with appropriate response to pain</td>
<td>Deep coma with inappropriate response to pain</td>
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<td>Restlessness</td>
<td>Brief apnoea, bradypnoea</td>
<td>Respiratory depression with insufficiency</td>
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<td>Mild extrapyramidal symptoms</td>
<td>Confusion, agitation, hallucinations, delirium</td>
<td>Extreme agitation</td>
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<td>Mild cholinergic/anticholinergic symptoms</td>
<td>Infrequent, generalized or local seizures</td>
<td>Frequent, generalized seizures, status epilepticus, opisthotonus</td>
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<td>Paraesthesia</td>
<td>Pronounced extrapyramidal symptoms</td>
<td>Generalized paralysis or paralysis affecting vital functions</td>
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<td>Mild visual or auditory disturbances</td>
<td>Pronounced cholinergic/anticholinergic symptoms</td>
<td>Blindness, deafness</td>
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<td>Localized paralysis not affecting vital functions</td>
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[http://www.who.int/ipcs/poisons/pss.pdf](http://www.who.int/ipcs/poisons/pss.pdf)
Thank You