Supportive Care

Introduction to Supportive Care in Clinical Toxicology

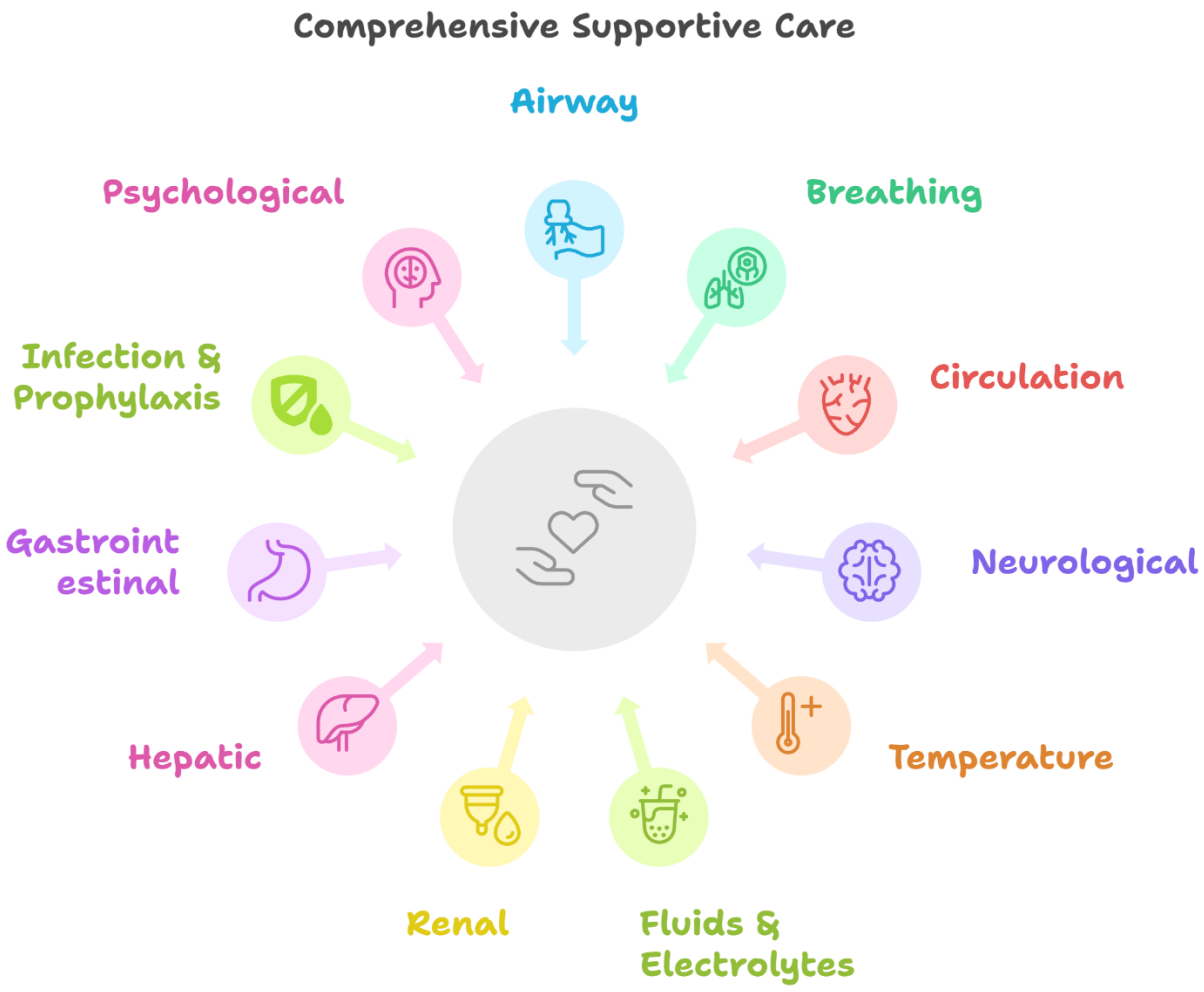
- Supportive care is the cornerstone of clinical toxicology management.
- It refers to the non-specific but life-saving medical care given to a poisoned patient, aimed at maintaining vital physiological functions until the toxin is metabolized or eliminated.
- Unlike antidotal therapy (which is toxin-specific), supportive care applies broadly to all poisoning cases and can often determine the prognosis of the patient, even in the absence of a specific antidote.

Objectives of Supportive Care

1. Stabilize vital functions: Airway, Breathing, Circulation (ABCs)
2. Prevent further complications
3. Provide organ system support
4. Allow time for natural detoxification or elimination
5. Improve patient comfort and survival

Key Components of Supportive Care

Supportive care can be categorized based on the system-wise approach, which includes:



A. Airway Management

- Ensuring a patent (open) and protected airway is the highest priority.
- Assess consciousness (GCS scale)
- **Positioning**: Head tilt-chin lift or jaw thrust
- **Suctioning**: Remove secretions or vomitus
- **Airway adjuncts**:
  - *Oropharyngeal or nasopharyngeal airways*
  - *Endotracheal intubation* if:
    - Glasgow Coma Scale (GCS) ≤ 8
    - Risk of aspiration
    - Respiratory arrest or hypoventilation
    - Seizures with unprotected airway

B. Breathing Support

- Maintaining adequate oxygenation and ventilation is essential.
- **Oxygen therapy**:
  - Nasal cannula, face mask, or non-rebreather
- **Mechanical ventilation**:
  - In cases of:
    - Respiratory depression (e.g., opioid overdose)
    - Acute respiratory distress syndrome (ARDS)
    - Aspiration pneumonitis
- **Blood gases (ABG)**:
  - Assess pH, PaO_2, $PaCO_2$
- **Avoid hypoxia and hypercapnia**

C. Circulatory Support

- Managing blood pressure and perfusion is critical.
- **Monitoring**:
  - BP, HR, central capillary refill, urine output
- **Hypotension**:
  - First-line: IV fluids (Normal saline, Ringer's lactate)
  - If unresponsive: Vasopressors
    - *Dopamine*

- *Norepinephrine*

- **Hypertension** (e.g., sympathomimetic overdose):
  - Benzodiazepines (for agitation)
  - Short-acting antihypertensives (e.g., nitroprusside)
- **Arrhythmias**:
  - Manage with anti-arrhythmic drugs or pacing
  - Avoid drugs contraindicated in poisonings (e.g., Class Ia agents in TCA toxicity)

D. Neurological Support

- **Altered mental status**:
  - Check blood glucose (correct if hypoglycemic)
  - Consider empiric "coma cocktail" (historically used, but now used cautiously):
    - **Dextrose** (for hypoglycemia)
    - **Thiamine** (for Wernicke's encephalopathy)
    - **Naloxone** (for opioid toxicity)
- **Seizures**:
  - First-line: **Benzodiazepines** (e.g., lorazepam)
  - Second-line: Barbiturates or phenytoin
  - Refractory: Propofol or midazolam infusion

E. Temperature Regulation

- **Hyperthermia**:
  - Seen in salicylate, anticholinergic, or sympathomimetic toxicity
  - **Cooling measures**:
    - Ice packs, cooling blankets, evaporative cooling
- **Hypothermia**:
  - Seen in CNS depressants (e.g., barbiturates, ethanol)
  - **Rewarming**: External and internal techniques

F. Fluid and Electrolyte Balance

- **Frequent monitoring** of:
  - Sodium, potassium, calcium, magnesium
  - Acid-base status
- **Treat abnormalities**:
  - Hyponatremia (common in ecstasy toxicity)

- Hyperkalemia (seen in digoxin toxicity)

G. Renal Support

- Monitor urine output, creatinine, BUN
- Maintain hydration
- **Dialysis indications**:
  - Poisonings with dialyzable toxins (e.g., lithium, methanol, ethylene glycol, salicylates)

H. Hepatic Support

- Liver is a major site of detoxification
- Monitor **LFTs (AST, ALT, bilirubin, PT/INR)**
- In cases of hepatotoxic drugs (e.g., paracetamol):
  - Start **N-acetylcysteine** early
- Severe failure: Consider **liver transplant**

I. Gastrointestinal Support

- NPO (nothing per oral) if vomiting or altered sensorium
- Nasogastric tube for decompression if required
- Proton pump inhibitors to prevent stress ulcers

J. Infections & Prophylaxis

- Aspiration pneumonia is common in unconscious patients
- **Antibiotics**: Only when infection is suspected
- **DVT prophylaxis** in bedridden patients: LMWH or compression stockings

K. Psychological Support and Observation

- Especially in intentional poisonings or suicide attempts
- Psychiatric evaluation is mandatory after stabilization
- Prevent repeat attempts or further rise

Supportive Care vs Specific Treatment

Aspect	Supportive Care	Specific/Antidotal Therapy
Scope	General, applies to all poisonings	Toxin-specific
Timing	Immediate, life-saving	Depends on toxin identification
Requirement of Toxin	No	Yes
Examples	ABCs, fluids, oxygen, seizure control	NAC for paracetamol, Naloxone for opioids

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