



ศูนย์พิษวิทยารามาธิบดี

คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล

อาคารสุโขทัยเพลส ถนนสุขุมวิท กรุงเทพมหานคร 10300 สายด่วน 1367 โทรสาร 0-2201-1084

RAMATHIBODI POISON CENTER

Faculty of Medicine Ramathibodi Hospital, Mahidol University

Sukho Place Building, Sukhothai Rd., Bangkok 10300 Hotline 1367

สำหรับเผยแพร่

Avermectin Exposure (Ivermectin, Abamectin, Emamectin)

Consider skin or GI decontamination if indicated

Recommendation	COR
Skin decontamination	Green
GI decontamination	Green

Class of Recommendation (COR)	
Green	Benefit > Risk
Yellow	Benefit ≥ Risk
Orange	Benefit ≤ Risk

Consider the high-risk patient if any of the following:

- GCS < 13
- Dyspnea
- Metabolic acidosis at presentation

Yes

Recommendation	COR
Supportive and symptomatic treatment - Intubation if necessary - Correct acidosis - Fluid resuscitation	Green
Admission for observation	Green

No

Recommendation	COR
Observation at least 6 h	Yellow

If clinically stable and no symptoms, the patient can be discharged.

If clinical worsening

: Consciousness, respiratory depression, hepatitis

Recommendation	COR
Consult RPC	Green



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AVERMECTIN

Mechanism of Toxicity:

- Acts as a GABA receptor agonist, disrupting GABA-mediated neurotransmission in the central nervous system, potentially leading to CNS depression.
- Binds with high affinity to glutamate-gated chloride channels in invertebrates, increasing chloride ion influx, causing cell hyperpolarization, paralysis, and death of parasites.
- In mammals, these channels are not present, but at high doses, avermectins may affect GABA receptors in the CNS.

Substance	Mechanism in Parasites (Glutamate-Gated Cl ⁻ Channel)	Mechanism in Humans (GABA Agonist)
Ivermectin	Strong binding to invertebrate glutamate-gated Cl ⁻ channels → paralysis	Can cross BBB in overdose → CNS depression (GABA agonist)
Abamectin	Similar to ivermectin; affects glutamate-gated Cl ⁻ channels	Higher potential to cross BBB at toxic doses
Enamectin	Similar action; more potent glutamate-gated Cl ⁻ channel binding	Less studied in humans; GABA effects possible

Clinical Manifestations:

- **Gastrointestinal:** Nausea, vomiting, abdominal pain, diarrhea
- **Respiratory:** Cough, dyspnea, throat irritation, aspiration pneumonia (severe cases)
- **Neurological:** Headache, dizziness, somnolence, altered mental status, visual hallucinations, CNS depression, seizures, coma (severe overdose)
- **Cardiovascular:** Mild tachycardia (mild to moderate toxicity), tachycardia and hypotension (severe toxicity)
- **Dermatologic:** Rash, urticaria, pruritus, edema
- **Mucosal/Caustic injury:** Laryngeal erosion, oropharyngeal burns, erythematous gastritis (especially with **enamectin benzoate** ingestion)
- **Other (Severe Toxicity):** Metabolic acidosis, respiratory failure
- **Animal Studies:** High-dose ivermectin in animals can cause CNS toxicity: tremors, ataxia, weakness, incoordination, recumbency, dehydration, and coma

Reference

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