

# Acetaminophen Overdose

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# Question 1a

- A 16 year old presents to the ED **30 minutes** after ingestion of an unknown amount of acetaminophen. Her vital signs are T 36.7, P 90, R 18, BP 135/86. She is alert and oriented. Physical exam is benign. What is the first step in the management of this patient?

# Question 1a

- A) Obtain an acetaminophen level
- B) Give activated charcoal
- C) Give N-acetylcysteine
- D) Obtain ALT and AST levels
- E) Start IV fluids
- F) A and D

# Answer 1a

- A) Obtain an acetaminophen level
- B) Give activated charcoal**
- C) Give N-acetylcysteine
- D) Obtain ALT and AST levels
- E) Start IV fluids
- F) A and D

# Answer 1a

- If a person presents within 4 hours of ingestion, activated charcoal (AC) should be administered at a dose of 1 g/kg.
- AC is most effective within 1 hour of ingestion.

# Question 1b

- A 16 year old presents to the ED **4 hours** after ingestion of an unknown amount of acetaminophen. Her vital signs are T 36.7, P 90, R 18, BP 135/86. She is alert and oriented and feels nauseas. There are no specific findings on physical exam. What is the first step in management of this patient?

# Question 1b

- A) Obtain an acetaminophen level
- B) Give activated charcoal
- C) Give N-acetyl cysteine
- D) Obtain ALT and AST levels
- E) Start IV fluids
- F) A and D

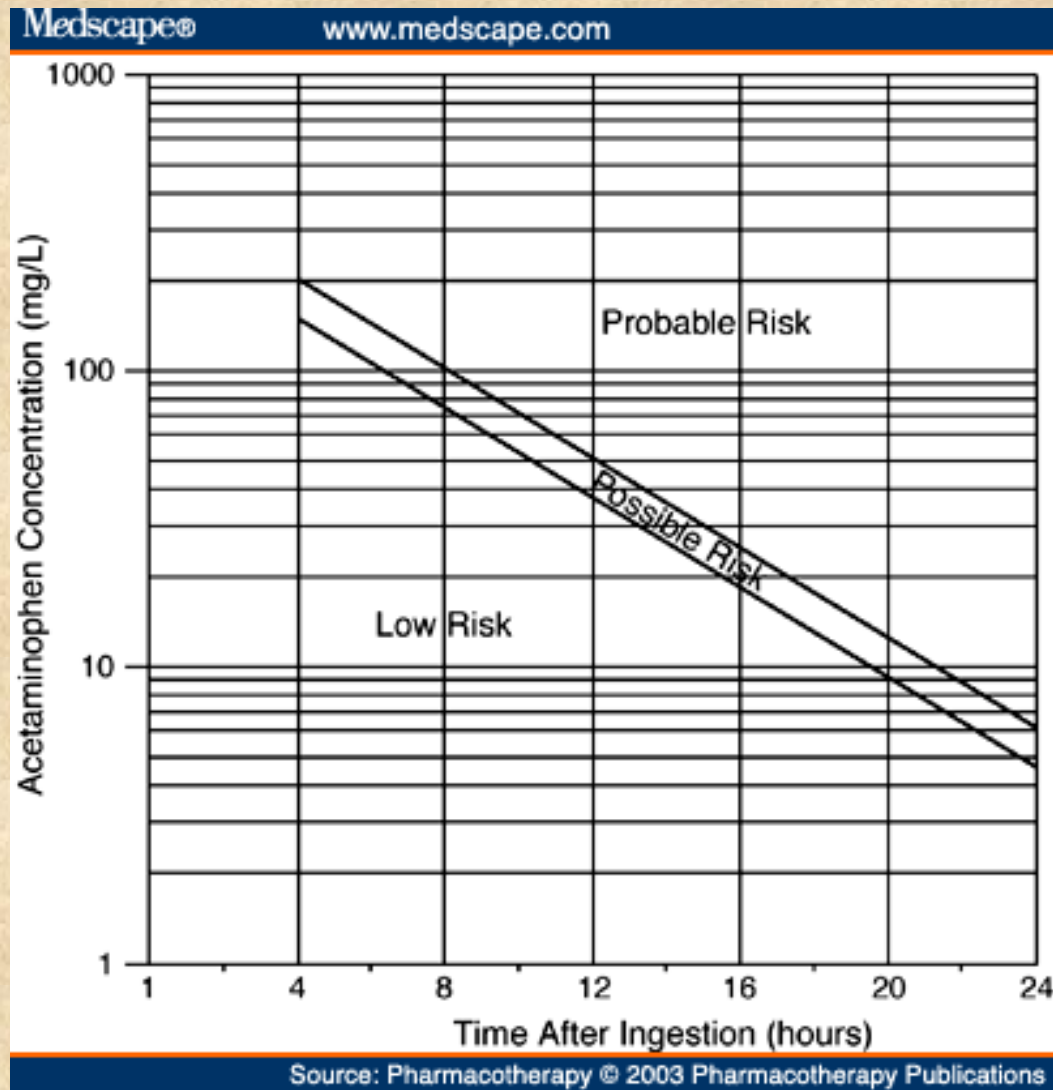
# Answer 1b

- A) Obtain an acetaminophen level
- B) Give activated charcoal
- C) Give N-acetyl cysteine
- D) Obtain ALT and AST levels
- E) Start IV fluids
- F) A and D

## Answer 2

- Activated charcoal is not recommended if more than 4 hours have passed since ingestion.
- An acetaminophen level should be obtained between 4-24 hours after ingestion and plotted on the Rumack-Mathew nomogram to determine whether to administer NAC.
- If NAC is to be administered, it should be started, if possible, by 8 hours post-ingestion for maximal benefit

# Rumack-Mathew nomogram



# Routes of administration of NAC

- IV:
  - This route was approved by the FDA in 2004
  - Duration of treatment is 20 hours
    - Loading dose: 150 mg/kg given over 60 minutes
    - Second dose: 50 mg/kg given over 4 hours (12.5 mg/kg NAC per hour)
    - Third dose: 100 mg/kg given over 16 hours
- PO
  - 140 mg/kg loading dose followed by 17 doses of 70 mg/kg every four hours (72 hours)

## Question 2

- A 4 year old girl presents to the ED with a sore throat. In your history, you find that her mother was treating her with tylenol for the past 2 days. Upon further questioning, you find that the mom was giving 40 mg/kg every 2 hours for 2 days. Her vital signs are T 36.7, P 90, R 18, BP 125/66. She is alert and oriented. On physical exam, she has an erythematous posterior pharynx. The remainder of the PE is benign. What is the first step in the management of this patient?

## Question 2

- A) Obtain an acetaminophen level
- B) Give activated charcoal
- C) Give N-acetylcysteine
- D) Obtain ALT and AST levels
- E) Start IV fluids
- F) A and D

# Answer 2

- A) Obtain an acetaminophen level
- B) Give activated charcoal
- C) Give N-acetylcysteine
- D) Obtain ALT and AST levels
- E) Start IV fluids
- F) A and D

## Answer 2

- For a person that presents with a chronic supratherapeutic ingestion, obtain an acetaminophen level, AST, and ALT
- The nomogram cannot be used
- If AST/ALT are elevated, give NAC
- If acetaminophen level is elevated, give NAC
- If neither is elevated, do not give NAC and discharge home

# References

- Rowden AK, Norvell J, Eldridge DL, Kirk MA. Acetaminophen poisoning. Clin Lab Med. 2006 Mar;26(1):49-65, viii. Review.
- Wolf SJ, Heard K, Sloan EP, Jagoda AS; American College of Emergency Physicians. Clinical policy: critical issues in the management of patients presenting to the emergency department with acetaminophen overdose. Ann Emerg Med. 2007 Sep;50(3):292-313.
- Dyer KS. Acetaminophen (paracetamol) poisoning in children and adolescents. In: UpToDate, Basow, DS (Ed), UpToDate, Waltham, MA, 2012
- Burns MJ, Friedman SL, Larson AM. Acetaminophen (paracetamol) poisoning in adults: Pathophysiology, presentation, and diagnosis. In: UpToDate, Basow, DS (Ed), UpToDate, Waltham, MA, 2012.
- Heard K, Dart R. Acetaminophen (paracetamol) poisoning in adults: Treatment. In: UpToDate, Basow, DS (Ed), UpToDate, Waltham, MA, 2012.