

Acute Abdominal Pain: Review Questions

David B. Levy, DO, FAAEM, FACEP

QUESTIONS

Choose the single best answer for each question.

- 1. What is the most common discharge diagnosis for patients presenting to the emergency department (ED) with acute abdominal pain?**
 - A) Appendicitis
 - B) Gastroenteritis
 - C) Intestinal obstruction
 - D) Nonspecific abdominal pain
 - E) Pancreatitis
- 2. All of the following causes of acute abdominal pain occur more frequently in patients older than age 50 years than in patients younger than age 50 years EXCEPT:**
 - A) Cholecystitis
 - B) Diverticular disease
 - C) Intestinal obstruction
 - D) Vascular-related pathology
 - E) Appendicitis
- 3. Which of the following statements regarding pain medication in the management of acute abdominal pain is correct?**
 - A) Pain medication should always be withheld until the surgeon makes a definitive diagnosis.
 - B) Signed consent from patients premedicated with opioid analgesics is invalid in the ED setting.
 - C) If pain medication is unequivocally necessary, ketorolac 60 mg given intramuscularly is the best choice.
 - D) Generally, intravenous opioids are safe for management of acute abdominal pain.
 - E) Major respiratory depression is a frequent complication of intravenous analgesia in the ED.
- 4. Which of the following statements regarding plain film radiography for the diagnosis of acute abdominal pain is correct?**
 - A) A routine abdominal radiograph series excludes serious disease in patients with nonspecific abdominal pain.
 - B) Abdominal radiographs should be part of the routine work-up of any patient with an upper gastrointestinal bleed.
 - C) Abdominal radiographs prove more than 75% sensitive in the detection of acute appendicitis.
 - D) An upright abdominal plain film radiograph is most sensitive for the detection of free air.
 - E) Abdominal radiographs are most useful in the diagnosis of intestinal obstruction.
- 5. Which of the following statements regarding ancillary testing to determine the correct etiology of acute abdominal pain is TRUE?**
 - A) A normal complete blood count essentially rules out appendicitis.
 - B) Leukocytosis proves specific for acute appendicitis in patients demonstrating right lower quadrant pain.
 - C) An abnormal urinalysis effectively excludes appendicitis as the diagnosis.
 - D) Combined testing of serum amylase and serum lipase levels improves diagnostic accuracy without raising cost in the diagnosis of acute pancreatitis.
 - E) A single serum lipase value is a useful screening test for acute pancreatitis because of its high negative predictive value (0.99).

(turn page for answers)

Dr. Levy is Residency Program Director of Emergency Medicine, Temple University Hospital, Philadelphia, PA, and Associate Professor of Medicine, Temple University School of Medicine, Philadelphia.

EXPLANATION OF ANSWERS

1. **(D) Nonspecific abdominal pain.** Nonspecific abdominal pain accounts for 40% to 60% of the discharge diagnoses for patients initially presenting to the ED with acute abdominal pain.¹ After excluding a serious surgical cause or life-threatening illness, the physician must accept that often a specific diagnosis cannot be made at the time and that the best course is to arrange careful follow-up rather than force an incorrect diagnosis. The key to confirming the diagnosis of nonspecific abdominal pain is a repeat examination in 24 hours to confirm that the abdomen is still benign. Appendicitis is the most common surgical diagnosis.
2. **(E) Appendicitis.** Overall, older patients prove more likely to harbor serious abdominal disorders than younger patients. Comparative studies demonstrate that, except for appendicitis, all of the potentially surgical etiologies of acute abdominal pain listed (cholecystitis, diverticular disease, intestinal obstruction, vascular-related pathology) occur with increasing frequency in patients older than age 50 years.
3. **(D) Generally, intravenous opioids are safe for management of acute abdominal pain.** Seventy-five years ago, Sir Zachary Cope's writings led to the withholding of pain relief in all patients with acute abdominal pain.² Today intensive care units provide continuous monitoring that was not available to Cope and his colleagues, and the use of balanced fluid therapy and safe broad-spectrum antibiotics helps to stabilize patients. The false belief that pain medications mask physical signs and delay diagnosis and treatment is a common reason for withholding analgesia; this belief has been disputed by scientific studies.^{3,4} Fear of risks such as addiction, respiratory depression, and medical-legal complications are conjectural and unsubstantiated.⁵ Ketorolac is popular in the ED as a universal pain medication because of its lack of opioid-related side effects. However, limitations of ketorolac compared with opioid analgesics include higher expense, less ability to titrate, a low therapeutic ceiling, and the inability to be reversed.
4. **(E) Abdominal radiographs are most useful in the diagnosis of intestinal obstruction.** Plain film abdominal radiographs are often ordered for the wrong reason. The only clinical entities for which the sensitivity of abdominal radiographs approaches 100% are bowel obstruction and free intraperitoneal air. One large study demonstrated little value

in using abdominal radiographs for patients with suspected appendicitis, nonspecific abdominal pain, and gastrointestinal bleeding and biliary colic.⁶ An upright chest radiograph can detect as little as 1 mL of free air and is superior to an upright abdominal radiograph in detecting free air. Newer imaging studies such as ultrasonography and computed tomography play a role in the diagnosis of acute abdominal pain when ordered appropriately.

5. **(E) A single serum lipase value is a useful screening test for acute pancreatitis because of its high negative predicative value (0.99).** An elevation of the leukocyte count favors a surgical cause of abdominal pain, whereas a normal leukocyte count favors a nonsurgical cause. However, the leukocyte count is neither sensitive nor specific enough to confirm appendicitis, even in patients with right lower quadrant pain. Most patients with acute abdominal pain warrant a urinalysis; however, an abnormal urinalysis does not exclude the diagnosis of appendicitis because pyuria and hematuria occur with both appendicitis and urinary tract infection. Physicians often view serum amylase as the gold standard for pancreatitis, ignoring other intra-abdominal conditions that provoke elevations in serum amylase such as biliary tract disease, appendicitis, perforated ulcer, intestinal obstruction, and mesenteric ischemia. The specificity of serum lipase for acute pancreatitis proves invariably higher than serum amylase, especially during the later phases of the disease when lipase levels remain elevated. Thus, the addition of serum amylase testing to serum lipase testing is usually not cost effective.

REFERENCES

1. Brewer BJ, Golden GT, Hitch DC, et al: Abdominal pain: an analysis of 1000 consecutive cases in a university hospital emergency room. *Am J Surg* 1976;131:219–223.
2. Silen W: *Cope's Early Diagnosis of the Acute Abdomen*, 19th ed. New York: Oxford University Press, 1996.
3. Zoltie N, Cust MP: Analgesia in the acute abdomen. *Ann R Coll Surg Engl* 1986;68:209–210.
4. Attard AR, Corlett MJ, Kidner NJ, et al: Safety of early pain relief for acute abdominal pain. *BMJ* 1992;305:554–556.
5. Lee JS, Stiell IG, Shapiro S, et al: Physicians' attitudes toward opioid analgesic use in acute abdominal pain [Abstract]. *Acad Emerg Med* 1996;3:494.
6. Campbell JP, Gunn AA: Plain abdominal radiographs and acute abdominal pain. *Br J Surg* 1988;75:554–556.