



Scenic lake view during autumn

## PIC QUESTION OF THE WEEK: 9/28/09

Q: Does acetylcysteine play any role in the eradication of *Helicobacter pylori*?

A: Acetylcysteine, a derivative of L-cysteine, has been used extensively as a mucolytic agent in various respiratory disorders and is currently considered the antidote of choice in cases of acetaminophen overdose. The drug also has several off-label uses such as the prevention of radiocontrast media-induced nephrotoxicity and the enhancement of tear production in Sjogren's syndrome and blepharitis. There has also been some recent evidence indicating the possible benefit of acetylcysteine in the treatment of infection with *Helicobacter pylori* (*H. pylori*). *H. pylori* is a gram negative bacterium frequently found in patients with gastritis and is now considered a key factor in the pathogenesis of peptic ulcer disease (PUD). The microbe colonizes upper portions of the gastrointestinal tract and resides under a layer of viscous gastric mucus. Elimination of *H. pylori* is now accepted as an essential component in the management of PUD. The American College of Gastroenterology recommends the use of a PPI and two antibiotics, often clarithromycin with either amoxicillin or metronidazole, as first-line treatment in most patients with PUD. While this regimen is often successful, the organism is not always eliminated and disease recurrence is not uncommon. In small trials, acetylcysteine has shown promising results as an adjunct to traditional medications for eradicating *H. pylori*. Its efficacy is based on its ability to decrease the viscosity of gastric mucus, thereby increasing antibiotic access to the site of infection. In one randomized, controlled trial of 70 patients with *H. pylori* infection, 400 mg of oral acetylcysteine three times daily added to a ten-day regimen of clarithromycin and lansoprazole significantly increased *H. pylori* eradication after one month versus the treatment with clarithromycin and lansoprazole alone. Eradication was confirmed by results of the rapid urease test and biopsy. Acetylcysteine (400 mg twenty minutes prior to the procedure) can also result in better visualization of the gastric mucosa by reducing mucus viscosity. The bad smell and poor taste of acetylcysteine solution remain problematic. Although acetylcysteine may eventually develop a larger role in the management of *H. pylori* infection, current supportive data and clinical use is limited.

### References:

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