



PIC QUESTION OF THE WEEK: 3/20/06

Q: How effective is erythromycin in the management of gastroparesis?

A: Gastroparesis is a condition of delayed gastric emptying often seen in patients with long-standing diabetes. Injury to the vagus nerve is the most likely cause of gastroparesis in diabetics. Other etiologies of gastroparesis include post-viral syndromes, anorexia nervosa, Parkinson's disease, amyloidosis, scleroderma, hypothyroidism, and medications such as anticholinergic agents and opiates. Nausea, heartburn, vomiting of undigested food, feeling of fullness or bloating, and gastroesophageal reflux are some of the common signs and symptoms of gastroparesis. There are two major complications of this disorder. The first is bacterial overgrowth from the fermentation of food. In addition, undigested food can be compacted into bezoars (solid masses) that can produce severe adverse effects including obstruction. Blood glucose levels increase when transit of food from the stomach into the intestine has been delayed. This results in erratic blood glucose levels that may be difficult to control. Mainstays of the pharmacologic therapy of gastroparesis are prokinetic agents such as metoclopramide, erythromycin, bethanechol, cisapride, and domperidone. Unfortunately, cisapride is no longer marketed in the United States because of its association with severe and sometimes fatal cardiac arrhythmias. Domperidone is currently not available in this country; however, it is marketed in many other countries, including Canada. Other investigational therapies include botulinum toxin and the partial selective serotonin agonist tegaserod. Currently, metoclopramide is the only FDA approved medication to treat gastroparesis; however, involuntary movements, tardive dyskinesia, depression, and tachyphylaxis have been associated with its administration. Erythromycin, a macrolide antibiotic, has been used for years to enhance gastric motility. It increases motility by serving as an agonist of motilin receptors in the gut. Motilin is a polypeptide hormone secreted by enterochromaffin cells that stimulates peristalsis. Dosage has ranged from 150-250 mg three times daily, normally taken thirty minutes before meals. A major review of the efficacy of erythromycin for gastroparesis concluded that it was a potent prokinetic agent, but evidence of its ability to reduce symptoms in this disorder was limited. The authors reviewed thirty-five clinical trials; however, only five met criteria necessary for inclusion in the study. In most cases, small sample sizes and inadequate assessment of symptoms made it difficult to evaluate the true benefit of erythromycin in this condition. A more recent study of low-dose (50-100 mg 15-30 minutes before meals and at bedtime) erythromycin and low-bulk diet did produce dramatic short-term improvement in most patients, but tachyphylaxis frequently developed. Although erythromycin has been used extensively for gastroparesis, there is minimal published evidence of its ability to consistently reduce the symptoms of gastroparesis.

References:

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The PIC Question of the Week is a publication of the Pharmaceutical Information Center, Mylan School of Pharmacy, Duquesne University, Pittsburgh, PA 15221