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The Incidence, Prevalence, and Survival of Gastroparesis in Olmsted County, Minnesota, 1996-2006

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Summary

Population-based studies of the gastroparesis are lacking, therefore, authors aimed to determine the incidence and prevalence and outcome of gastroparesis in the community. Using the Rochester Epidemiology Project (REP), a medical records linkage system in Olmsted County, Minnesota, they identified county residents with potential gastroparesis. All county residents diagnosed with gastroparesis were identified by the diagnostic index developed by the REP or registration data to identify all residents of Olmsted County who have had their gastric emptying assessed. The complete medical records were reviewed by gastroenterologist to verify the diagnosis. Three diagnostic definitions were used: 1) definite gastroparesis: delayed gastric emptying by standard scintigraphy and symptoms of nausea and/or vomiting, postprandial fullness, early satiety, bloating, or epigastric pain for more than 3 months 2) probable gastroparesis: symptoms and food retention on endoscopy or upper GI study but no scintigraphy 3) possible gastroparesis: typical symptoms alone or delayed gastric emptying by scintigraphy without GI symptoms. Poisson regression was used to assess the association of incidence rates with age, gender, and calendar period. Among 222 eligible cases of gastroparesis, 83 patients met diagnostic criteria for definite; probable 44, and possible 95. 68 out of 83 patients with definite gastroparesis were female (82%). The mean age (± SD) of definite gastroparesis was 44 (± 21) years. The most possible causes of definite gastroparesis were diabetes mellitus in 18 patients (21.7%), 5 connective tissue disease (6.0%), post-surgical gastroparesis in 3 patients (3.6%), malignancy in 2 patients (2.4%), psychiatric illnesses in 5 patients (6%), provocation drugs in 4 (4.8%). Idiopathic gastroparesis was 42 (50.6%). The age-adjusted (to 2000 U.S. whites) incidence per 100,000 person-years of definite gastroparesis for the years 1996-2006 was 9.8 (95% confidence interval (CI), 7.5-12.1) for women and 2.4 (95% CI, 1.2-3.8) for men. The age-adjusted prevalence of definite gastroparesis per 100,000 person was 37.8 (95% CI, 23.3-52.4) for women and 9.6 (95% CI, 1.8-17.4) for men. Poisson regression indicated significantly increasing rates with age and for females (both $p < 0.001$) but no effect of calendar period. The estimated 5-year survival of the cohort of definite + probable + possible gastroparesis was 67% (95% CI, 60-75%), compared with an expected 81% in the age- and gender-matched population ($p < 0.01$).

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Comment

Gastric emptying study is not easily accessible test in primary care setting. Furthermore, gastric emptying delay may reveal itself with a broad spectrum of clinical manifestations, from dyspepsia up to refractory gastroparesis and is not related with symptom severity.[1] Therefore, the patients who were defined by gastric emptying test are the tip of the iceberg. This study defined the gastroparesis by three different diagnostic certainties which might cover the spectrum of clinical manifestations of gastroparesis. They observed significantly lower estimates than data based on tertiary hospital settings.[2] However, the disease burden of gastroparesis is similar to other important gastrointestinal disease such as inflammatory bowel disease[3,4] and hence the observed prevalence still represents a substantial disease burden.

Data describing the outcome and natural history of gastroparesis are very limited and inconsistent. One study of 146 patients with gastroparesis in an academic referral center observed that three quarters of the patients required long-term medications and 7% of patients died after 6-years of follow-up, suggesting a substantial amount of morbidity and mortality associated with gastroparesis.[2] According to the large hospital discharge database, diabetic gastroparesis was not uncommon.[5] However, this claim data might have some limitation because of poor diagnostic ascertainment of hospitalization discharge code. In current study, diabetic and idiopathic gastroparesis were 46.6% and 31.5% in possible gastroparesis and these proportions were reversed in the definitive group. This finding might be the true difference or originated from the different physician's application of diagnostic test according to the underlying disease or comorbidity of gastroparesis. Furthermore, among initial query of diagnostic code, 86.9% was excluded after detail medical review.

Another study of the natural history of diabetic gastroparesis suggested that upper gastrointestinal symptoms in patients with diabetes were stable over 12 years of follow-up and delayed gastric emptying was not related with the increased mortality after adjustment for comorbid diseases.[6-8] These studies were limited because of relatively small numbers of patients and potential referral bias.[3,6,7]

This study reported that overall survival in patients with gastroparesis was significantly lower than population. These results indicate that gastroparesis is not a benign condition and more aggressive management strategies need to be devised to reduce mortality.

In summary, gastroparesis is an uncommon condition in the community, compared with tertiary hospital settings, but still represents a major disease burden. Most patients with gastroparesis need continuous medical care, and this disease has a relatively poor prognosis. This study is a classical epidemiologic descriptive study and provides the basic information, such as the incidence, prevalence, and outcome of gastroparesis in the community, for further diagnostic and therapeutic intervention.

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