Seasonal Variation in the Incidence of Gastroesophageal Reflux Disease

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Abstract

BACKGROUND: To examine the seasonal variation in the incidence of gastroesophageal reflux disease (GERD) for different gender and age groups and its association with climatic parameters (ambient temperature, relative humidity, atmospheric pressure, rainfall, and hours of sunshine). METHODS: A total of 76,636 ambulatory care visits for the treatment of GERD between 2001 and 2006 were included. Monthly GERD incidence rates per 10,000 people were calculated over 72 months and categorized by gender and age groupings (19-44, 45-64, and >or=65 years). Seasonality is a general component of time-series patterns. The auto-regressive integrated moving average (ARIMA) regression method was used to evaluate the effects of climatic and monthly factors on GERD incidence rates after adjusting for the time-trend effect. RESULTS: Seasonal trends showed an incidence peak in October to December, followed by a sharp decrease in January, and a trough in February; a fairly similar seasonal pattern of GERD incidence was apparent for gender, age, and combined groups. The ARIMA test for seasonality found a significant association for the total group ($P < 0.01$), for female ($P < 0.05$) patients, and for the 45 to 64 years ($P < 0.01$) and >64 years ($P < 0.01$) age groups. The ARIMA models also showed that relative humidity was negatively related to monthly GERD incidence rates for men ($P < 0.01$) and the >64 years ($P < 0.01$) age group. CONCLUSION: Data showed seasonal variations in GERD incidence. Relative humidity was associated with monthly GERD incidence rates for men and the >64 years age group.