

INCIDENCE AND RISK FACTORS FOR GASTRIC DILATATION-VOLVULUS IN DOGS: THE PURDUE UNIVERSITY FIVE-YEAR PROSPECTIVE STUDY

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A five-year prospective study was conducted to determine the incidence of gastric dilatation-volvulus (GDV) in dogs of 11 large- and giant-breeds and to identify both breed and individual dog risk factors for GDV. A secondary goal was to test the feasibility of conducting long-term longitudinal studies in companion animals. The dogs were recruited and body measurements obtained from June 1994 to March 1997 at 27 national and specialty dog shows in the U.S. Owners were mailed an 8-page questionnaire concerning, their dog's medical history, personality, environment, management, and diet. These owners were followed by regular telephone and mail contact through March 1999. Nineteen hundred and fourteen dogs were enrolled in the study of which 1660 (86.7%) had complete questionnaires and 1843 (96.3%) provided some follow-up information regarding vital status. The median duration of follow-up was 2.4 years (maximum 4.8 years). The incidence of GDV for the 7 large breed (23-45 kg) and 4 giant breed (>45 kg) dogs was 23 and 26 cases per 1,000 dog years at risk, respectively and the estimated lifetime risk of developing GDV was 24% and 22%, respectively. Of the 105 dogs that developed GDV, 30 (28.6%) died; the estimated lifetime risk of dying of GDV was 7% for all dogs. However, in Great Danes, the lifetime risk of developing or dying of GDV was estimated to be 42% and 13%, respectively. The only breed-specific characteristic associated with a decreased risk of GDV was an owner-perceived personality trait of happiness. Using Cox proportional hazards analysis, the following individual dog characteristics were significantly ($P < 0.1$) associated with increased risk of GDV in the 1637 dogs ≥ 6 months of age: increasing age (relative risk [RR]=1.2 per year), giant vs. large breed size (RR=2.97), chest depth/width ratio (RR=2.7 per unit increase), having a 1st degree relative with GDV (RR=1.63), and eating from a raised food bowl (RR=2.10). A faster speed of eating was associated with an increased risk of GDV in large, but not giant dogs (speed of eating x breed size interaction $P=0.03$). Most of the currently recommended management changes to prevent GDV in dogs such as restricting water intake and exercise peri-prandially, did not reduce the risk of GDV, while one (raising the feed bowl) actually increased the risk. The information collected on diet is currently being analyzed to identify types of foods, food preparation practices, and specific ingredients that influence GDV risk. The results of this prospective study will lead to new guidelines to prevent GDV and can be used by

clinicians and owners to objectively assess the risk/benefit of prophylactic gastropexy.