

A Cross-Sectional Study of the Relationship Between Abomasal Displacement or Volvulus and Hypocalcemia in Dairy Cattle

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Hypocalcemia near the time of parturition has been shown to be a risk factor for displaced abomasum in dairy cattle. Also, concurrent hypocalcemia in cows diagnosed with left displaced abomasum has been described for referral hospital cases. However, there is little information on calcium concentration at the time of diagnosis of abomasal displacement or volvulus in commercial dairy herds. The purpose of this study was to compare total serum calcium concentrations of cows diagnosed with abomasal displacement or volvulus with that of unaffected cows from the same herds. Cows diagnosed with these conditions were entered in the study from May until December 1997 by Ambulatory and Production Medicine Service clinicians. Blood samples were collected from cases and, whenever possible, from healthy control cows matched with each case based on herd, lactation group (1, 2, ≥ 3), and days in milk. Serum was separated within 24 hours of blood collection and stored at -20°C until laboratory measurement of total serum calcium. Two hundred cows from 28 herds were included in the study. The numbers diagnosed with

left-displaced abomasum, right-displaced abomasum and abomasal volvulus were 91, 6 and 7, respectively. Samples were collected from 96 matched controls. The percentages of cows with abomasal displacement or volvulus in their first, second and third or greater lactation were 29, 15 and 56%, respectively. Cases were diagnosed at a median of 14 days after calving. The average total serum calcium concentration was 0.8 mg/dl lower in cases than control cows (95% confidence interval; 0.5 to 1.0 mg/dl). This relationship was significant for all lactation groups, but the difference tended to be larger for cows in third or greater lactation. Sixty-nine percent of case animals had total serum calcium concentrations below the lower limit of the laboratory reference range (8.3 mg/dl) compared with 24% of the control cows with values below normal. The occurrence of hypocalcemia in over two-thirds of cows diagnosed with abomasal displacement or volvulus suggests that calcium administration at the time of treatment of these conditions may be beneficial.