

Effects of *Ostertagia ostertagi* and omeprazole treatment on feed intake and gastrin-related responses in the calf

ABSTRACT

Infection with the bovine abomasal nematode, *Ostertagia ostertagi*, results in a loss of acid-secreting parietal cells and an increase in gastric pH. The effects of an experimental infection with *Ostertagia* and/or daily treatment with omeprazole (OMP) at 2 mg kg⁻¹ bodyweight for four consecutive days (experiment days 24–27, inclusive) on voluntary feed intake, blood and tissue gastrin concentrations, abomasal G-cell numbers, gastric pH, and blood cholecystinin (CCK) and pepsinogen concentrations were investigated in the calf. *Ostertagia*-infected calves demonstrated a significant drop in feed intake between days 24 and 27 post-infection (38%; $P < 0.001$) and in G-cell numbers (42%; $P < 0.05$) and significant increases in abomasal pH ($P < 0.001$), fundic mucosal weight (99%; $P < 0.01$), and blood gastrin ($P < 0.05$) and pepsinogen ($P < 0.0001$). OMP treatment of worm-free animals resulted in a significant drop in intake between days 24 and 27 (30%; $P < 0.001$) and in G-cell numbers (17%; $P < 0.05$) and significant increases in abomasal pH ($P < 0.01$) and blood gastrin ($P < 0.001$). OMP treatment of *Ostertagia*-infected animals with an existing hypergastrinaemia had no effect on feed intake, abomasal pH, blood gastrin or pepsinogen or abomasal G-cell numbers. Blood CCK concentrations were also unaffected by either *Ostertagia* infection or OMP treatment. These data suggest that: (a) the depression in feed intake associated with OMP in worm-free calves was not due to a side effect of drug treatment; (b) inappetance in *Ostertagia*-infected animals is closely associated with the parasite-induced hypergastrinaemia; and (c) the elevation in abomasal pH was a major factor responsible for the elevated blood gastrin concentrations seen in parasitised and OMP-treated animals.

Keyword: Appetite, Cattle–Nematoda, Gastrin, Omeprazole, *Ostertagia*