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CHOLECYSTOKININ AND ANOREXIA IN SHEEP WITH INTESTINAL NEMATODE INFECTION

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Gibbs et al. (1976) showed that administration of cholecystokinin (CCK) depressed the appetite of the rhesus monkey. The purpose of the present work was to determine whether anorexia, which depressed skeletal muscle and wool protein synthesis in sheep infected with Trichostrongylus colubriformis (Symons and Jones 1976), could be due to a high plasma concentration of this hormone.

In one experiment 625 x 10^3 IDU of the octapeptide of CCK (O-CCK) in 5ml of saline, or saline alone, were infused at the rate of 1 ml/min on successive days into the jugular vein of four sheep trained to eat their daily ration in 3 hr. Food consumption was measured in the first 5, 10 and 30 min after infusion. In a second experiment plasma CCK was measured before and during infection and after anthelmintic treatment of seven sheep. Blood samples were collected every two days after fasting for 18 hr and food consumption was measured over 24 hr between samples. Plasma CCK concentration was measured with a bioassay method developed from that of Johnson and McDermott (1973).

In the first and second five-minute periods after infusion of O-CCK uninfected sheep ate less than 1/3rd and 2/3rds, respectively, of that eaten after infusion of saline, and food consumption remained depressed in two of the four animals during the final 20 min. In the infected sheep mean plasma concentration of CCK rose from 200 to 362 mU/ml as consumption fell to between 0 and 9% of the pre-infection level. Both CCK levels and consumption returned to normal after the parasites were expelled.

It was concluded that a higher concentration of CCK was at least part of the explanation of anorexia in intestinal nematode infection, and that this may be relevant to inappetance in other unrelated intestinal infections.

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