Neither hippurate-negative Brachyspira pilosicoli nor Brachyspira pilosicoli type strain caused diarrhoea in early-weaned pigs by experimental infection

Fossi M, Ahlsten K, Pohjanvirta T, Anttila M, Kokkonen T, Jensen TK, Boye M, Sukura A, Pelkola K, Pelkonen S: Neither hippurate-negative Brachyspira pilosicoli nor Brachyspira pilosicoli type strain caused diarrhoea in early-weaned pigs by experimental infection. Acta vet. scand. 2005, 46, 257-267. - A hippurate-negative biovariant of Brachyspira pilosicoli (B. pilosicoli, (hipp-)) is occasionally isolated in diarrhoeic pigs in Finland, often concomitantly with hippurate-positive B. pilosicoli or Lawsonia intracellularis. We studied pathogenicity of B. pilosicoli(hipp-) with special attention paid to avoiding co-infection with other enteric pathogens. Pigs were weaned and moved to barrier facilities at the age of 11 days. At 46 days, 8 pigs were inoculated with B. pilosicoli(hipp-) strain Br1622, 8 pigs were inoculated with B. pilosicoli type strain P43/6/78 and 7 pigs were sham-inoculated. No signs of spirochaetal diarrhoea were detected; only one pig, inoculated with P43/6/78, had soft faeces from day 9 to 10 post inoculation. The pigs were necropsied between days 7 and 23 after inoculation. Live pigs were culture-negative for Brachyspira spp., but B. pilosicoli(hipp-) was reisolated from necropsy samples of two pigs. The lesions on large colons were minor and did not significantly differ between the three trial groups. In silver-stained sections, invasive spirochaetes were detected in colonic mucosae of several pigs in all groups. Fluorescent in situ hybridisation for genus Brachyspira, B. pilosicoli and strain Br1622 was negative. However, in situ detection for members of the genus Leptospira was positive for spirochaete-like bacteria in the colonic epithelium of several pigs in both infected groups as well as in the control group. L. intracellularis, Salmonella spp., Yersinia spp. and intestinal parasites were not detected. The failure of B. pilosicoli strains to cause diarrhoea is discussed with respect to infectivity of the challenge strains, absence of certain intestinal pathogens and feed and management factors.