The Incidence of Necrotizing Enterocolitis Is Increased Following Probiotic Administration to Preterm Pigs

Preterm birth and necrotizing enterocolitis (NEC) is associated with inappropriate gut colonization and immunity, which may be improved by probiotic bacteria. Using a preterm pig model of NEC, we investigated the effects of probiotics on intestinal structure, function, microbiology, and immunology in the immediate postnatal period. Just after birth, caesarean-delivered preterm pigs were inoculated with Lactobacillus paracasei, Bifidobacteria animalis, and Streptococcus thermophilus (total 2.4 x 10^{10} /d) either as live (ProLive, n = 14) or gamma-irradiated dead bacteria (ProDead, n = 12) and compared with controls (n = 14). All pigs received parenteral nutrition for 2 d followed by enteral formula feeding until tissue collection on d 5. Compared with control pigs, intestinal weight was lower and NEC incidence was higher in both groups given probiotics (64–67 vs. 14%; P...