

日粮豆粕浓度对 PRRS 攻毒断奶仔猪生长和免疫指标的影响

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本试验研究日粮中豆粕含量对仔猪猪繁殖与呼吸综合症病毒 (PRRSV) 攻毒后生长和免疫性能的影响。试验为 2×2 双因子试验设计, 包括 2 个豆粕含量 (低豆粕组和高豆粕组, 豆粕含量分别为 17.5% 和 29%), 以及攻毒或未攻毒 PRRS 组。试验共计 64 头断奶仔猪 (21 日龄, 7.14±0.54kg), 在疾病控制室单栏饲养。断奶后一周内饲喂普通日粮, 再根据性别和体重随机分为 4 个处理组, 每组 16 头仔猪 (重复)。在饲喂试验日粮 1 周后 (35 日龄), 攻毒组注射 1×10⁵ 50% 的 PRRS 组织培养液, 对照组注射无菌磷酸盐缓冲液。每周记录猪只体重和采食量, 攻毒后开始每天记录直肠温度。攻毒第 0、3、7、14 天采集血液样品, 测定血清中 PRRS 病毒量、全血细胞数量、以及结合珠蛋白和细胞介素含量。PRRSV 攻毒提高了猪只直肠温度 (P<0.01), 豆粕添加量对直肠温度无影响。PRRSV 攻毒猪只在攻毒后 14 天内采食量和增重耗料比均有显著降低 (P<0.01)。在 PRRSV 攻毒组中, 饲喂高豆粕日粮猪只有提高采食量的趋势 (P=0.06), 而未攻毒组中, 豆粕含量对猪生长性能无影响。攻毒后第 14 天, 与低豆粕组相比, 饲喂高豆粕日粮的攻毒猪只血清 PRRS 病毒量更少 (P<0.05)、红细胞压积更高 (P=0.02)、结合珠蛋白含量有提高的趋势 (P=0.09)。与低豆粕组猪只相比, 高豆粕组猪只血清珠蛋白在 PRRSV 攻毒后第 3 天有显著降低 (P<0.05), 肿瘤坏死因子-α 浓度在 PRRSV 攻毒后第 14 天有显著降低 (P<0.05)。总之, 提高日粮豆粕含量调节了 PRRSV 攻毒猪只的免疫反应, 并有改善生长性能的趋势。

Effects of dietary soybean meal concentration on growth and immune response of pigs infected with porcine reproductive and respiratory syndrome virus 1

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An experiment was conducted to determine the effects of dietary soybean meal (SBM) concentration on the growth performance and immune response of pigs infected with porcine reproductive and respiratory syndrome virus (PRRSV). Four experimental treatments included a 2 × 2 factorial arrangement of 2 dietary SBM concentrations, 17.5% (LSBM) or 29% (HSBM), and 2 levels of PRRSV infection, uninfected sham or PRRSV infected. Sixty-four weanling pigs of split sex (21 d of age, 7.14 ± 0.54 kg) were individually housed in disease containment chambers. Pigs were provided a common diet for 1 wk postweaning before being equalized for BW and sex and allotted to 4 treatment groups with 16 replicate pigs per group. Pigs were fed experimental diets for 1 wk before receiving either a sham inoculation (sterile PBS) or a 1 × 10⁵ 50% tissue culture infective dose of PRRSV at 35 d of age (0 d postinoculation, DPI). Pig BW and feed intake were recorded weekly, and rectal temperatures were measured daily beginning on 0 DPI. Blood was collected on 0, 3, 7, and 14 DPI for determination of serum PRRSV load, differential complete blood cell counts, and haptoglobin and cytokine concentrations. Infection with PRRSV increased (P < 0.01) rectal temperatures of pigs throughout the infection period, with no influence of dietary SBM concentration. Pigs in the PRRSV-infected group had lower (P < 0.01) ADFI and G:F from 0 to 14 DPI compared with uninfected pigs. In the PRRSV-infected group, pigs fed HSBM tended to have improved ADG (P = 0.06) compared with pigs fed LSBM, whereas there was no influence of SBM concentration on growth of pigs in the uninfected group. At 14 DPI, PRRSV-infected pigs fed HSBM had a lower serum PRRSV load (P < 0.05), a higher (P = 0.02) hematocrit value, and a tendency for greater hemoglobin concentration (P = 0.09) compared with pigs fed LSBM. Serum haptoglobin and tumor necrosis factor-α concentrations of PRRSV-infected pigs were lower (P < 0.05) in pigs fed HSBM at 3 and 14 DPI, respectively, than

in pigs fed LSBM. Overall, increasing the dietary SBM concentration modulated the immune response and tended to improve the growth of nursery pigs during a PRRSV infection.