Clinical utility and performance of sock sampling in weaner pig diarrhoea

Low pathogen diarrhoea is a group-level diagnosis, characterised by non-haemorrhagic diarrhoea. In the current study, the apparent prevalence of low pathogen diarrhoea outbreaks in Danish herds was investigated along with the clinical utility of a laboratory examination for intestinal disease, agreement between three consecutive herd examinations from the same herd and agreement between quantitative PCR results from pooled faecal samples and sock samples. Twenty-four veterinarians submitted faecal and sock samples for quantitative PCR testing from outbreaks of diarrhoea in nursery pigs (n=38 herds) where the farmer or veterinarian had decided that antimicrobial treatment was necessary. The veterinarians were asked to fill in a questionnaire and participate in telephone interviews. The apparent prevalence of low pathogen diarrhoea was 0.18 (95% CL: 0.08–0.34). Agreement between the veterinarians’ clinical aetiological diagnosis and the pooled faecal sample was 0.18 (95% CL: 0.08–0.34), and Cohen’s Kappa was 0.03 (95% CL: −0.08 to 0.14). Antibiotic treatment or prevention strategies were changed in 0.63 (95% CL: 0.46–0.78) of the herds, and the veterinarians indicated that, for 0.32 (95% CL: 0.18–0.50) of the herds, changes were related to the diagnostic results from the laboratory examination performed in the study. In 0.16 (95% CL: 0.05–0.36) of the herds, the same infections were demonstrated at all three consecutive examinations. No herds had three consecutive diarrhoea outbreaks classified as low pathogen diarrhoea. For the quantitative results (log10 of the summed amounts of Lawsonia intracellularis, Brachyspira pilosicoli, Escherichia coli F4 and F18) agreement between pooled faecal samples and sock samples was evaluated. Lin’s concordance correlation coefficient was 0.69 (95% CL: 0.48–0.82), and the mean difference between the two types of samples was −0.38 log10 bacteria/g faeces (SD=1.59 log10 bacteria/g faeces; 95% CI: −0.90 to 0.14 log10 bacteria/g faeces). Agreement for the dichotomised results was 0.89 (95% CI: 0.75–0.97) when test results were classified as low pathogen diarrhoea or not, and Cohen’s Kappa was 0.61 (95% CI: 0.26–0.95). In relation to detection of the individual infections, agreement was 0.63 (95% CI: 0.46–0.78), and Cohen’s Kappa was 0.53 (95% CI: 0.34–0.71). In conclusion, low pathogen diarrhoea is a common finding amongst diarrhoea outbreaks that are subjected to antibiotic batch treatment in Danish nursery pigs. Sock samples seem to offer a reliable diagnostic method with impact on clinical decisions for treatment and prevention. However, both the diarrhoea type and the aetiology change with time in the majority of herds, indicating a potential need for frequent diagnostic examinations.

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