Diagnostic performance of fecal quantitative real-time polymerase chain reaction for detection of Lawsonia intracellularis–associated proliferative enteropathy in nursery pigs - DTU Orbit (14/12/2018)

Quantitative polymerase chain reaction (qPCR) tests for detection and quantification of Lawsonia intracellularis in feces from pigs have been developed. The objective of the current study was to evaluate the diagnostic performance of a fecal qPCR test for detection of nursery pigs with L. intracellularis–associated proliferative enteropathy (PE) under field conditions. Furthermore, the diagnostic performance for different subpopulations of pigs was investigated, including pigs infected or noninfected with Porcine circovirus-2, Brachyspira pilosicoli, and Escherichia coli. The diagnostic performance was evaluated in terms of diagnostic sensitivity and specificity. Data from pigs originating from 20 herds with antibiotic treatment requiring diarrhea outbreaks from a prior study were reused. Before treatment, pigs were randomly selected for histopathological and immunohistochemical examination of intestinal segments and fecal quantification of L. intracellularis by qPCR. A total of 313 pigs (157 without diarrhea, 156 with diarrhea) were included in the statistical analysis, and 37 pigs (11.8%) were classified as PE positives (defined as proliferative histological lesions in combination with L. intracellularis demonstration by immunohistochemistry). Lawsonia intracellularis was detected by qPCR in feces from 91 pigs (29.1%). A nonparametric receiver operating characteristic (ROC) analysis provided an area under the ROC curve (0.93) and an optimal cutoff value of 4.8 log10 L. intracellularis bacteria/g feces. This cutoff provided a diagnostic sensitivity of 0.84 and diagnostic specificity of 0.93. The diagnostic sensitivity and specificity were significantly different between herds (P < 0.0001). Numerically, diagnostic sensitivity and specificity were different between subpopulations of pigs, but no significant differences were demonstrated.

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