



First report of kobuvirus detection in swine in the province of Quebec

Nantel-Fortier, N¹; Letellier, A¹; Lachapelle, V¹; L'Homme, Y¹; Brassard, J^{1, 2}*

¹ *Faculty of veterinary medicine, Université de Montréal, St-Hyacinthe, Québec, Canada*

² *Agriculture and Agri-Food Canada, Food Research and Development Centre, St-Hyacinthe, Québec, Canada*

*e-mail: julie.brassard@agr.gc.ca; fax: 1-450-768-7851

Abstract

Kobuviruses, non-enveloped and single-stranded positive RNA viruses, are members of the Picornaviridae family and were previously detected in a variety of animal species including humans. Their prevalence in swine is reported over the world, but their role as a causative agent of diarrhea in animals is still unclear. No data is available regarding the presence of kobuvirus on Quebec farms. The aim of this study was to investigate the presence of kobuvirus in swine farms belonging to a single integration system in Quebec. The association of kobuvirus infection in piglets and diarrhea was also evaluated. Rectal swabs from piglets with diarrhea (n=70) and clinically healthy (n=133) were sampled during growth at 1, 5, 12 and 20 weeks of age (n=606). Fecal samples from sows (n=85), surface swabs and composite samples from pens were also collected (n=286). Detection of kobuvirus was performed using conventional RT-PCR and sequencing was used to confirm. A total of 61 farm visits were conducted and 85% of them had at least one kobuvirus-positive sample. In nursery, 39 % of the piglets excreted kobuvirus in their feces. This prevalence increased to 72% during post-weaning and decreased to 47% and 16% at 12 and 20 weeks of age respectively. The peak of excretion was observed at 5 weeks of age (p<0.001). An increase of kobuvirus detection in environmental (p<0.0001) and surface swab samples (p<0.02) was also observed at the same period. A significant correlation was established between sows and their 1 week old piglets, when both were positive to kobuvirus (p<0.002) and vertical transmission is strongly suspected. No significant association between diarrhea and kobuvirus infection was demonstrated in this study. Future phylogenetic analysis will allow a better understanding of the route of the vertical transmission and will also assess the genetic diversity of strains in swine production systems.