

Title: Evaluation of a new etiological agent of PMWS/PDNS in conventional pigs.
NPB #06-088

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Scientific Abstract:

Porcine circovirus-associated disease (PCVAD) is considered a multifactorial disease since a variety of cofactors, including infectious agents, seem to be necessary for full expression of clinical disease. In order to investigate the role of ruminant pestiviruses in PCVAD, porcine circovirus 2-1 (PCV2-1), field strain of BVDV and a cytopathic type 1 bovine viral diarrhoea virus (BVDV) strain NADL, were inoculated intramuscularly and intranasally into cesarean-derived, colostrum-deprived pigs either alone or in combination. Most of the animals remained healthy throughout the study. Antibodies against PCV2 and cpBVDV strain NADL were first detected by 14 and 18 days, respectively. The majority of the pigs inoculated with PCV2-1 that were euthanized at 14 and 35 days post infection developed gross and microscopic lesions of classic PCVAD. Clinical signs were seen in a single animal inoculated only with PCV2-1. This pig had growth retardation over 12 days followed by acute respiratory distress leading to death 30 days post infection. We were able to reproduce PCVAD-like clinical signs (wasting, respiratory signs), gross lesions in this animal consisted of marked hydrothorax, pulmonary edema, and mild pneumonia lesions (lymphoid depletion, granulomatous inflammation, lymphohistiocytic infiltrate in kidney (with inclusions), liver, esophagus, and heart; lung with necrotizing vasculitis, marked edema, and fibrinous pleuritis; acute vasculitis and thrombosis in tubular branches of ovarian artery) with PCV2 present in the lesions. Experimental reproduction of clinical signs and lesions typical of the more virulent form of PCVAD in one of the pigs inoculated with PCV2-1 but since mortality was low it does not exclude that other co-factors (like ncpBVDV) have to be present in the inoculum to fully express the disease.

These research results were submitted in fulfillment of checkoff funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer reviewed

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